Comments welcome

What Do Bosses in Command Economies Do?

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This paper argues that the accepted models of managerial behavior in centrally planned economies are incompatible with resource allocation mechanism. We supply evidence on managerial behavior which contradicts the implications of these models; suggest a mode of managerial behavior that is in agreement with the evidence; and sketch out some of the implications of this alternative mode for our understanding of the functioning of the centrally planned economies.

1. The nature of the Soviet economic system and models of managerial behavior.

Allocation of resources by command defines the Soviet economic system and distinguishes it from other systems.[1] The political leadership and the central apparatus of the state ("the planners") issue the commands. Firm managers execute these commands.[2] (Workers in the plants and officials in the government all carry out commands of their superiors, but this is also the case in market economies.)

There is a contradiction between the general concept of a command economy and the currently accepted notion of firm managers as bonus maximizers. Implicit in the latter is that managers sell their services to the planners under spot-market-like contracts. The managers are free to withhold their services, if the price offered for plan execution (the bonus) is not right. Obviously, there is no place for command in such a situation. Either the concept of command economy, or the notion of managers as bonus maximizers has to be abandoned. We will show that the latter is at variance with empirical observations, and hence has to be dropped. We will also suggest a mode of managerial behavior that agrees with empirical data, and also

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[1]See Grossman, 1963. The argument of this paper should apply to any command economy, though our evidence is drawn from the Soviet economy only.

[2]Two-tier command hierarchy with planners at the top and firm managers at the bottom, considered in this paper, leaves out intermediate tiers (ministries, main administrations), and also the role of such important players as regional party organization, Ministry of finance, State bank, Gossnab.

with the nature of the system - command economy. But before that, we have to descibe the current views on the subject.

2. Review of the literature.

The literature on incentives for plan fulfillment started to appear after the 1965 reform, which aimed at increasing the role of monetary incentives in Soviet economy. One of the creations of the reform has been a fund for material incentives, to be formed at each firm. The fund was to serve as a source of bonuses for managerial and white collar personnel. Its size was to be a function of the level or growth rate of one or several performance indicators, increasing with rises in the indicator, but at varying rate. The coefficients used for the calculation of the fund in cases when actual performance fell short of that which was planned, and for the fraction of the performance exceeding the plan target, were lower than those for exact plan fulfillment.

The Soviet literature on the subject attempts to determine the optimal rates for formulae of bonus fund formation, as well as the most appropriate performance indicators for the formulae. There are also descriptions of how the rules and formulae are applied in practice.

Bonus fund formation formulae inspired a substantial literature in the West. This literature develops the models of eliciting effort and truthful information from the managers.[3] The models vary in generality and motivation. The problem of supplying the incentives for managers in centrally planned economy is a special case of a more general problem. Accordingly, some of the models try to solve these general problems and are only loosely related to the Soviet context. Other models claim to relate directly to this context. Both groups of models share some characteristics which are important for our argument, and which are accepted most of the authors writing on various aspects of the Soviet economy.[4]

In the models, enterprise is characterized by a production function, in which a manager's effort is one of the inputs, and the manager's utility function, which has a negative first derivative with respect to effort. The planners demand a service from enterprise - fulfillment of the output plan target - and offer to pay a bonus for it. The manager will accept the bid, if doing so maximizes his utility function. Otherwise, the bid will be rejected, and actual performance will fall short of the plan target.

An implicit assumption in this literature is that managers

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[3]See, e. g., Keren, 1972 and 1979; Weitzman, 1976, pp. 255-6; Miller and Thornton, 1978: Miller and Murrell, 1981; Conn, 1982.

[4]E. g., Dalsdtedt, 1982; Freris, 1984.

are maximizing the size of the bonus fund.[5] This is a contrived and counterintuitive assumption, for the fund is merely an accounting concept. It would be justified if bonus payments were determined similarly to the size of the bonus fund. But the size of the bonuses is determined quite differently from the size of bonus fund.[6] Moreover, the official formulae are not actually used. There are numerous reports of arbitrary ceilings imposed by the ministries on the enterprise bonus funds, confiscations, etc.[7] No correlation was found over time between the size of bonus funds and performance variables of which the former are supposedly the function.[8]

The notion that managers are guided by the official formulae of bonus fund formation is thus based on a misunderstanding. We move next to show that the notion of manager as bonus-maximizer contradicts to the observed behavior in the Soviet economy.

3. Falsification of the accepted models of managerial behavior.

3.1 An intuitive objection to the models and the outline of falsification.

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[5]The only exception to this literature is Karagedov (1971, pp. 35, 108-109), stating that in a centrally planned economy, managers are not and cannot be bonus maximizers.

[6]At least Soviet authors are well aware of this (see, e. g., Sidorova, et al., 1985, p. 11). See 3.3 below on how bonus payments are determined.

[7]See, e. g., Veselkov, 1973, p.5.

[8]Vasil'eva, 1977.

The models suggest that there may be situations when managers who are able to reach their targets will not do so, because they do not want to. But the managers are known to expend great effort to fulfill their plans, often resorting to risky means such as false reporting, extralegal exchanges, and violations of labor law. If targets are not met, it is because managers could not reach them. The models are therefore suspect on intuitive grounds.

The strategy of falsification of the models is the following. It follows from the models that effort is a function of the bonus paid. One may assume a normal positively sloped labor supply function. In the general case, the amount of effort exerted by the manager in order to reach a plan target varies from one plan period to another. The models imply that variation must be in response to changes in bonus. We will show that bonus actually paid remains unchanged for long periods of time, and sometimes even varies in the direction opposite to that predicted by the models.

3.2 Defining one transaction between planner and manager.

In order to test the implications of the models, we have to specify exactly the plan targets and time periods to which the models apply. Since the models assume spot-market type contract between managers and planners, we have to define what constitutes one transaction in this spot market. Enterprises receive many plan targets for different aspects of their functioning. These targets differ in their importance for the planners. The varying importance of targets is evident in the varying frequency of monitoring, and gravity of sanctions for failure to reach the target. Output targets are the most important.[9] Many output targets exist: total volume of output in value terms, and targets for particular products in physical terms. I do not know how these are ranked, and will simply ignore this fact, assuming one output target.

Enterprises report their performance at least weekly or every ten days. However, it appears that the shortest period for which targets are set and enforced is a month. Monthly targets are obligatory, as witnessed by the end-of-month rush to reach them, termed storming.[10] Another important target period is a year.[11] We will consider monthly output target execution as one transaction between planners and managers.

It seems obvious that the amount of effort expended by a manager varies from month to month. Let planned output and inputs be distributed evenly over time in an annual plan. Actual

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[9]This follows from the crucial importance of balancing the flows of goods and services in a command economy. Enforcement of output targets is the way to do this (see Grossman, 1963). In any official listing of plan targets, output targets come first (see, e. g., Polozhenie, 1969; Ob uluchshenii, 1982, pp. 8-11.

[10]For the extent of storming in some sectors, see Kvasha, 1976, p. 76.

[11]This, again, is witnessed by the annual storming phenomenon: see Rostowski and Auerbach. They found no evidence of quarterly storming.

conditions, as a rule, deviate from the plan. Supplies arrive irregularly; new capacity is commissioned with delays; the labor supply changes, as workers resign, are absent from work, or slacken their pace. Output targets are also revised. The structure of a command economy is such that disturbances in input availability are not easily compensated. Finding a new supplier in an emergency is difficult. The only input which is readily available is managerial effort. It follows that meeting a series of monthly targets would require varying amounts of managerial effort.

3.3 How bonuses are paid.

Just as there are many plan targets, so there are many kinds of bonuses for the enterprise managers, each related to a particular target or a set of targets.[12] The relevant bonus for our purposes is the one awarded for the "main results of economic activity."

The official guidelines for bonus payment are complex, and have varied both across sectors[13] and over time. The main feature of the bonus system is that no bonus is paid if the

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[12]There are bonuses for introduction of new technology, savings of material resources, production of consumer goods at producer goods plants, etc.

[13]A model statute for bonus payments is issued by the State committee on labor. It serves as a basis for the statutes adopted by particular ministries. See, e. g., "Osnovnye ..", 1977, p. 52.

output plan target is not met.[14]

As a general rule, in the Soviet economy performance bonuses tend to become fixed additions to the base wage.[15] Managerial bonuses are no different in this respect. As a rule, the size of the bonus is fixed as a percentage of the base wage.[16] The payment of the bonus is conditional on reaching a specified target. Hence, a manager meeting several plan targets in a row will have to vary his effort, but will receive the same bonus each time. This contradicts the models of spot-market-type contracting. The conclusion does not change if we take overfulfillment bonuses into account. Overfulfillment of two different targets (or of the same target under different conditions) by the same percentage requires different amounts of effort, yet brings the same overfulfillment bonus. Moreover, since it is easier to overfulfill the low target than the high one, there may well be a negative correlation between reward and effort.

4. An alternative contracting mode: employment relation.

There is a contracting mode that allows effort to vary even as the reward for this effort remains fixed. It is called

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[14]This was a straightforward condition before the 1965 reform. It remained part of the practice after the reform, as well. See Liberman, 1970, pp. 38-9, 129; Veselkov, 1973, p. 12; Miliukov, 1977, p. 64.

[15]See, e. g., Miliukov, 1977, p. 65.

[16]Guliaev, 1969; Koshkarev, Chubenko, 1969.

employment relation, and is common to the internal organization of hierarchies (firms, etc.) in market economies.[17] In this mode, an employee is rewarded not for each specific task he executes, but rather for his willingness to execute any task ordered by his employer that falls into a certain area of acceptance. The employer specifies the tasks to be carried out, and employee does the employer's bidding, without bargaining over each task. Differential performance is rewarded over time through promotion.

The limits within which the employee accepts the commands are determined by the relative attractiveness of alternative jobs (or the employee's cost of exit). For example, excess demand for workers of a certain kind will tend to make their acceptance range narrower.

It should be noted that the employee's behavior in employment relation is no less self-seeking and calculating than in a spot market-like transaction. Though no payment is demanded for each action, the employee still acts in order to get a reward. Only the form of reward is different - non-transaction specific, in Williamson's terms.

The labor supply function in employment relation is a vertical line, with hight corresponding to the acceptance area. This is a short-run labor supply function. As the employee scans the market and locates better opportunities, he switches jobs or

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[17]See Simon, 1957 and 1976, Chapter VII, and Williamson, 1975, Chapter 4.

renegotiates his current employment contract. The labor supply function over the longer run will be positively sloped.

5. Managers as employees: some specific features.

The command economy is a huge hierarchy, and employment relation is one of the common features it shares with other, smaller hierarchies, such as business firms and government departments in a market economy. But since it is a hierarchy that encompasses the whole society, it also has some unique opportunities for enforcing employment contracts.

Enterprise managers in centrally planned economies have only one employer. Managerial careers usually unfold within one ministry. Managers may be transferred across sectors by their superiors, but other forms of inter-sectoral mobility are usually not possible. The employer may choose to exclude a given individual from managerial positions altogether. The employer has also a rich array of other punishments and rewards (all of which are either currently in use or have been used in the past): reprimand or expulsion from the party, sentencing to a jail term, vilification or glorification in the press, "election" to an honorary positions such as the deputy of local council, awarding an order. More conventional economic benefits include privileged access to the goods that are not readily available: special apartments, trips abroad, special stores. All this is given over and above the base salary and bonuses. Some of these rewards come automatically with a position, while others are given in recognition of extraordinary performance. Another set of rewards includes promotion to more important positions (larger enterprises, ministry and party apparatus).

Ample rewards must be associated with a managerial position, in order to entice enough able individuals to compete for it. Rewards also add to the cost of exit.

The drawback of this system, whith rewards conditional on occupying a certain position, is that it may be hard to manipulate. The way punish a to.manager is to demote him; but this is a drastic measure, and the employer may not always be ready to use it. Such a "humane" employer loses a significant part of his ability to enforce his commands. Witness Brezhnev's policy of "careful treatment of the cadres" and its economic consequenses.

Returning to the point made for the general case in the preceding section, though managers are not maximizing their bonus in rubles, they still behave as rational self-seekers. They maximize their monetary and in-kind rewards subject to the conditions of contract.[18]

6. Why employment relation?

Command economy is instituted as a result of deliberate decisions of a small number of people at the top of the political hierarchy. Contracting mode for firm managers in a command

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[18]Specifically, managers are not working for "moral incentives" a la Mao. They are taking a capitalist road.

economy is not a result of a separate choice by the founders of such an economy. Instituting the centrally planned economy, one opts for a package. Part of such a workable package is employment relation for those who immediately allocate resources - firm managers. Employment relation has to be evaluated as part of this package.

Weitzman (1974) has shown that quantity targets are more efficient than prices for Leontief technologies. If industrial economy in the short run does consist of Leotieff technologies, than the choice of employment relation to enforce quantity of output commands is defensible on efficiency grounds.

Employment relation has also proven its superiority to other contracting modes by withstanding a sort of survival test. Incentive schemes intended for implementation in the Soviet economy starting with the 1965 reform aimed at introducing the sort of spot contracting described in the models in section 1. In fact, these proposed incentive mechanisms inspired the models, in the first place. Yet these reforms were never implemented, which may be taken as a sign of rejection by the economic system of the elements that threaten to thwart its functioning.

7. What difference does the alternative contracting mode make for the analysis of the Soviet economy?

7.1 Optimal tautness and eliciting truthful information.

One celebrated problem in the literature on incentives is "optimal tautness" of output targets when planners are incompletely aware of the firms' capacity. If punishments and rewards are large, planners can set very high targets, and thus make each manager work 24 hours seven days a week. But this strategy is ruled out by the dual role of output targets.

Output targets play not only the incentive role (making managers work harder), but also the coordination role in balancing the flows of goods and services in the economy. One firm's output target is another firm's input allocation. Failures to meet output targets are transmitted through the input-output ties throughout the economy. Therefore, the planners are interested in reasonable adherence to the targets. They will not set the targets too high, even if managers can be counted upon to attempt to reach these targets. Managerial effort is not a perfect substitute for all other inputs, and even with best intentions, some managers will fail to reach their targets, setting off a chain reaction of failures.

The need to preserve the coordinating role of output targets when the magnitude of rewards and punishments declines and the managers' acceptance area shrinks may explain part of the growth slowdown of the last 30 years. If planners are unwilling or unable to enforce obedience to the high targets, they are better off accomodating the managers by lowering the targets (rather than setting high targets and triggering a wave of failures). This has given rise to the downward plan revisions of the 1970s. But as managers perceive the accomodating mood of the planners, they are likely to offer still less effort.

Planners obtain the necessary information needed for compiling a plan from the managers. Underreporting the capacity of the firm results in lower targets and hence in less effort, smaller risk of punishment for plan underfulfillment, and possibly, additional rewards for overfulfillment. Can there be a set of incentives under which managers will truthfully report their capacity? The planners' desires for truthful revelation of capacity and adherence to commands appear to be mutually contradictory. It is the punishment for failure to reach the target that creates an incentive to hide the true capacity. Making managers indifferent between fulfillment and underfulfillment of a target will make them willing to reveal the true capacity. But this would leave no incentives for making them work hard and in coordination with each other.

7.2 The meaning of discipline.

Employment relation allows us to understand the role of discipline in the Soviet economy. While discipline features prominently in Soviet accounts of their economy, the term has not been given any economic meaning. And it can have no meaning if managers perform under spot market-like contracts. If they work under employment relation, discipline means adherence to commands. Tightening discipline means widening the acceptance area.[19]

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[19]See Kontorovich, 1985, pp. 19-21.

Viewing managers as employees gives us a different story of secular changes in managerial behavior. The 1960s saw an increase in the share of bonuses in managerial remuneration; according to the models, better performance should follow. In our framework, this is irrelevant; to the contrary, greater stability of incumbent managers and increased frequency of plan revisions testify to the shrinking of the acceptance area and decline of managerial effort in this period.[20]

7.3 What is the role of bonuses?

Though bonuses do not guide managers in setting the level of output, they do play an important role. Planners want the manager to do many things simultaneously, but they cannot arrive at a consistent set of commands. So they give a set of inconsistent commands, and attach especially strong incentives (career, party membership, earning any bonuses at all) to execution of the most important ones. Then they let the manager himself determine the feasible combination of other indicators. Bonuses prevent the manager from neglecting these secondary targets, without forcing him to sacrifice the really important goal. Employment relation works for the main targets; the rest is in effect bought by planners from the managers.

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[20]See Kontorovich, 1985, pp. 21-2.

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