The Dictator's Dilemma: to Punish or to Assist? Plan Failures and Interventions under Stalin

Andrei Markevich

University of Warwick
a.markevich@warwick.ac.uk

PERSA Working Paper
No. 51

THE UNIVERSITY OF WARWICK

Department of Economics

Political Economy Research in Soviet Archives

Version: 20 September 2007

Available from www.warwick.ac.uk/go/persa.

The Dictator's Dilemma: to Punish or to Assist? Plan Failures and Interventions under Stalin[1]

Andrei Markevich[2]

Department of Economics, University of Warwick
(Coventry, UK)

Centre for Economical and Financial Research,
New Economic School (Moscow, Russia)

and

Interdisciplinary Centre for Studies in History,
Economy and Society (Moscow, Russia)

[1] This is a preliminary draft of work in progress. The author thanks the Hoover Institution for providing access to the primary data, and the European commission for funding his Marie Curie Fellowship and the project "Dictatorship, Hierarchies and the Stalinist Economy: The Soviet Defence Industry 1929-1953" under which this paper is written. The author is grateful to Mark Harrison for his advice and stimulating discussions. The author also thanks Francis Bloch, Paul Gregory, Geoff Renshaw and Martin Uebele for their comments. The author is responsible for remaining errors.

[2] Address for correspondence: Department of Economics, University of Warwick, Coventry CV4 7AL, UK. Email: A.Markevich@warwick.ac.uk.

This version 20 September 2007. First draft 15 March 2006.

Abstract

A dictator issues an order, but the order is not carried out. The dictator does not know whether the order failed because the agent behaved opportunistically, or because his order contained some mistake. Imperfect information creates his dilemma: whether to punish the agent, or assist her or both. This paper models the dictator's intervention when an order fails. The analysis links the dictator's coercive policy with the softness of budget constraints. The model is verified against the history of Stalin's dictatorship, using statistical evidence extracted from the formerly secret records of the Communist Party's "control commission."

The Dictator's Dilemma: to Punish or to Assist? Plan Failures and Interventions under Stalin

What are the conditions for a dictatorship to persist? The single most important condition is that, when the dictator issues an order, it is obeyed. This paper uses the data of the Soviet command economy to examine the problems and solutions that arises when a dictator's order is carried out incompletely or with some deviation from the dictator's express intention. The suggested approach has some potential to analyse relations between principals and agents in hierarchies in general, for example in the army, the family, and under some conditions the corporation. The crucial requirements are that the agent has no right to refuse to execute a command order and quit the hierarchical system, while the principal must be able to punish even when the agent's guilt is doubtful.

The Soviet command economy was an extreme expression of dictatorship applied to economic life. Command economies are built upon hierarchies, in contrast to market ones based on horizontal relations. In the former agents do not act independently but follow orders from above which they receive via hierarchical channels together with necessary resources. For those who are on the top of a hierarchy, centralized decision-making is the main advantage of such system. At the same time, their main concern is about whether their decisions and preferences are implemented accurately by whose who are at the bottom. As Ronald Wintrobe (1998, 2001) has shown, the simple accumulation of power does not solve this problem: the more power the highest officials have, the less sure they can be of the loyalty of subordinates and what the latter really think. This is the dictator's dilemma in Wintrobe's terminology. Wintrobe has analyzed the dictator's trade-off between punishment and other means of obtaining loyalty of the population in order to hold in power. The current paper investigates another aspect of the same dilemma: how the dictator chooses between punishment and assistance in order to secure implementation of his policy.

This paper brings together two literatures that were previously separate. Crime and punishment have been investigated from the perspective of principal-agent problems and criminal justice (Gorlizki 2001; Belova 2001; Belova and Gregory 2002, Gregory 2004; Gregory and Harrison, 2005; Gregory, Schroder, Sonin 2006). Assistance, which often takes form of allocation of additional resources, is analyzed

in the context of soft budget constraints (Kornai, 1980; Kornai, Maskin and Roland, 2003; Gregory and Harrison, 2005). Under particular circumstances, however, the dictator's decisions about punishment and assistance may be mutually connected. I introduce a simple game that models the dictator's choice and I verify the model against the evidence of the Stalinist command system.

The bulk of the analysis is based on decisions of the Soviet Communist Party's control commission, extracted from the former party archives. In the 1930s and 1940s the party control commission (Komissiya partiinogo kontrolya, KPK) was one of Stalin's key monitoring organizations, authorized to apply reprimands and penalties as well as to provide assistance. The database compiled by the author includes decisions of the central bureau of the KPK about cases of non-fulfillment of orders and violations of laws, such as stealing, fraud, etc., by economic agents. The database consists of two parts. One includes all decisions of the bureau for selected years (1934, 1937, 1940, 1944, 1948 and 1951), while another incorporates all KPK bureau decisions about the defense industry, treated as a proxy for high priority in Stalin's eyes, between 1934 and 1951.

The paper is organized in the following way. The first section models the dictator's dilemma of whether to punish or to assist and analyses interventions in equilibriums. The second section discusses the Soviet context of the dilemma. Using historical records it demonstrates that Stalin had to choose continually between rendering punishment and assistance to his agents. Different Soviet institutions aided Stalin to implement his choice. One of them was the party control commission; its authorization, responsibilities, and duties are studied in the third section. The fourth section utilizes the KPK database and tests the model against data, tracing changes in dictator's punishment-assistance strategies over time. The concluding section discusses possible lessons from the KPK story.

1. The dictator's dilemma to punish or to assist

There are two types of problems that a dictator (or principal, more generally) faces conducting his policies via hierarchies (Harrison 2005). Firstly, agents could act opportunistically, "shirking" or reallocating resources on their own initiative, which might harm efficiency and certainly challenges the realization of orders. Secondly, even when preferences are consistent, the problem of issuing the correct order arises

and is constrained by individuals' capabilities for information processing and decision-making. Orders may contain mistakes, revealing the dictator's preferences inaccurately, or being unrealizable, for example, providing insufficient resources for their implementation. This problem is particularly sharp in the case of multi-dimensional tasks, due to the complexity of calculations, as well as in the case of multi-level hierarchies where decision-making and the compiling of final orders involves many managers (planners). In other words, implementation depends on both the agent's efforts and the state of nature, which no order can predict completely.[3]

An unfulfilled order signals to the dictator that something is going wrong either with the project, or with the agent or both. If the dictator is still interested in implementation, he has to undertake some action to gain fulfillment in the next period. Schematically, a rational dictator has three options at his disposal. He can punish the agent on suspicion of her disloyalty, or he can assist her by revising the order to correct potential mistakes and providing additional resources, or both. In addition, if the costs of intervention are too high, the dictator can sacrifice the order.

So, in addition to costs of interventions, the choice of a rational dictator depends on his answering two questions: whether the agent has done her best to fulfill the order and reach the highest outcomes; and whether the order is correctly designed and free of mistakes, i.e. it depends on his estimate of what is going wrong.[4] In general, the questions are mutually independent, and consequently the dictator's decisions on punishment and assistance should be as well. The problem, however, is that even if the dictator is smart enough to ask these questions, he may be unable to answer them. The dictator unknowingly issues orders containing mistakes and has no precise information about agents' loyalty. As a result he is often unaware of the true quality of orders and agents' efforts. Imperfection of information at the dictator's disposal about the reasons for failures creates his dilemma.

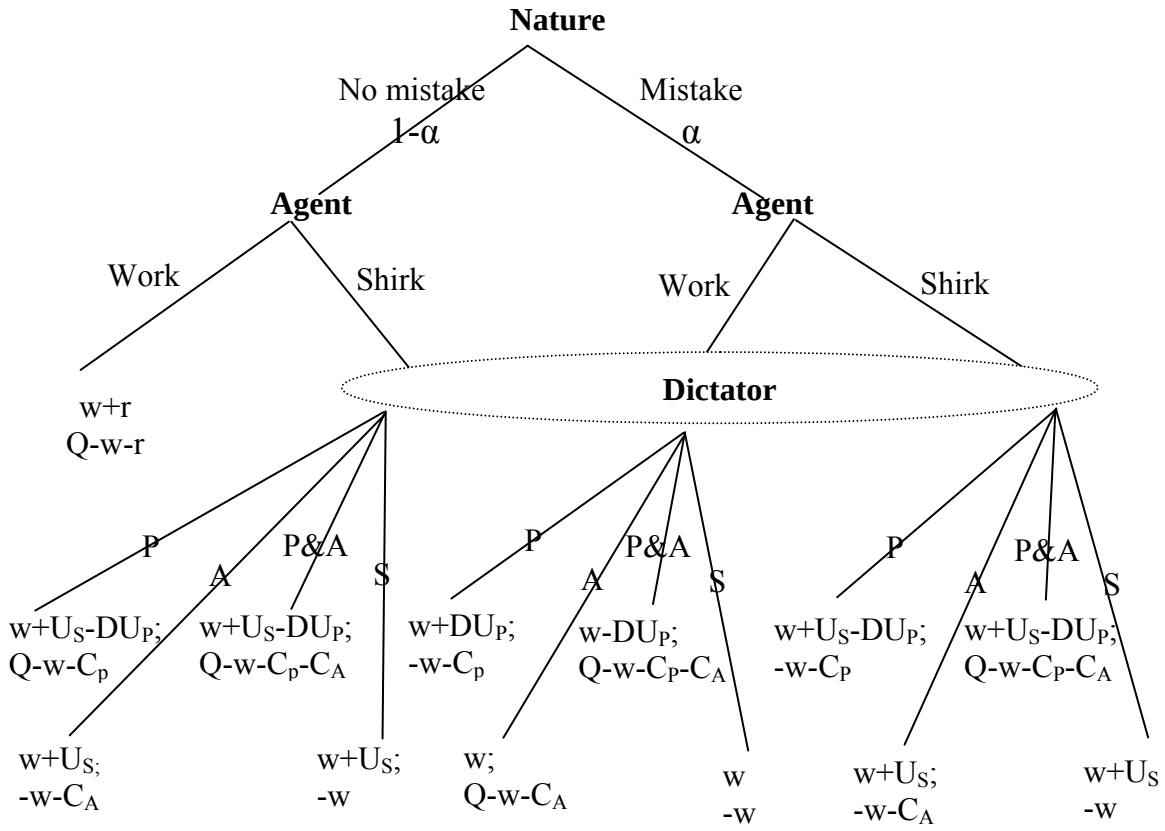
Figure 1 represents the dictator's dilemma regarding a particular command in the form of a simple dynamic game with imperfect information. The game consists of three moves: the issuing of an order, its implementation by the agent, and dictator's

[3] Therefore, below I do not consider another important related problem, the problem of the order that the agent fulfilled *because* it was badly designed, with which the dictator is mistakenly satisfied – for example, an order that was insufficiently ambitious.

[4] Answers on both questions cannot be positive, because then the order would be fulfilled.

interventions if necessary. Given that the dictator does not fully control an absence of mistakes in his commands, the first move is treated as a move by nature. However, the agent is able to evaluate correctly whether the issued order is free of mistake and consequently is realizable in principle, because she knows local condition much better than the dictator.[5] So the agent knows nature's move, choosing her actions, but not the dictator.

Figure 1. The dictator's dilemma.



α – probability of mistake in an order (poor planning)
A – Assistance; P – Punishment; S – sacrifice the initial order;
w – basic wage; r – bonus for order fulfilment;
U_S – agent's utility from shirking; DU_P – agent's disutility from punishment;
Q – Outcome; C_P – cost of punishment; C_A – cost of assistance.

[5] One can model the game where the agent does not observe the quality of the order as well. However, equilibriums in such game are very complicated (in mixed strategies in general) and depend heavily on the meanings of the parameters. As long as the costs of each tool of interventions are cheaper than the expected return on their implementation, both should be present somewhere in the dictator's equilibrium strategy. Available empirical measures of the parameters are rather crude, and this would make it difficult to verify such a model. Finally, in the Soviet case it is plausible that agents could normally evaluate the feasibility of orders due to the huge asymmetry in information.

For simplicity and without loss of generality I assume that nature, the agent, and the dictator have only a binary choice of behavior. The order can be either poorly formulated or be free of mistakes; the agent can either shirk or work hard; the dictator can either use a particular tool of intervention or not apply it at all. I abstract here from the size of mistakes, the magnitude of the agent's effort, the level of punishment and generosity of assistance which are continuous variables in reality. I assume that the size of mistake fixes the magnitude of necessary assistance and the level of disloyalty fixes the weight of sufficient punishment. Finally, I assume that the order is either implemented or not and cannot be fulfilled in part.

The dictator pays to the agent a basic wage, *w,* and a bonus, *r*, if the order has been fulfilled without interventions. Alternatively, the agent can obtain utility, U_S,[6] by shirking but at the cost of risk of disutility, DU_P, if the dictator applies punishment. For simplicity the agent, as well as the dictator, is assumed to be risk neutral. The dictator's payoff depends on fulfilment of the order, his payments to the agent, and costs of his interventions. Once the order fails the dictator can always secure its implementation by applying punishment and assistance simultaneously. But such a strategy could be non optimal since both punishment and assistance are costly. It is easy to see that there are strictly dominated strategies in the game which could be eliminated. Once the rational agent observes that there are mistakes in the order, his best choice is to cheat as efforts are strictly dominated by shirking (it is assumed that agent's utility of shirking is positive, $U_S>0$). Knowing that, the dictator never plays the strategy of "assistance-only" because this strategy is dominated by the decision to sacrifice the initial project.

Under some assumptions further eliminations are possible that lead to a unique equilibrium in pure strategies in the game. The crucial assumption for this is that the project has a level of priority high enough that the expected outcome of its implementation is equal or greater than the costs of simultaneous application of punishment and assistance, $Q - C_P - C_A \geq 0$ (it is assumed that cost of punishment and cost of assistance taken separately are always less than the expected outcome $Q - C_P > 0; Q - C_A > 0$). Then cancellation of the initial project is weakly (strictly in the case of inequity) dominated by simultaneous use of punishment and assistance for

[6] It is assumed that potential utility from shirking is higher than the bonus from working, $r < U_S$. Otherwise, the agent never shirks once the order is feasible.

the dictator. Finally, if the dictator is smart enough to create an efficient system of incentives (generous bonuses and strict punishment for misbehaviour), such that the premium for the agent's efforts that would lead to fulfilment of the order is higher than agent's utility of shirking minus disutility of punishment $(r > U_S - DU_P)$, on observing that the order could be fulfilled in principle the agent will never play "shirk," because shirking for her is strictly dominated by working hard. Knowing that and observing an unfulfilled order, the dictator always chooses the strategy of simultaneous use of punishment and assistance since a failed project means problems with both the agent and the order. Implementation of the order is always the result of such a game, but it is nature that determines the particular type of implementation. If the order is correct from the very beginning, it will be fulfilled by the agent immediately, or otherwise only after the dictator's intervention. In some sense, in the case of a high-priority order there is no dilemma for the dictator at all, as "punish-plus-assist" is always his best choice. The agent's payoff in such a game is $w + (1-\alpha)r + \alpha(U_S - DU_P)$ and the dictator's payoff is $Q - w - (1-\alpha)r - \alpha(C_A + C_P)$.

However, if "punish-plus-assist" is too expensive for the dictator $(Q - C_P - C_A < 0)$, i.e. the order has relatively low priority, then this strategy is strictly dominated by the dictator's abandoning the order. In this case the Subgame-Perfect Nash equilibrium of the game exists only in mixed strategies, namely the agent shirks with probability $\beta = (\alpha/(1-\alpha))(C_P/(Q - C_P))$ and works with probability $1-\beta$, once she receives an order free of mistakes; on detecting an infeasible order she always shirks; the dictator plays "punishment-only" with probability $\gamma = (U_S - r)/DU_P$ and "abandon-the-order" with probability $1-\gamma$[7] (Appendix A.1 gives the proof).

[7] It is easy to check that $0 < \beta < 1$ given $Q - C_P > 0$ (by assumption) and $\alpha < (Q - C_P)/Q$. The latter requires the quality of planning to be above a certain minimum level. If planning quality is sufficiently low, the agent will always shirk once the dictator never plays "punish" because it does not offset the costs of its application. This case has little interest, however, since such a poorly-skilled dictator cannot secure implementation of any of his orders and will not remain in office for

In other words, if it is too expensive for the dictator to use punishment and assistance simultaneously and he knows that the failure may be due to planning mistakes, he has to sacrifice some projects; there is no point punishing the agent because punishment without assistance is not a sufficient intervention to secure implementation of a project with initial mistakes, and wastes the dictator's resources. Knowing that, the agent in turn will try to gain some additional gain by shirking with some positive probability. The probability of shirking increases with lower average quality of planning or with higher costs of punishment. Finally, the dictator may punish the agent randomly in order to deter her from opportunistic behaviour. The frequency of punishment will be low if the gain from shirking is relatively low for the agent or her disutility from (strict) punishment is sufficiently high. The agent's payoff in such an equilibrium is $w + r$, and the dictator's is $(Q - r)(1 - \alpha Q/(Q - C_P)) - w$.

The disadvantage of this equilibrium for the dictator is obvious: many of his projects remain unfulfilled, specifically (a) all projects with initial mistakes, since he never provides assistance, and (b) some potentially executable orders, which he mistakenly abandons. The dictator's question is whether he could find a better strategy than the mixed strategy of "punishment-neglect" and so secure fulfilment of more projects of low priority. The answer is "yes" under some further conditions.

The dictator's main difficulty is that to achieve the implementation of orders that carry initial mistakes, he has to punish and assist simultaneously, but in cases of secondary projects he does not have enough resources to play this strategy. To resolve this problem he has to economise on his interventions in some way, either on assistance or on punishment. Suppose that the dictator is in fact able to regulate the force of his interventions and so increase or decrease their power. There is no point in cutting assistance because insufficient assistance means that some mistakes will persist and the order will remain unfeasible; but he could try to economise on punishment.

For simplicity, suppose that the dictator has two types of punishment at his disposal, weak and strong, that are more and less costly. We will think of them as threatened and actual punishment, symbolically *P_threat* and *P_actual*. Weak punishment produces a loss for the agent that is absolutely less than her gain from

---

any significant period. $0 < \gamma < 1$ is always true, since we assume that $DU_P > 0$, $U_S - r > 0$ and $U_S < DU_P + r$.

shirking; in contrast the disutility arising from strong punishment exceeds her gain from shirking, so $DU_{P\_Threat} < U_S - r$; $DU_{P\_Actual} > U_S - r$. What is the effect on the dictator's costs and benefits when these are combined with assistance? When strong punishment is combined with assistance the total cost of intervention exceeds the dictator's potential gain from implementation of the project, but not when it is replaced by weak punishment ($Q - w - C_A - C_{P\_Actual} < -w$; $Q - w - C_A - C_{P\_Threat} > -w$). In other words, the strategy of simultaneous "weak punishment-plus-assistance" is available even when the dictator's resources are limited, so he could put this in place of the strategy "abandon the project."

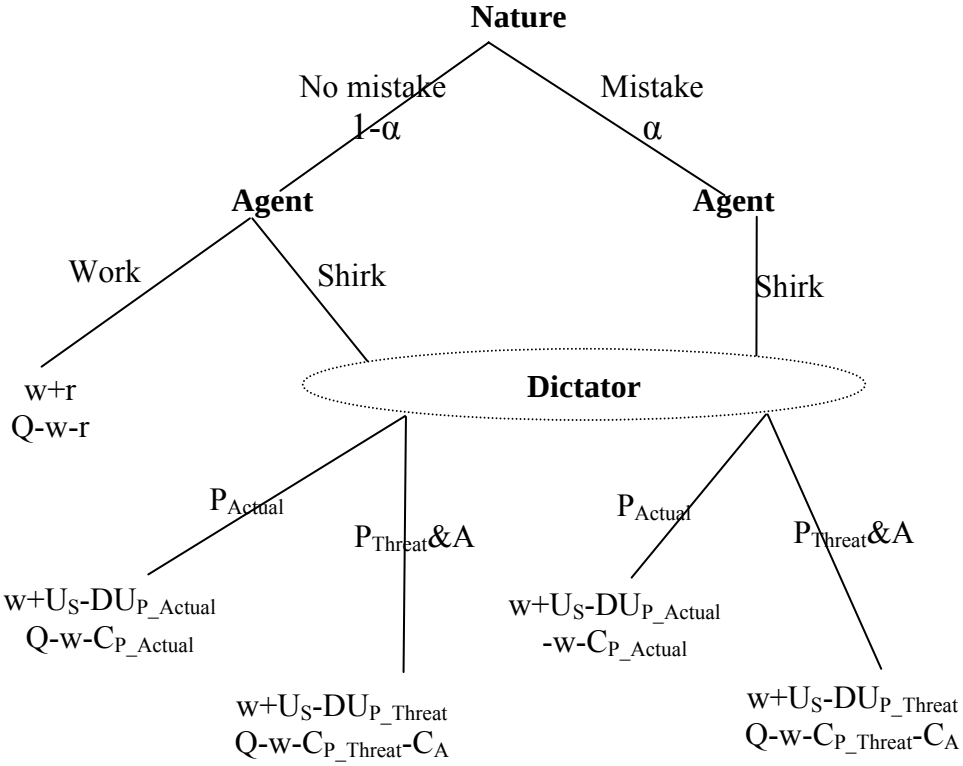
A problem remains in our assumption that weak punishment cannot force the agent to switch from shirking to working. The strategy of "weak punishment-plus-assistance" can secure implementation of the project, only under an additional requirement: that the dictator can supplement it with a credible threat to apply strong punishment if the agent persists in shirking. For the success of this strategy, the credible threat is more important than the weak punishment itself; but what makes the threat credible?

The provision of assistance can make the threat credible. By assisting the agent up to a point the dictator can assure himself that his order no longer incorporates mistakes and commit himself to play "strong punishment" if the order remains unfulfilled; knowing that, the agent stops shirking. But threat on its own, without assistance, is not credible any more and does not stop the agent shirking; although weak punishment is cheaper, the dictator cannot replace "strong-punishment-only" by "weak-punishment-only."[8]

Figure 2 presents a modified version of the game where, on detecting plan failure, the dictator chooses between strategies "strong-punishment-only" and "assistance-plus-threat (weak punishment)". The agent, on observing a feasible order, selects as before between working and shirking, and remains inactive otherwise.

[8] Moreover, if, on being threatened, the agent were to stop shirking and to fulfil the order without receiving any assistance, it would be proof that the order was feasible from the beginning; the agent was the blame for the initial failure. This could motivate the dictator to apply strict punishment after the event.

Figure 2. Dictator's dilemma (continued).



α – probability of mistake in an order; A – Assistance; P – Punishment;
w – basic wage; r – bonus for order fulfilment;
U_S – utility of shirking; DU_P – disutility of punishment;
Q – Outcome; C_A – cost of assistance; C_{P_Threat} – cost of threat;
$C_{P\ Actual}$ – cost of actual punishment.

In this version of the game, as long as actual punishment is cheaper than "assistance-plus-threat" $(C_{P\_Actual} < C_{P\_Threat} + C_A)$, the equilibrium is similar to the equilibrium in mixed strategies from the previous version.[9] The only difference is that the dictator mixes his punitive strategy not with "abandon-the-order" but with "threat-plus-assistance." In such a game the Subgame-Perfect Nash equilibrium occurs when the agent plays "shirk" with probability

[9] It is easy to see that if actual punishment is more expensive than the combination of threat and assistance, then the dictator plays always "threat-plus-assistance", as it dominates the strategy "actual punishment". Knowing that, the agent always shirks and starts to work only after receiving additional resources with a warning in the form of threat. This case is of little interest, however. If actual punishment is so expensive, the dictator will provide a lot of resources (assistance) from the very beginning in order not to waste time and there will be no dilemma at all, since he would know that all orders are feasible.

$\beta = (\alpha/(1-\alpha))(Q + C_{P\_Actual} - C_{P\_Threat} - C_A)/(C_{P\_Threat} + C_A - C_{P\_Actual})$ and "work" with probability $1-\beta$; the dictator plays actual punishment with probability $\gamma = (U_S - DU_{P\_Thresat} - r)/(DU_{P\_Actuaal} - DU_{P\_Threat})$ and "threat-plus-assistance" with probability $1-\gamma$ [10] (Appendix A.2 gives the proof). Actual punishment allows the dictator to restrain the agent from shirking, while "threat-plus-assistance" lets him correct his planning mistakes. However, once the dictator applies actual punishment less than always, the agent does not have enough incentives to produce effort each time she observes a feasible order. The agent's payoff in such an equilibrium is $w + r$ and the dictator's payoff is $Q - w - r(1 - \alpha Q/(C_{P\_Threat} + C_A - C_{P\_Actual})) - \alpha Q(C_{P\_Threat} + C_A)/(C_{P\_Threat} + C_A - C_{P\_Actual})$, which is more he gets in the game where he abandons some projects.[11]

Up to now, I have dealt with a one-stage game; however, in practice interaction between the dictator and the agent is repeated indefinitely. Moreover many agents will play the same game with one dictator.

---

[10] As in the previous version of the game there is a requirement for quality of planning, $\alpha < (C_{P\_Threat} + C_A - C_{P\_Actual})/Q$ (otherwise the agent always shirks and the dictator could hardly do anything with it). Together with our assumptions $Q - C_A - C_{P\_Threat} > 0$ and $C_{P\_Actual} < C_{P\_Threat} + C_A$, this requirement is sufficient for $0 < \beta < 1$.

$0 < \gamma < 1$ is always true as long as we assume that $DU_{P\_Threat} < U_S - r$ and $DU_{P\_Actual} > U_S - r$.

[11] This equilibrium in mixed strategies is the equilibrium for the game with priority orders as well if we provide the dictator with the strategy "threat-plus-assistance". In the stage game with priority orders the dictator's promise to play "actual punishment-plus-assistance" once he observes an unfulfilled order while still feasible is non-credible anymore, because the strategy "threat-plus-assistance" secures the orders implementation as well but is cheaper for the dictator. However, if the dictator is able to commit himself to play the former and if orders have high enough value (priority), he will be better off once the agent learns his ability to commit. There exists such Q $(Q > (C_A + C_{P\_Actual} - r)(C_{P\_Threat} + C_A - C_{P\_Threat})/(C_A + C_{P\_Threat} - r))$ that the dictator's expected payoff from the former strategy, $(Q-r)(1-\alpha Q/(Q-C_P)) - w$, is greater than from the latter one, $Q - w - r(1 - \alpha Q/(C_{P\_Threat} + C_A - C_{P\_Actual})) - \alpha Q(C_{P\_Threat} + C_A)/(C_{P\_Threat} + C_A - C_{P\_Actual})$. So under the commitment assumption, we can still use the first game from the main body of the text, as a simpler one, to model the case of priority orders, since this does not affect results.

For the infinitely repeated game it can be shown that if the agent and the dictator do not much discount the future (i.e. their discount factor is sufficiently close to one), then the number of equilibria increases substantially compared with the stage game. According to the folk theorem (Friedman 1971), for any feasible pair of dictator's and agent's payoffs from the stage game that makes them both better off than in the stage game equilibrium, there exists a sub-game perfect Nash equilibrium of the infinitely repeated game with this pair of payoffs as the average payoffs. In other words, some cooperation between the players could be achieved when *both* the agent shirks less often than in the stage game equilibrium, to the benefit of the dictator, *and* the dictator decreases the frequency of punishment so as to offset the agent's losses from not shirking. The threat to shift to the stage game equilibrium forever, once one of the players cheats, allows such pairs of strategies to be the sustained equilibrium.

In particular, if the agent's disutility from penalty exceeds her utility from shirking, in the infinitely repeated game with high-priority orders, complete cooperation is possible: the agent always works, regardless of the quality of plans, and the dictator always assists, once he observes a plan failure.[12] Both are better off in this equilibrium than in the stage game; however, such an equilibrium is unstable if there are many agents in the game. If the dictator is not to deviate, the proportion of failures must not exceed the probability α of issuing a mistaken order, and all orders are implemented once assistance has been rendered. This demands cooperation between agents, which is difficult. Each agent cannot commit herself not to shirk, if she suspects others of free-riding intentions. Once any agent shirks when the order is feasible, the dictator switches forever to the strategy "punish-plus-assist."

In the infinitely repeated game with non-priority orders, a similar pair of strategies can be the equilibrium under three conditions (a) the players do not discount future too extensively (b) the agent works with higher frequency than in the stage game equilibrium when the order is feasible ($\beta \in (0, \alpha/(1-\alpha))(Q+C_{P\_Actual}-C_{P\_Threat}-C_A)/(C_{P\_Threat}+C_A-C_{P\_Actual})$), but still invariably

[12] There exist a number of similar equilibria when the agent works each time she gets a feasible order, and shirks with probability not greater than $(Q - C_P)/Q$ otherwise; the dictator mixes "punish-only" with "punish-plus-assist" so as to offset the agent's losses.

shirks on receiving an order with mistakes[13] (c) the dictator adjusts his actions appropriately, and so decreases the frequency of actual punishment to offset the agent's losses from non-shirking. Moreover, players can influence the choice of equilibrium if they are ready to pay more than necessary in the current period for fruits in the future. Thus, the agent can reduce shirking and so get the reputation of a reliable partner; this eventually stimulates the dictator to punish less frequently. In his turn, the dictator can penalize with high frequency and so earn the reputation of a severe ruler; this should bring him some corresponding subsequent gains.

When there are many agents, it is a problem for them to coordinate their efforts. But this is not a problem for the dictator, and could be desirable for him if his preferences over the implementation of orders vary through time. His preferences are likely to differ between wartime and peacetime, for example; in anticipation of war, the dictator may choose to sacrifice some current profit for the sake of agents' efforts during the conflict.

In summary, our model predicts that under uncertainty the dictator never plays the strategies "threat-only", i.e. without assistance", or "assist-only," i.e. without threat or punishment, but will normally combine his actions. He chooses the strategy "actually-punish-plus-assist" to priority orders, and mixes the strategies "actually-punish" and "threaten-plus-assist" otherwise. The proportion of the mix can vary over time. This does not discount the importance of acquiring additional information for the dictator. A rational dictator should seek additional information about the agent's efforts at a reasonable cost, since better information makes him better off than any of the strategies described above. The only problem is that information is often too costly or entirely unavailable.

2. The dictator's dilemma in the Soviet context

Ludwig von Mises (1920, reprinted 1935) and Friedrich von Hayek (1944) long ago theorized about information problems in non-market economies; and recent research in the former Soviet state and party archives has verified their conclusions (Rees 1997, Gregory 2004). Despite having dictatorial powers, Stalin did not enjoy the

[13] When the order has mistakes, the agent's work does not make the dictator better off. So the agent cannot hope that the dictator will decrease the frequency of punishment if she works harder on observing an unfeasible order.

unreserved loyalty of his satraps, nor did he become perfectly informed. His agents tried to cheat at the first opportunity, and Stalin knew that he could not trust them unconditionally. He continually feared the subversion of his directives and hostility to his rule (Harris 2003). Moreover, this problem penetrated the whole Soviet system, coloring all relations between subordinators and superiors at each level of the Soviet hierarchy (Gregory and Markevich 2002). Neither Stalin nor his generals although dictators in their princedoms of the Soviet nested dictatorship, as Lazarev and Gregory (2002) have defined it, escaped the dictator's dilemma.

Stalin compensated for low trust by developing separate systems of monitoring and gathering information. Producer units were separated from functional ones, the role of the latter being to advise the dictator, transform his decisions into detailed orders and monitor their implementation (Gregory 1990, Belova and Gregory 2002). This division with some variations was reproduced at each level of the Soviet governmental hierarchy (Gregory and Markevich 2002). It showed itself sufficient to provide superiors with considerable information about economic developments despite well-known biases and distortions. In general the dictator knew the results which the system demonstrated, and similarly other principals were informed about the outcomes of their units. The problem, however, was what to do with unfulfilled orders, as it was often hard to judge confidently agents' intentions and actions or the correctness of orders.

Stalin himself understood the imperfection of the Soviet planning system. As early as in 1930 he proclaimed that drafting of a plan is only the beginning of planning and no plan could take into account all future states of the world (Stalin 1930, reprinted 1955). At that time he meant to promote the raising of plan targets, but subsequently he often acted in the reverse direction despite numerous public statements about the firmness of Soviet plans (Gregory 2004). Citing Stalin's 1937 speech at a plenum of the party Central Committee in 1939, Stalin's deputy Malenkov proclaimed that it was necessary to check both the implementation and the correctness of directives (Hoover/RGASPI 17/2/649 f. 139-140, 145). Holland Hunter and Janusz Szyrmer (1992) argued that Stalin consciously overstrained plans in order to maximize output, while realizing that they would not be fulfilled completely. The same practice could be found in the behavior of other officials. This gap between principals' ex-ante claims and ex-post actions is a key characteristic of soft budget constraints (Kornai et al. 2003).

For all these reasons, the responses of Soviet officials to non-fulfillment of orders varied between punishment and assistance. Moreover, these reactions were often different under similar circumstances. Consider the following examples. It is well known that Stalin paid special attention to the aircraft industry and received daily reports of airplane production from the late 1930s (for example, RGASPI 558/11/151 f. 42). According to armament minister Vannikov, he "demanded explanations and adopted measures in every instance of a deviation from the target" (cited by Simonov 1996). His reaction varied from the provision of additional resources to severe punishment. In 1940 when the aircraft industry failed to fulfill an order to raise both the output and quality of airplanes, the Politburo took several measures to allocate additional resources to the ministry of aircraft industry to resolve the problem (RGASPI 17/162/29 f. 43). In contrast, in 1946 when the production of defective airplanes was uncovered, Stalin imprisoned the minister of the aircraft industry, who had held office since early 1940, and other officials (Khlevnuk et al. 2002, pp. 204-206**)**. It is easy to find plenty of examples of Politburo decisions to fire regional party leaders for poor harvests, decrees to assist regions in agricultural difficulties, and decrees that combined both (see, for instance, Denisov et al. 2004, pp. 92–100, 106–108, 129–132, 133). Ordzhonikidze, Stalin's leading official in industry, proclaimed in 1932 that he "could give ferrous metallurgy whatever it asked" to assist the fulfillment the plan (RGAE 7297/38/10 f.10). Such generosity demonstrated by Ordzhonikidze in this story did not prevent him from firing and reprimanding managers when they failed to implement the plan at other times. This list of examples could be easily continued.

It appears that decisions on punishment and assistance were only partly systematic and well founded and were often based on imperfect information. The dictator often could not judge the efficiency of resource allocation (Lazarev and Gregory 2003). The reasons for non-fulfillment of orders could be unclear even for investigators, and Soviet officials of all ranks often had to make their decisions under uncertainty.[14] Moreover, the number of investigators was often insufficient and poorly educated for the aims of monitoring. Since the number of investigators was fixed in

[14] In 1936, for example, an investigator explicitly acknowledged that there was no direct evidence of the guilt of an agent charged with giving a bribe. Despite this, the agent was imprisoned on circumstantial evidence on the decision of prime-minister Molotov (GARF 8418/11/283 f. 2, 4-8).

the short run, the wider their duties ranged, the less time each had per investigation (GARF 8418/12/402, f. 130; GARF 7511/1/153 f. 4; Gorlizki 1999 p. 1257), and the poorer was the quality of investigation in consequence. In turn this increased the margin of uncertainty under which the final decision had to be made.

Another problem with the choice over punishment and assistance was that, when informed of cases of non-fulfilled orders, Stalin and principals at lower levels had scarce time to evaluate and respond to them. The "dictator's curse" in a command economy is that superiors are overloaded with work and responsibilities as underlings minimize their risks by continuously requesting further instructions (Gregory 2004; also for example Hoover/RGANI 6/1/57 f. 13). This necessitated a mechanism to screen cases of non-fulfilled orders, filtering out trivial issues and passing up to the Dictator only the most complicated and important problems. Such mechanisms existed in the Soviet command economy. Many Soviet organs were authorized by law both to monitor implementation of orders and take some actions in their own names to resolve problems. Stalin formulated the principle that the Soviet audit system should aim not only to monitor but also resolve initial problems as early 1920 (Stalin 1920, reprinted in 1952); it was reproduced subsequently in numerous official instructions, decrees, and speeches (see for example, GARF 7511/1/77 f. 3; GARF 8300/2/749 f. 198; GARF 8418/12/402 f. 131; Hoover/RGANI 6/1/12 f. 7; GARF 8300/1/901 f. 231; also Ikonnikov 1971).

As a result the system of Soviet monitoring and audit as a whole was very complicated. Virtually every producer had its own monitoring unit (in ministries and chief administrations, for example, departments of implementation or sections of inspectors); at the top, the dictator enjoyed the assistance of entire hierarchies of audit organizations. In principle each monitoring agency had its defined sphere of responsibility and list of authorized actions, but overlaps were common (for detail see Markevich 2007).

The best solution to the investigation of Stalin's solution of the dictator's dilemma would be, of course, to analyze directly the choice he made under varying circumstances. Unfortunately, the evidence could be only anecdotal. While Stalin chose between punishment and assistance almost infinitely often, the former Soviet archives do not provide us with a defined set of cases that the dictator resolved personally. Stalin's decisions were legalized by a variety of Soviet and party organs; many were taken informally. As a result a reconstructed set cannot be guaranteed free

of bias. Fortunately, we have systematic archives of Stalin's audit organizations. They recorded their decisions carefully, and we can be assured of the completeness of the set of records to be analyzed. At the same time we can expect that they reveal the dictator's preferences since they worked under the dictator's close supervision. I apply this "second best" approach to the dictator's dilemma below, using the case of the party control commission.

3. The Party Control Commission

The supervision of the Communist Party was an important aspect of Soviet governance. The party hierarchy duplicated that of the state: branch departments of the Central Committee at the top, regional secretaries and similar departments of local committees in the middle and party secretaries of production units at the bottom. These guided, monitored and controlled the activities of the Soviet production units. In addition special party organs that concentrated exclusively on checking the implementation of orders existed, under different names, during the whole period of Soviet history. The main reason for dual party control was that the dictator feared that, as a result of daily cooperation, local party organizations would coalesce with production units and would cease to represent his interests any more (Hoover/RGANI 6/6/6 f. 12). In this sense, the party control organs were most trusted by the dictator; they had to monitor both the work of production units and the behavior of local party units. Over the largest part of Stalin's rule, between 1934 and 1952, they were known as the party control commission (KPK).[15]

Throughout its history the KPK was in close touch with the dictator and his closest supporters, who organized and supervised its work. The commission appeared as a result of reorganization initiated by Stalin himself (Rees 1987, Getty 1997). The dictator initiated or approved all significant shifts in KPK responsibilities (for example, Hoover/RGANII 6/1/73 f. 113). Stalin's closest supporters such as Lazar Kaganovich, Nikolai Ezhov, and Andrei Andreev chaired the KPK. In its daily work the KPK was subordinated to the party Central Committee and its powerful secretariat (Hoover/RGANI 6/6/1 f.3; 6/6/1009 f.11). As a KPK official proclaimed in 1937, "we

[15] The KPK was created by splitting off the joint party Central Control Commission and State Inspection of Workers and Peasants, TsKK-RKI which existed until 1934. After 1952 the party control commission was replaced by the party control committee, which in its turn was reorganised in 1961. This was not the last such reorganisation.

are a one-hundred-percent organ of the Central Committee of the Communist Party" (Hoover/RGANI 6/1/72 f. 148). The committee appointed top KPK officials and defined its current tasks (Hoover/RGASPI 59/2/1 f. 92). In the 1930s the KPK reported directly to Stalin, and after the war to his party deputy Georgii Malenkov; all KPK decisions had to be affirmed by the party Central Committee (Hoover/RGANI 6/6/42 f. 21) or by Stalin personally (for example, Hoover/RGANI 6/1/32 f. 112-113). At times the KPK had to modify its decisions on receiving directives from the centre (Hoover/RGANI 6/6/1 f. 22). In other words, there was no significant gap in the interaction between dictator and KPK, contrary to relations with other audit organs such prosecutors and judges (Solomon 1991, Gorlizki 1999).

Responsibilities of the KPK were defined broadly: "to control the implementation of decisions of the Central Committee of the Communist party by party and state organizations" and "to penalize those party members who violated the party policy, party law, or party discipline" (Hoover/RGANI 6/1/1 f. 7; 6/6/1 f. 2).[16] The KPK structure was organized around these two tasks with the KPK bureau at the top. While the non-implementation of party orders could be hard to distinguish from party members' personal offenses against the party, KPK inspectors and regional plenipotentiaries were largely responsible for examining implementation, while and central and local KPK party collegiums (partkollegii*)* were primarily focused on personal offenses. The limitation of KPK jurisdiction to party members was effective only in the case of personal offenses, since the party was required to take the leading role in every legally recognized organization.

The KPK had wide authority to carry out its own duties. Arguing for the establishment of the KPK at the XVII party congress Stalin stressed the need for an organization that would penalize wrongdoers regardless of their rank (Hoover/RGASPI 59/2/1 f. 92). The task of the KPK was not only to penalize particular officials, once their wrongdoing was discovered, "but mainly to eliminate defects" (Hoover/ RGANI 6/1/12 f. 7). Thus, for the KPK practical assistance was as important as punishment. As it was formulated in one of the first reports of KPK plenipotentiaries: "we considered putting sharp questions and operative interventions

[16] According to the second KPK charter (1939) there was also a third task, "to check the work of local party organisations," but, as stated in the KPK report to the XIX party congress in 1952, "the monitoring of local party organisations was almost never achieved by the KPK because of the small KPK apparatus" (Hoover/RGANI 6/6/1 f. 2-3).

into implementation of those tasks which needed to be corrected as the main task of our work" (Hoover/RGANI 6/1/4 f. 22). In other words, the main task of the KPK was to resolve problems in the spheres under its purview, using either punishment or assistance as tools of interventions.

The KPK disposed of a wide range of punishments, from warnings and reprimands to expulsion from the party and handover to the courts. While some types of KPK punishment were relatively weak, all were significant. Expulsion from the party was the severe party penalty; it ended the party member's career and could be the prelude to a court sentence including prison or execution. There was a scale of party reprimands that also damaged and impeded managers' career development. On receiving a reprimand Soviet officials often appealed to the KPK to lift it after an interval; rank-and-file workers and collective farmers who were party members, in contrast, were usually indifferent to party reprimands and even exclusion from the party and did not appeal to the KPK (Hoover/RGANI 6/6/1077 f.3). Moreover, KPK warnings were also significant, although they did not cause immediate visible damage to an agent. The early studies on Soviet industrial organization by David Granick (1954) and Joseph Berliner (1957) showed how it was important for the well-being of Soviet managers not to attract the adverse attention of monitoring organs. A KPK threat was often sufficient to force an agent to make additional efforts (for example, Hoover/RGANI 6/2/251 f. 104). In some sense a threat was simply "postponed" punishment: it increased the probability that punishment would be severe if the case were reopened (for example, Hoover/RGANI 6/2/260 f.181-182; 6/2/261 f. 25; 6/2/252 f. 186).[17]

Finally, in addition to its own penalties KPK officials could pass the results of their investigations directly to the offices of public prosecutors, the Ministry of Internal Affairs, or the courts; further punishment followed inevitably and was usually

[17] KPK archives provide also examples when agents could still hope to escape punishment and receive nothing more than a second threat when their case was reopened (see for example, Hoover/RGANI 6/2/37 f. 18-19; 6/2/253 f.191). This, of course, weakens the interpretation of significance of threat, but does not destroy it. What is crucial is that the KPK collected all signals and complaints on behavior of party officials and from at least the late 1930s organized them in the form of a database (Hoover/RGANI 6/1/57 f. 5). Exceptions reported above prove that the mechanism was not perfect, but not more.

more severe than in the KPK trial.[18] In passing on these materials, the KPK sometimes prescribed the "desirable" punishment that their correspondents should apply to the defaulters. In summary, as an official of the Ministry of State Control (the state analogue of party control) proclaimed, agents feared investigation by the central control organs (GARF 8300/2/260 f. 103).

While the KPK did not itself hold a budget, its authority to provide material assistance was also substantial. The KPK had the right "to give operative orders to corresponding party and state organizations" (Hoover/RGANI 6/1/1 f. 8). In practice it meant that the KPK could intervene in the production process and reallocate resources in favor of the agent under monitoring. For example, the KPK could propose that the higher-level budget-holder should allocate additional resources to the agent, as well as order a low-level budget-holder to allocate additional resources directly. Thus, in March 1934 the KPK suggested the chief administration for the chemical industry should reallocate 200 tons of sulphur in favor of the Chernorechenskii plant (Hoover/RGANI 6/1/92 f. 27) and that the ministry of transport should upgrade the status of the plant "Mozherez" in the wage list (Hoover/RGANI 6/1/92 f. 34-35). In July 1944 the KPK requested the Kalininskii party committee to supply local building materials and laborers to local construction projects whose progress the KPK had inspected (Hoover/RGANI 6/2/253 f. 168-169) etc.

If the KPK considered that new resources had to be allocated and lacked the authority to do so in its own name, it could appeal to the government and the Politburo, and so bring about an additional allocation indirectly. For example, in August 1934 the KPK asked the party Central Committee to intervene in the problems of the plastic industry (Hoover/RGANI 6/1/92 f. 218). Similarly in January 1937 the KPK submitted a plan to the government to improve taxicab services in the largest three Soviet cities (Hoover/RGANI 6/1/95 f. 3). Sometimes the KPK appealed to the government not for material recourses, but for administrative support, as in the case of an investigation of the construction of plant no. 98 of the Ministry of Ammunition in

[18] The link between the KPK and the soviet system of justice worked also in the opposite direction when the party reprimand was applied after the decision of punishment taken by another state or party organ like the NKVD or the Soviet court; for example, exclusion from the party after imprisonment. The later practice was especially widespread during the Great Terror (Hoover/RGANI 6/6/1165 f. 9).

September 1940 when the KPK asked the centre to establish the position of a Central Committee party secretary at the construction (Hoover/RGANI 6/2/30 f. 77).

Finally, the KPK could assist agents "operatively" to fulfill their tasks. "Operative assistance" meant that KPK inspectors and/or regional plenipotentiaries would monitor agent activity on a daily basis and apply their own managerial skills to the implementation of the task in coordination with the local organizations (Hoover/RGANI 6/6/1 f. 5). For key plants, inspectors could be attached on a regular basis, as in the example above of Central Committee party secretaries, or in the case of regional plenipotentiaries assigned by KPK decisions of March 1934 to monitor agricultural machinery plants (Hoover/RGANI 6/1/92 f. 98). In such cases KPK inspectors and plenipotentiaries came to share responsibility for fulfillment of orders with the agents (Getty 1997). In this sense "operative assistance" was more than just a matter of "wait-and-see" and meant an investment of additional managerial resources.

In practice, the main benefit of operative assistance to the agent was the pressure that KPK inspectors could apply to the agent's subcontractors and subordinates (Hoover/RGANI 6/1/23 f. 2-3). This often enabled agents finally to obtain material resources from subcontractors that had already been or could have been allocated in the agent's favor by the centre in theory, but that would not be delivered without KPK intervention. Inspector Kruglushin described KPK's "great assistance" to construction of plant no. 100 of the Ministry of Ammunition in the following way: "Finding poor implementation of the construction, the KPK assisted the construction by providing lumber, cement, oxygen, carbide, labor force, etc. … Construction officials … appealed to the KPK with their needs" (Hoover/RGANI 6/2/32 f. 62). In the same way, the director of the Likhachev car plant in Moscow appealed to the KPK to enable it to receive resources, in this case accommodation for workers (Hoover/RGANI 6/1/17 f. 176). In 1934 the KPK plenipotentiary in the Stalingrad region improved the supply of the Stalingrad tractor factory (Hoover/RGANI 6/1/4 f. 26) etc. Finally, operative assistance could also help resolve disputes among bargaining agents, as a case of April 1934 involving the production of railway locomotives illustrates (Hoover/RGANI 6/1/92 f. 84).

The main difference between operative assistance and the allocation of material resources, directly or by appeal to the government, is that material assistance was more costly and also secured a higher probability of success. Operative assistance was virtually free to the dictator in the short run, when the budgets of audit

organizations had been approved, but it took more time to carry out and its success depended heavily on the skills of individual controllers and therefore varied widely. Thus, the construction of the plant number 100 was not in fact accelerated by KPK assistance (Hoover/RGANI 6/2/32 f. 62); on the other hand, operative assistance was effective in the Stalingrad case (Hoover/RGANI 6/1/4 f. 26). It was also often suggested that operative assistance should be applied during the process of order fulfillment when the result was likely to be a "failure", i.e. as an preventive remedy against possible failure in the future (Hoover/RGANI 6/1/12/ f. 6; Hoover/RGASPI 17/2/649 f.134).

Despite these differences, the shared feature of all types of assistance was the intention to improve the fulfillment of orders. Moreover, assistance of one type could be transformed into another. In April 1934, for example, the KPK decided to assist the furniture industry operatively and, if that was not enough, to appeal for government intervention (Hoover/RGANI 6/1/92 f.100). Finally, operative assistance was not specific to KPK. The dictator personally used such assistance frequently because it allowed him to economize on resources. In 1940, for instance, faced with difficulties in the production of aeroengines at plant no. 26, the Politburo sent the deputy minister for aircraft to the plant as its representative to resolve the problem (RGASPI 17/3/1020 f. 27).

In addition to assistance and punishment the KPK had a further measure at its disposal which I will call "threat to superiors." From the point of view of the KPK and the dictator this was a threat of punishment, but from the agent's standpoint it often amounted to operative assistance. The "threat to superiors" was addressed not to the agent who failed to fulfill the order but to her superiors in the ministry, chief administration, or regional authority, to whom the KPK proposed that they should "improve the situation". The KPK archive does not allow us to trace systematically what decisions superiors finally took. However, because superiors were responsible for the fulfillment of orders by their subordinates, were involved in long-term relations with the latter, and had less ability to punish than the KPK we may assume that in practice "threats to superiors" usually meant operative assistance accompanied by threats, but rarely by actual punishments. Available examples support this interpretation. For instance, the Minister of Heavy Industry assisted a military plant in Kiev in 1934 after receiving a signal from the KPK plenipotentiary (Hoover/RGANI 6/1/4 f. 71).

Threat to a superior was attractive for the KPK and the dictator because it transferred the authority to decide between punishment and assistance to the agency with better local information, so minimizing the probability of a potential mistake. A problem was that the superior's preferences might differ from the dictator's, so the KPK tried to monitor how superiors resolved issues passed to them, making them report to the KPK in each case (Hoover/RGANI 6/6/1 f.7; 6/6/42 f.21). If the superior had high enough status, however, the KPK itself could not always do much about non-reporting or failure to improve the situation, except by appealing to Stalin himself. For example, the KPK was not powerful enough to put pressure on Politburo member Ordzhonikidze, Stalin's deputy in industry; when transferring a case to him the KPK asked (and did not threaten) him to resolve it (for example, Hoover/RGANI 6/1/92 f. 138-139).[19] For these reasons I evaluate "threat to superiors" as the weakest punishment that KPK could apply.

The KPK had the authority to punish and assist throughout its history, but its relative power, authorizations, duties, and spheres of responsibility changed several times. Very schematically, the pattern of KPK history is one of relative decline, with a partial recovery following intervention by Stalin in 1939 (for details see Markevich 2007). This decline was relative, not absolute. After the war in 1948, for example, it was still powerful enough to investigate the case of Polina Zhemchuzhina, the wife of the Soviet foreign minister and former prime-minister Molotov. In this case Stalin himself and the Politburo took a final decision on the basis of the KPK report (RGASPI 17/163/1518 f. 162).

4. KPK Bureau Decisions: Punishment versus Assistance.

The bureau was the highest organ in the KPK hierarchy,[20] while the daily monitoring of orders was realized by an apparatus headed by KPK inspectors in the

[19] The KPK took no decision in cases connected directly and personally with such powerful officials, but presented such cases to Stalin and the party Central Committee (Hoover/RGANI 6/6/42 f. 28).

[20] In theory the KPK plenum, into which 61 persons were elected at the 17th party congress in 1934 and 31 at the 18th party congress in 1939, was the highest KPK body. According to the KPK statute, plenums were to be called each three months (Hoover/RGANI 6/1/1 f. 9). In reality, however, KPK plenums were called only six times: on four occasions in 1934–1936 and twice in 1939–1940. In other years the KPK plenum did not operate. Thus, the bureau was the highest KPK authority in practice.

centre and plenipotentiaries in the regions.[21] Under the guidance of the central party committee, the bureau appointed the staff of the KPK apparatus, inspectors and regional plenipotentiaries, assigned their particular current tasks and general plans, received and checked their reports, issued internal rules of monitoring and interventions, and so forth. In addition each member of the KPK bureau monitored the work of either a group of inspectors or plenipotentiaries (Hoover/RGANI 6/2/3 f. 1; 6/6/53 f. 21).

Plenipotentiaries, inspectors and other KPK rank-and-file officials were all obligated to realize the main KPK task in practice: to secure implementation of orders which they monitored. However each of the authorities alone was much narrower in scope than the KPK as a whole. Roughly speaking, they could (in ascending order) either assist operationally, or appeal to local and branch authorities, or appeal to the KPK bureau.[22] The choice of KPK officials between these options, at least in theory, had to be determined by the significance of an order and the complexity of a problem. (Hoover/RGANI 6/1/1 f. 9-12; 6/2/2 f. 1-4; 6/2/6 f. 3-7). The bureau of the KPK, as well as branch and local officials, took the decision to punish or to assist.

The KPK bureau consisted of between five and seven members and met regularly. The frequency of meetings varied from year to year, ranging from three or four times a week to several times a month (Hoover/RGANI 6/6/42 f. 20; 6/2/252 f. 49). Agendas included the guidance of KPK routine work and resolutions on particular cases of order non-fulfillment. The list of the latter was drawn up from three sources: regular reports of KPK officials about the situation in their spheres of responsibility; signals from KPK inspectors and plenipotentiaries about questions they had failed to resolve (Hoover/RGANI 6/1/12 f. 7; 6/6/53 f. 22-23) and direct commissions of branch departments of the party Central Committee (Hoover/RGANI 6/42/20 f. 21; 6/6/1009 f. 11-12). The bureau discussed only a minority of questions

[21] Inspectors monitored particular production branch or supervised groups of plenipotentiaries. In the 1930s the KPK central apparatus was more powerful than in the 1940s as was the KPK itself. It was also about twice as large (for example, 1934 – 97 persons; 1941-1945 – 15-20; 1946 – 42; 1951 – 41 (Hoover/RGANI 6/6/1 f. 2; 6/6/53 f. 16) and branch groups of inspectors operated (Hoover/RGANI 6/1/1 f. 9-10). The authority of plenipotentiaries decreased as well, but their total number was increasing up to the mid 1940s. It reached 59 in 1946, a year before their liquidation. Each plenipotentiary had from five to nine assistants (Hoover/RGANI 6/6/1 f. 2).

[22] The years 1934–1936 are an exception when authorities of plenipotentiaries were much wider.

arising from regular reports, a significant fraction of signals about unsolved problems, and almost all the questions arising from direct commissions.[23] For example, between 16 July 1940 and 12 February 1941 the bureau received 789 plenipotentiaries' reports, but considered and took decisions on only 83 of them (Hoover/RGANI 6/6/1458 f. 1).[24] In total, between 1939 and 1947 the KPK discussed around 1,800 questions raised by plenipotentiaries (Hoover/RGANI 6/6/1 f. 3). In 1949–1950 the bureau examined 156 questions passed from the Central Committee, i.e. almost all the questions received from the center (Hoover/RGANI 6/42/20 f. 21).

The bureau had the full range measures at its disposal that were described in section 3 above, and could apply them to all cases of non-fulfillment or misbehavior that it considered. The KPK bureau decisions and summaries of questions discussed were defined in minutes available in the KPK archive. I compiled a database of KPK bureau decisions from these minutes. The database consists of two parts, one including all KPK bureau decisions for selected years: 1934, 1937, 1940, 1944, 1948 and 1951 (Hoover/RGANI 6/1/92, 6/1/93, 6/1/95; 6/2/251, 6/2/252, 6/2/253, 6/2/254, 6/2/256, 6/2/257, 6/2/260, 6/2/261); the other comprises all decisions for the defense industry, through the history of the KPK (table 2). The defense industry is selected because of its known high priority in Stalin's eyes.

From all questions discussed by the bureau, I singled out cases of non-fulfillment of orders by economic agents that the bureau resolved,[25] screening out general questions about monitoring procedures, questions concerning appointments, and cases of non-fulfillment of orders that were not of an economic character. I also selected "personal" cases involving Soviet managers' economic wrongdoing, such as stealing, theft, and fraud,[26] that could provide examples of non-fulfillment of "general orders" under Soviet laws. I used these two groups of "economic" questions to verify systematically the model's predictions about the dictator's choices over punishment

[23] The third source became especially important after the abolition of positions of KPK plenipotentiaries in the regions.

[24] Part of questions non-discussed by the bureau were investigated by different ad hoc commission consisted on the KPK bureau members and their assistants. Keeping things simple I do not investigate work of such sub-commissions here.

[25] I classified as "resolved questions: (1) questions with decisions in essence, (2) questions passed to other organisations for final decisions, if they were passed with explicit instructions.

[26] Here, the KPK bureau acted as the party collegiums. The latter were primarily responsible for investigation of such cases (see section 3 of this paper).

and assistance. The second part of the database, including all cases of non-fulfillment of orders in the defense industry, was designed to investigate how the dictator's choices varied with his priorities.

Table 1. Questions discussed at meetings of the KPK bureau, 1934–1951.

A. All questions discussed, selected years

	1934	1937	1940	1944	1948	1951	Total
Total	452	628	345	311	72	338	2146
Of which, economic	164	41	127	84	37	54	507
Of which:							
Agents' non-fulfillment or poor fulfillment of orders	147	38	125	74	13	38	435
Agents' stealing, theft or fraud	17	3	2	10	24	16	72

B. Defense industry, questions discussed, all years

	1934-1936	1937-1938	1939-1940	1941-1945	1946-1948	1949-1951	Total
Agents' non-fulfillment or poor fulfillment of orders	10	9	29	14	6	17	85

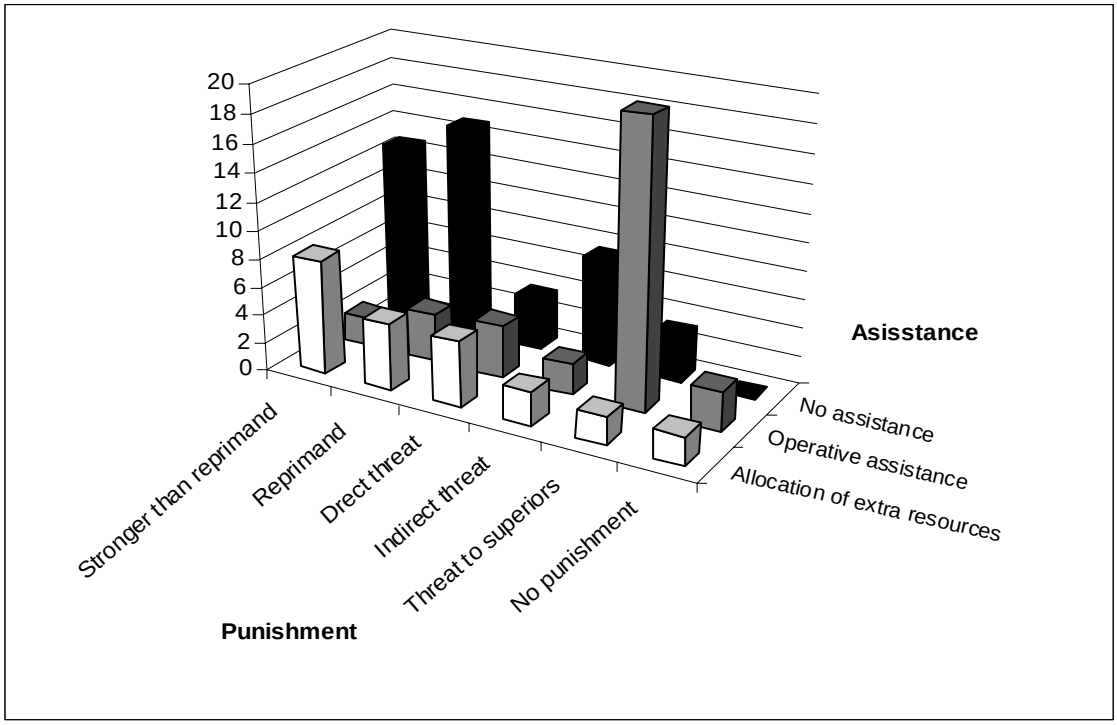
Source: The author's Bureau KPK database.

All KPK bureau economic decisions have been coded separately by type of punishment and by type of assistance prescribed. Types of punishment and assistance are distinguished on the lines described above in section 3. Six types of punishment are ranked by severity to the agent and cost to the dictator: in descending order, actual punishment strong and weak, three types of threat, and "empty" punishment. Three types of assistance are also ranked by cost to the dictator: again, in descending order, direct assistance (with a subtype, appeal to the government), operative assistance and "empty" assistance.[27] Complex decisions that combined measures of different types of repression and/or assistance (for example, to fire a manager and threaten his deputy;

[27] It is much more problematic to rank types of assistance from the agent's point of view, i.e. the ranking of levels of operative and direct assistance due to variation in quantity of additionally allocated resources and quality of particular inspectors assigned to assist operatively.

or to allocate resources and also provide operative assistance) were classified on the highest rank of assistance and punishment in order to avoid overlap. Chart 1 (based on Appendix B, table B.1) presents in an aggregated form the unconditional distribution of all decisions taken by the KPK bureau in 1934, 1937, 1940, 1944, 1948 and 1951 in the two dimensions of punishment and assistance.

Chart 1. KPK Bureau punishment-assistance interventions in selected years (%).



Source: Table B1, appendix B.

We have already seen that the range of potential interventions available to the KPK was somewhat richer than our model allows. We can infer from Chart 1 that this multiplicity of options had some sense as long as the KPK utilized all available possibilities with some positive frequency (the exception is "abandon-the-order," for which KPK lacked authority) and did not follow a single punishment-assistance strategy. Nevertheless, it seems that the model fits reality reasonably well; it correctly predicts the three most commonly used actions, corresponding respectively to the pure equilibrium strategy "actually-punish-plus-assist" when orders are of high-value (priority) and the mixed equilibrium strategy "actually-punish" and "threat-plus-assistance" from the game with low-value orders. The KPK bureau applied actual punishment (reprimand or stronger) together with some assistance (operative or material) in 18.2 percent of cases; provided assistance with a threat (directly or

indirectly or to the agent's superiors) in 34.9 percent of cases and punished without offering any assistance in 27.8 percent of cases. Together, these cover more than three quarters of all cases resolved by the KPK bureau. In addition, the model correctly forecasts the low frequency of the strategy "assist-only" in the dictator's practice; the five percent of cases when the commission chose this option could be explained by the accidental coincidence of some clear proof of poor planning to the KPK and its perfect assurance of agent's loyalty.

What the model fails to clarify is the presence of a significant number of threats, almost fifteen percent of the total, unaccompanied by assistance among KPK decisions. According to the logic of the model, the dictator should not play this strategy since it should not lead to implementation of the order. In addition, the data show that the KPK applied different types of assistance under different circumstances, combining operative assistance with threats while combining allocation of material resources with actual punishment that the model does not explain.

Theory also suggests that information remains important for the dictator's decisions, and it is the degree of priority of orders that determines his choice under uncertainty. Unfortunately, we cannot directly evaluate the accuracy of information about the reasons for non-implementation that the KPK had in each case, nor the dictator's priorities as they changed over time. We would need to look into the minds of the dictator and his supporters to gather such data. It is possible to check these hypotheses only indirectly, using reasonable proxies for information and priorities.

To look at information, for example, we can classify all KPK bureau economic decisions by type of violation of orders as follows:

(1) Stealing, theft, or fraud;
(2) Falsification of reports;
(3) Private diversion of resources;
(4) Poor quality of goods produced;
(5) Poor supply of workers' needs or neglect of them;
(6) Poor results in general;
(7) Problems arising from seasonality (since the plan was expected to override seasonal effects);
(8) Gross plan non-fulfillment.

Chart 2. A. Punishment and information, selected years (%).

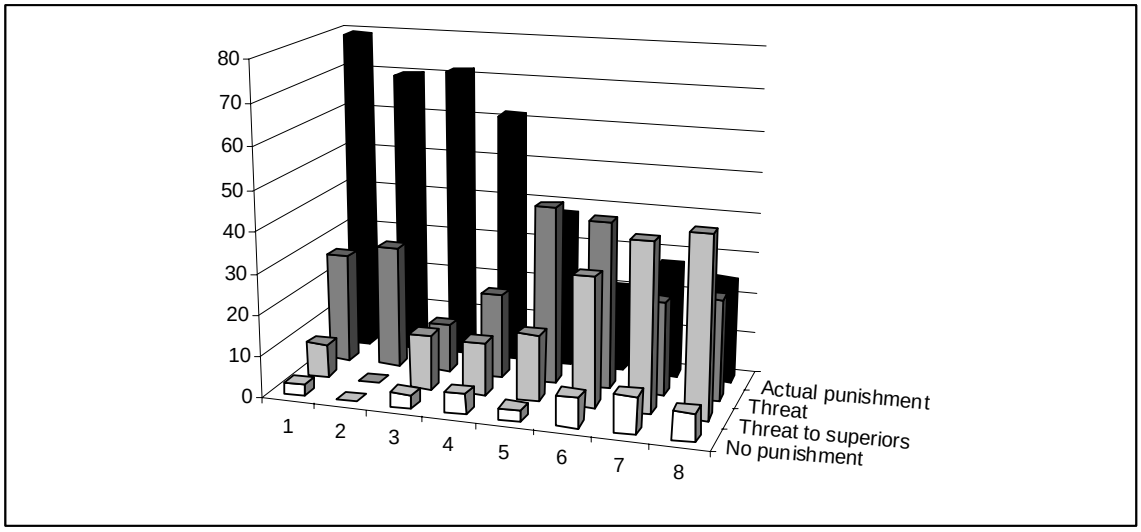
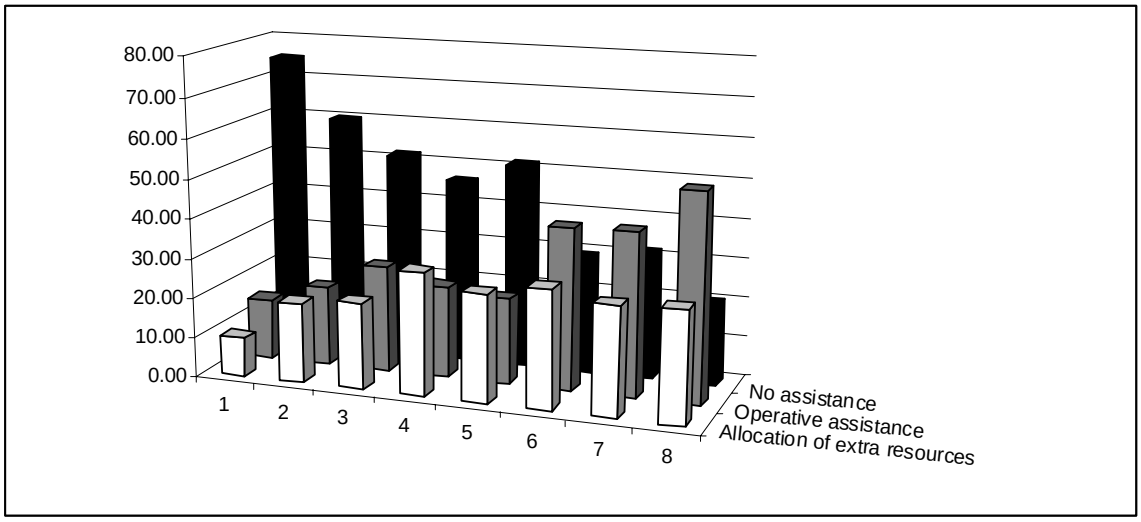


Chart 2. B. Assistance and information, selected years (%).



Key: (1) Stealing, theft or fraud (2) Falsification of reports (3) Private diversion of resources (4) Poor quality of goods produced (5) Poor supply of workers' needs or neglect of them (6) Poor results in general (7) Problems arising from seasonality (8) Gross non-fulfillment of the plan.
Source: the author's KPK Bureau database.

My presumption, admittedly subjective, is that different types of offense can be associated with different mean levels of informativeness to the KPK about the agent's loyalty and her consequent inclination to shirk. For example, it is plausible that in cases of stealing the dictator would be more likely to infer that the agent was guilty but the order was correct, and less likely in the case of problems attributed, say, to unsuppressed seasonal effects. In the list above, I take level 1 as corresponding with the lowest level of KPK confidence in the agent and level 8 to the highest. Charts 2.A

and B then show the distributions of penalties and supportive measures by type of violation, with those attracting greater suspicion of personal disloyalty, as opposed to mistakes in commands, to the left of the chart.[28]

On the basis of this rough sorting, the KPK data support the hypothesis that the quality of information at the dictator's disposal influenced his decisions. There appear to be two clusters of violation types, which differ from each other by the KPK punishment-assistance reaction. In response to stealing, falsification, private diversion, and quality violations (i.e. to the left), the KPK applied actual punishment without assistance more often than on average, while in response to right-hand-side violations like poor supply of workers' needs, poor results in general, unsuppressed seasonal effects, and gross non-fulfillment, various combinations of threats and assistance dominated.

Table 2. KPK bureau interventions in the defence and non-defence sectors (%)

	Defense	Non-defense	
Material assistance combined with:			
Actual punishment	18.8	13.3	**
Threat	17.6	10.6	**
No punishment	1.2	2.3	
Operative assistance combined with:			
Actual punishment	4.7	5.3	*
Threat	21.2	29.0	**
No punishment	1.2	2.8	
No assistance combined with:			
Actual punishment	24.7	21.8	**
Threat	10.6	14.9	**
Total	100	100	

* Significantly different at the 5 percent level
** Significantly different at the 1 percent level
Source: the author's KPK Bureau database.

[28] Initially ten types of non-fulfilment were distinguished. Two groups with less than 15 cases each were excluded from further analysis due to their small size.

As for the dictator's priorities, the Soviet defence sector looks like a reasonable proxy. We know that Stalin continually paid close attention to the army and military problems, so we predict that the KPK applied the strategy "punish-plus-assist" to defense industry more often than in other cases. Table 2 compares KPK bureau interventions in the defence and non-defence sectors of the Soviet economy between 1934 and 1951. The KPK bureau simultaneously punished and assisted (directly or operatively) 23.5 percent of the time when failed orders concerned the defence sector, compared with 18.6 percent of non-defence cases, and this difference is statistically significant. That the difference is not greater can be explained by proxy imperfection: some non-defence orders were of high value, and conversely.

In addition, the defence data confirm our distinction between different types of assistance. The assumption in the model is that the significance of mistakes in the order determines the generosity of assistance; however, the data hint that type of accompanying punishment, actual or threatened, was also important. Moreover, the degree of priority of orders influenced the choice of assistance as well. In general, material resources were allocated to the defence industry more often, regardless of type of punishment, while operative assistance was applied more widely to civilian branches. This might be explained by softer budget constraints on priority orders; allocation of material resources could be too costly in the case of non-priority ones and their outcomes would not compensate for such interventions. In its turn, operative assistance as a tool of intervention had the advantage that it could reveal additional information to solve the dictator's dilemma. The disadvantage was slower implementation, which was more important for high-priority orders. Beside that, the allocation of material resources combined with punishment allowed the dictator to limit the softening of budget constraints associated with material assistance. (Operative assistance did not produce this effect since it represented a managerial, not financial investment.) Thus the dictator signaled to his agents that the softening of budget constraints that they sought was possible only at the cost of punishment. By distinguishing material from operative assistance in this way, the dictator was able to make some further gains.

Finally, the KPK story sheds light on shifts in the dictator's punishment-assistance strategies over time. Table 3 (based on table B.2, appendix B) presents the KPK bureau interventions in selected years. Unfortunately, the changing status of the commission itself must bias the exercise; nevertheless the data lets us distinguish

three periods in the history of Stalin's interventions: before the Great Terror, from the Great Terror to the end of World War II, and after the war.

Table 3. KPK bureau punishment-assistance interventions over time (%)

	1934	1937	1940	1944	1948	1951
Assistance, combined with:						
Actual punishment	34.1	39.0	4.7	3.6	0.0	20.4
Threat	20.7	24.4	70.9	45.2	2.7	7.4
No punishment	5.5	7.3	2.4	10.7	0.0	0.0
No assistance, and:						
Actual punishment	32.9	26.8	4.7	4.8	89.2	61.1
Threat	6.7	2.4	17.3	35.7	8.1	11.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: The author's KPK Bureau database.

In the 1930s the pattern was relatively stable. The KPK had high status and as a result the KPK bureau dealt with important questions of high priority that led to the wide application of punishment combined with assistance. At the same time the share of "punish-only" compared with "threat-and-assist" was still large because the dictator's control over the situation at the local level was not yet so pronounced. This permitted agents to earn relatively higher profit by shirking and forced the dictator to play "punish-only" more often.

In the Great Terror of 1937-1938, the KPK was an object more than an agent, and many of its staff fell victim. The Terror changed the situation completely. Driven more by the political situation than by economic motives (Davies 2006), it allowed the KPK to lower the levels of punishment, because threats, combined with assistance, became sufficient to secure the implementation of orders. During the war the dictator reaped further gains from terror; his new reputation enabled him to rely on threats rather than actual punishment and this decreased his costs. The war years also suggest that it became too costly for him to punish his managers when he needed their political support most acutely. During the war, moreover, since his discretionary resources were also most acutely constrained, he often had to play "threat-only," an

ineffective strategy under normal conditions. One war year alone, 1944, explains to a large extent the anomalous 15-percent share of threats among KPK decisions in the database. Last but not at least, 1944 provides the peak share of assistance without punishment or threats, suggesting a KPK attempt to rely on trust in agents under conditions when the means of coercion were highly restricted.

The inability of the dictator to use punishment extensively during the war, apparently, reduced the credibility of threats; after the war, as the data for 1948 suggest, the dictator and the KPK had to once again to earn a "tough guy" reputation. At the same time 1948 was probably the low point for the KPK in terms of its status; a decline in the value or priority of orders given to the bureau for monitoring could explain the absence of "punish-plus-assist" interventions among its decisions. The 1951 data suggests some normalization as planning practices improved (Markevich 2003).

Conclusions

This story tends to confirm the hypothesis that decisions to punish or to assist are often mutually dependent under dictatorship. It demonstrates that the questions that the dictator must answer about his agents' loyalty and the quality of his own orders are interrelated. The dictator knows that his orders (plans) may fail to be carried out because agents behave opportunistically, or because his orders contain mistakes, or for both reasons. The dictator seeks information to answer these questions, but his imperfect knowledge creates the dilemma: to punish the agent, or assist her, or both. When failed orders are of high value to the dictator his best strategy is to punish and assist simultaneously; when orders are of lower value, he may prefer a mixed strategy involving sometimes punishment and sometimes threats combined with assistance. This contributes to explaining the random nature of punishment in dictatorships and underlines the importance of setting the problem of soft budget constraints in such systems in the context of the dictator's coercive policy.

Finally, the KPK bureau story provides insights about Soviet economic history in the long run. It demonstrates how shocks such as political terror and wars influenced the policies of the organizations that pushed for implementation of the dictator's orders. The terror was not an exogenous shock and Stalin's control over it enabled him to distribute his costs and benefits over time so as to preserve his room for maneuver. This was not true of the war, the onset of which he did not control.

KPK behavior during the war is also suggestive of what happened after Stalin's death, when the regime costs of punishing managers increased. Costly punishment was replaced by the more general application of weak threats and material assistance; these arguably softened budget constraints, increased the frequency of agents' shirking and degraded the efficiency of the system as a whole.

Appendix A

A.1. Suppose that the order's priority is low enough that $(Q - C_P - C_A < 0)$, then simultaneous use of punishment and assistance is dominated for the dictator by the decision to sacrifice the initial project $(Q - C_P - C_A - w < -w)$. However, due to uncertainty neither "punishment-only" is dominated by "abandon-the-order", nor the opposite is true. So we have a reduced form of the game when the agent always shirks if she observes that the order is unfeasible and chooses between to work and to shirk otherwise; the dictator chooses between to punish the agent and to abandon the project, once he faces an unfulfilled order.

The agent and the dictator solve the following maximisation problems respectively:

$$\max_{\beta}(1-\alpha)(1-\beta)(w+r)+((1-\alpha)\beta+\alpha)(\gamma(w+U_S-DU_P)+(1-\gamma)(w+U_S))$$

$$\max_{\gamma}(1-\alpha)(1-\beta)(Q-w-r)+\gamma((1-\alpha)\beta(Q-w-C_P)+\alpha(-w-C_P))+(1-\gamma)((1-\alpha)\beta(-w)+\alpha(-w))$$

where β and γ are the probabilities with which the agent plays "shirk", once she gets a correct order, and the dictator plays "punishment", respectively.

In the Nash equilibrium we should have:

$$\begin{cases} -(1-\alpha)(w+r)+(1-\alpha)(\gamma(w+U_S-DU_P)+(1-\gamma)(w+U_S))=0 \\ (1-\alpha)\beta(Q-w-C_P)+\alpha(-w-C_P)-(1-\alpha)\beta(-w)-\alpha(-w)=0 \end{cases}$$

Or,

$$\begin{cases} -(1-\alpha)r+(1-\alpha)(U_S-\gamma DU_P)=0 \\ (1-\alpha)\beta(Q-C_P)+\alpha(-C_P)=0 \end{cases}$$

And finally, if $\alpha \neq 1$ (the dictator gives correct orders with strictly positive probability, that is a natural assumption)

$$\begin{cases} \gamma=(U_S-r)/DU_P \\ \beta=(\alpha/(1-\alpha))(C_P/(Q-C_P)) \end{cases}$$

Once there is only one subgame in the game, this Nash equilibrium is the subgame-perfect.

A.2. The agent and the dictator solve the following maximisation problems respectively:

$$\max_{\beta}(1-\alpha)(1-\beta)(w+r)+((1-\alpha)\beta+\alpha)(\gamma(w+U_S-DU_{P\_Actual})+(1-\gamma)(w+U_S-DU_{Threat}))$$

$$\max_{\gamma}(1-\alpha)(1-\beta)(Q-w-r)+\gamma((1-\alpha)\beta(Q-w-C_{P\_Actual})+\alpha(-w-C_{P\_Actual}))+(1-\gamma)((1-\alpha)\beta+\alpha)(Q-w-C_{P\_Threat}-C_A)$$

where β and γ are the respective probabilities with which the agent plays "shirk", once she gets a correct order, and the dictator plays "actual-punishment."

In the Nash equilibrium we should have:

$$\begin{cases} -(1-\alpha)(w+r)+(1-\alpha)(\gamma(w+U_S-DU_{P\_Actual})+(1-\gamma)(w+U_S-DU_{P\_Threat}))=0 \\ (1-\alpha)\beta(Q-w-C_{P\_Actual})+\alpha(-w-C_{P\_Actual})-((1-\alpha)\beta+\alpha)(Q-w-C_{P\_Threat}-C_A)=0 \end{cases}$$

Or,

$$\begin{cases} r+U_S+DU_{P\_Threat}+\gamma(DU_{P\_Actual}-DU_{P\_Threat})=0 \\ (1-\alpha)\beta(C_A+C_{P\_Threat}-C_{P\_Actual})-\alpha(Q+C_{P\_Actual}-C_{P\_Threat}-C_A)=0 \end{cases}$$

And finally, if $\alpha \neq 1$ (the dictator gives correct orders with strictly positive probability, that is a natural assumption)

$$\begin{cases} \gamma=(U_S-DU_{P\_Threat}-r)/(DU_{P\_Actual}-DU_{P\_Threat}) \\ \beta=(\alpha/(1-\alpha))(Q+C_{P\_Actual}-C_{P\_Threat}-C_{Actual})/(C_A+C_{P\_Threat}-C_{P\_Actual}) \end{cases}$$

Once there is only one subgame in the game, this Nash equilibrium is the subgame-perfect.

Appendix B

Table B.1. KPK Bureau interventions by type of punishment and assistance (%)

	Type of Assistance				
	Material assistance				
Type of punishment	Direct allocation	Appeal to govern-ment	Operative assistance	No assistance	Total
Actual punishment:					
More severe than reprimand	7.1	1.0	2.0	12.8	22.9
Reprimand	4.1	0.6	3.4	15.0	23.1
Threatened punishment:					
Direct	4.1	0.6	3.7	3.7	12.2
Indirect	2.0	0.4	2.2	7.5	12.0
Threat to Superiors	1.4	0.6	19.9	3.2	25.0
No punishment	1.2	0.8	2.8	0	4.7
Total	19.9	3.9	33.9	42.2	100

Source: The author's Bureau KPK database.

Table B.2. KPK Bureau interventions in detail, selected years (%)

	1934	1937	1940	1944	1948	1951
Material assistance combined with:						
Punishment more severe than reprimand	17.7	24.4	0.8	0.0	0.0	1.9
Reprimand	11.0	9.8	0.8	1.2	0.0	0.0
Direct or Indirect threat	13.4	14.6	5.5	0.0	0.0	1.9
Threat to Superiors	2.4	0.0	4.7	0.0	0.0	0.0
No punishment	3.7	2.4	0.8	2.4	0.0	0.0
Operative assistance combined with						
Punishment more severe than reprimand	1.8	0.0	0.0	1.2	0.0	11.1
Reprimand	3.7	4.9	3.1	1.2	0.0	7.4
Direct or Indirect threat	4.3	4.9	9.4	7.1	0.0	5.6
Threat to Superiors	0.6	4.9	51.2	38.1	2.7	0.0
No punishment	1.8	4.9	1.6	8.3	0.0	0.0
No assistance and:						
Punishment more severe than reprimand	15.9	17.1	1.6	3.6	45.9	18.5
Reprimand	17.1	9.8	3.1	1.2	43.2	42.6
Direct or Indirect threat	6.1	2.4	7.1	33.3	8.1	11.1
Threat to Superiors	0.6	0.0	10.2	2.4	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: The author's Bureau KPK database.

References

Belova, Eugenia. 2001. "Economic Crime and Punishment", in *Behind the Façade of Stalin's Command Economy: Evidence from the State and Party Archives.* Paul Gregory, ed. Stanford: Hoover Institution Press, 131-58.

Belova, Eugenia and Paul Gregory. 2002. "Dictators, loyal and opportunistic agents: The Soviet archives on creating the Soviet economic system." *Public Choice,* 113(3-4): 265-286.

Berliner, Joseph S. 1957. *Factory and Manager in the USSR.* Cambridge, MA: Harvard University Press.

Davies R.W. 2006 "The Soviet Economy and the Launching of the Great Terror", in *Stalin's Terror Revisited*. Melanie Ilic ed. Palgrave Macmillan.

Denisov V.V., Kvashonkin A.V., Malashenko L.N., Minuk A.I. Prosumenshchikov M.Yu., Khlevnyuk O.V. (compilers). 2004. *TsK VKP9b) i regional'nie partiinie komiteti 1945 – 1953*. Moskva: Rosspen.

Friedman, J. 1971. "A Non-cooperative Equilibrium for Supergames." *Review of Economic Studies* 38:1-12.

Getty, Arch. 1997 "Pragmatists and Puritans: The Rise and Fall of the Party Control Commission". *The Carl Beck Papers in Russian and East European Studies. No. 1208. October 1997*.

Gorlizki, Yoram. 1999 "Rules, Incentives and Soviet Campaign Justice After World War II". *Europe-Asia Studies*, Vol. 51, No. 7, 1999, 1245-1265.

Gorlizki, Yoram. 2001. "Theft Under Stalin: A Property Rights Analysis," *PERSA Working Paper* no. 10. University of Warwick, Department of Economics. URL http://www.warwick.ac.uk/go/persa.

Granick, David. 1954. *Management of the Industrial Firm in the USSR*. New York: Columbia University Press.

Gregory, Paul R. 1990. *Restructuring the Soviet economic bureaucracy*. Cambridge University Press: Cambridge.

Gregory, Paul R. 2004. *The Political Economy of Stalinism: Evidence from the Soviet Secret Archives*. New York: Cambridge.

Gregory Paul and Mark Harrison. 2005. "Allocation under Dictatorship: Research in Stalin's Archives." *Journal of Economic Literature,* XLIII (September, 2005): 721-761.

Gregory, Paul and Andrei Markevich. 2002. "Creating Soviet Industry: the House That Stalin Built," *Slavic Review*, 61:4, pp. 787-814.

Gregory, Paul, Philipp Schroder and Konstantin Sonin "Dictators, Repression and the Median Citizen: An Eliminations Model of Stalin's Terror (Data from the NKVD Archives)", *Mimeo* 2006.

Harris, James 2003. "Was Stalin a Weak Dictator?" *The Journal of Modern History,* 75 (June 2003): 375-386.

Harrison, Mark. 2005a. "The Fundamental Problem of Command: Plan and Compliance in a Partially Centralized Economy." *Comparative Economic Studies* 47:2, pp. 296-314.

Hayek, F.A. 1944. *The Road to Selfdom*. Chicago: University of Chicago Press.

Ikonnikov, S. N. 1971. *Sozdanie i deiatel'nost' ob'edinennykh organov TsKK - RKI v 1923-1934 gg.* Moskva: Nauka.

Holland Hunter and Janusz M. Szyrmer. 1992 *Faulty foundations : Soviet economic policies, 1928-1940***.** Princeton, N.J. ; Oxford : Princeton University Press.

Khlevnuk O.V., Gorlizkii J., Kosheleva L.P., Minuk A.I., Prozumenshchikova M.Yu., Rogovaya L.A., Somonova S.V. (compilers). 2002. *Politburo TsK VKP(b) I Sovet Ministrov SSSR, 1945 – 1953*. Moscow: Rosspen.

Kornai, János. 1980.*Economics of shortage.* Amsterdam: North-Holland.

Kornai, János, Eric Maskin and Gerard Roland. 2003. "Understanding the Soft Budget Constraint." *Journal of Economic Literature,* 41(4):1095-1136.

Lazarev, Valery, and Paul Gregory. 2002. "The Wheels of a Command Economy: Allocating Soviet Vehicles." *Economic History Review,* 55(2): 324-48.

Lazarev, Valery and Paul Gregory. 2003. "Commissars and cars: A case study in the political economy of dictatorship," *Journal of Comparative Economics*, 31(1): 1-19.

Markevich, Andrei 2003 "Byla li sovetskaia ekonomika planovoi? Planirovanie v narkomatakh v 1930-e gg." [Was the Soviet Economy Planned? Planning in the Ministries in the 1930s]. In *Ekonomicheskaia istoriia. Ezhegodnik. 2003* [Economic History Yearbook, 2003]. Moscow. 2003.

Markevich, Andrei 2007 "How Much Control is Enough? Monitoring and Interventions in Stalin's Command. Economy", Paper presented at the Seventh Conference of the European Historical Economics Society, 29 June – 1 July 2007.

Mises, Ludwig von, 1920/1935. "Die Wirtschaftsrechnung im sozialistischen Gemeinwesen," translated in *Collectivist Economic Planning Critical Studies on the Possibility of Socialism*. F.A. Hayek, ed. London: Routledge, 87-130.

Rees, E. A. 1987. *State control in Soviet Russia : the rise and fall of the Workers' and Peasants' Inspectorate, 1920-34*. Basingstoke: Macmillan.

Rees, E.A. ed. 1997. *Decision-Making in the Stalinist Economy, 1932-1937*. Basingstoke: Macmillan

Simonov, Nikolai S. 1996. *Voenno-promyshlennyi kompleks SSSR v 1920-1950-e gody: tempy ekonomicheskogo rosta, struktura, organizatsiia proizvodstva i upravlenie.* Moscow: Rosspen.

Solomon, Peter 1996. *Soviet criminal justice under Stalin*. Cambridge, New York: Cambridge University Press.

Wintrobe, Ronald. 1998. *The political economy of dictatorship.* Cambridge, UK New York, NY : Cambridge University Press.

Wintrobe, Ronald. 2001. "How to understand, and deal with dictatorship: an economic view." *Economics of Governance*, 2: 35-58.

Archival:

Hoover/RGANI: "Archives of the Former Soviet State and Communist Party' from the Russian State Archives of Recent History (Moscow) at the Hoover Institution of War, Revolution, and Peace (Stanford, CA).

Hoover/RGASPI: "Archives of the Former Soviet State and Communist Party' from the Russian State Archives of Social and Political History (Moscow) at the Hoover Institution of War, Revolution, and Peace (Stanford, CA).

GARF – State archive of Russian Federation (Moscow).

Russian archival documents are numbered according to a standard system: collection (fond), inventory (opis), file (delo), folio (list).