

# **The influence of implicit internal incentives on the motivation and behavior of public servants: theoretical and empirical analysis.**

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Abstract: This study is based on the institutional approach and is analysing the state bureaucracy functioning from “inside” i.e. from the viewpoint of the state officials’ aims. The asymmetry of information and bounded rationality of individuals are the base for the opportunist behaviour of the employees in particular the problem of moral hazard. Classical mechanisms which allow solving or decreasing the moral hazard problem in private organizations are inapplicable to bureaucracies in the view of institutional specificities of the public sector. The impossibility of formal incentives efficient work leads to the increase of the importance of informal mechanisms which influence workers’ behavior. The study investigates a general case of the three-tiered game-theoretic model belonging to the class of psychological games for trust, proposed by Huang and Wu (Huang, Wu 1994), which takes into account the effect of informal incentives. The analysis of data of empirical study of Perm city administration employees, Perm, Russia allows speaking of the sustainability of the model conclusions.

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In the framework of traditional economics analysis the state itself and bureaucracy structures presenting its functions are regarded as a wholesome economics agent, maximizing public welfare. The institutional approach provides for a more profound study of the state’s role in the context of the theory of State and allows analyzing it from the perspective of transactional expenses, contracts and proprietary rights; however, in most cases the State is studied from the perspective of society, i.e. “from outside”. And the works studying the functioning of state bureaucracy “from inside”, i.e. from the point of the employees of the state machinery and with regard to the structure of bureaucracy organisation, appeared not so long ago – only after 1950s. And this gives opportunity to speak of a wide range of possible studies in this sphere.

## ***Specifics of the institutional environment of the state sector.***

The specifics of the institutional environment providing the conditions for bureaucracy are the reason why the traditional stimulating mechanisms deigned by

the economists for the private sector tend to be low effective in state organisations. On the other hand the same specifics create the conditions under which the informal stimulation, being a consequence of moral standards and informal behaviour standards in the given organization and the employee's intrinsic motives, takes a significant role. The informal incentives can gain special importance on the higher levels of state hierarchy where bureaucrats obtain substantial power while the forming of strict discipline and motivation to fair work by such means as financial incentives system are almost impossible.

The study of state sector employees and specifics of stimulating them with the view to decrease the problems of opportunist behaviour is an important economics task as the most of the goals set by the society are achieved due to using the officialdom. Even the literate economic policy of the state will not lead to the desired result if the individuals responsible for the implementation of state policy into life act against the interests of the society.

The target of this work is studying the role of informal norms when stimulating and motivating the state structures employees under the conditions of the existing opportunist behaviour problem.

In the terms of institutional approach the opportunist behaviour of state structures employees on the stage ex-post leads to the rise of the moral hazard problem. Whereupon the principal (employer) is represented by the state in general case and meanwhile with respect to the inner structure of a bureaucracy body as a hierarchy analysis the same role is played by the official of a higher level. In both cases the opportunism of the agent (employee) arises when he gains the chance to achieve his own goals in the prejudice of the goals put by the employer. Corruption, which is now one of the most serious problems of the Russian society, can be regarded as the excess of the moral hazard in the authorities. This allows speaking of the relevance of the study of the possible formal and informal mechanisms influencing the behaviour of the officials and allowing to create incentives for them for their fair work.

Classical mechanisms instrumental to solving or decreasing the problem of moral hazard in private sector organisations turn inapplicable for bureaucracy structures for reason of the specifics of the institutional environment in state sector. A number of these specifics are described in Tirole's work (Tirole 1994) dedicated to inner organization of state governance. Thus the multiplicity of goals put in front of the authorities complicated the use of one of the most spread mechanisms of struggle with moral hazard – pay-for performance. While a commercial organisation as a rule maximizes its profit (revenues, company value, etc.) state employees face the simultaneous solution of various problems. This does not make the mechanism of pay-for performance completely impossible, but it requires certain equilibrium to put the target figures into the result function. As a rule it turns quite difficult to highlight the measured exponents of state structures work and calculate the optimal rates for them. Moreover even when the result can be estimated in amount, the time gap between the officials' actions and their results appearance is large enough which does not allow defining the level of the employees bona fide.

The absence of the mechanism of market competition able to peel apart the ineffective structures; flexible budget limitation which eliminates the incentives for expenses decrease; heterogeneity of society members preferences and their time-to-time variability, - are also regarded as the specifics of the state structures. The last mentioned complicates both the goal setting with achieving the aims satisfying the interests of all citizens and long run stimulation of the officials when the target function that might be the base for incentives starts changing.

In particular cases the formal stimulation mechanism e.g. financial reward can lead to the result opposite to the desired one, i.e. not efficient enough work of the officials. This is linked to the absence of measurable results of the official's activity and with two levels of effort: effort connected with the observance of formal rules by the official and his effort connected with personal involvement and responsibility and instrumental to achieving key organisation aims (Clague, 1994). If the stimulating reward is bound to the results of the first effort which is more available to examination than it is unprofitable for the employees to take additional effort of the

second level under the condition of their invisibility as the chance that less diligent but lucky bureaucrats will get a larger reward than fair employees who divided their effort in favour of the second one or than those who simply were unlucky.

***The model of two-tiered hierarchy.*** The significance of informal mechanisms, influencing the employees' behaviour increases in the described institutional environment. One of the models (two-tiered "principal – agent") taking into account the influence of informal incentives is presented in the work of Huang and Wu (Huang, Wu 1994). The game-theoretical model which belongs to the class of psychological games for trust, proposed by Huang and Wu, allows analysing the corruption relations with regard to informal norms. The suggestion that choosing between fair and corruptive behaviour the individual (agent) takes into account the expectations of the society concerning the spread of corruption between the officials of his level is at bottom of the model. In this case the individual, breaching this norm takes moral expenses caused by his emotions about his own behaviour not corresponding to the expectations of other people. The less the corruption level to his mind is the higher negative emotions such as shame, regret, fear which he experiences breaking the established norms. Huang and Wu show that when introducing to the game emotions depending on the expectations two new equilibria with the gain higher than in the initial game (regardless the expectations) appear. This means that the existence of certain social norms demanding non-corruption behaviour leads to the increase of profits for all members of the society. As the Nash equilibria presuppose that when reaching them it does not pay to each particular player to break the equilibrium strategy on his own, the formation of anticipations in the society concerning the low level of corruption can lead the society to the status with really low level of corruption and maintain this status for a long term period.

The authors made analyses of the two-tiered model repeating the game in an infinite number of periods. In this case 3 equilibria occur: two evolution-stable equilibria in pure strategies when all agents in all periods behave themselves either always fair (non corruptive) or always unfair; and equilibrium in mixed strategies when some part of the agents choose fair behaviour and the rest – corruption

behaviour. We assume that the principal in this case always chooses the strategy of trust. We also assume firstly, the more the difference between the gain of fair behaviour and the average gain of the agent in the system is the quicker the number of participants choosing fair play increases. Secondly, the more the number of fair employees is, the quicker the social norms implying the favourability of fair behaviour are formed. The analysis of the equation describing the dynamics of the replicator led to the conclusion that mixed equilibrium is not evolution-stable. Taking the system out of equilibrium with help of exterior factors we get as a result the system either with total corruption spread (if the exterior influence was negative, e.g. the gains of unfair behaviour increased or the gains of the fair one decreased), or with equilibrium to the set norm of fair behaviour (in case of positive influence e.g. the increase of corruption behaviour expenses).

The examined two-tiered model demonstrates how social norms influence the behaviour of employees under the condition of possibility of corruption behaviour. It disembodies the expenses connected to monitoring the activity of employees and does not count for the possibility of wrong expectations. However the model shows that with the presence of anticipation dependent emotional expenses the possibility of the system move toward equilibrium with fair behaviour is higher than with the absence of such expenses.

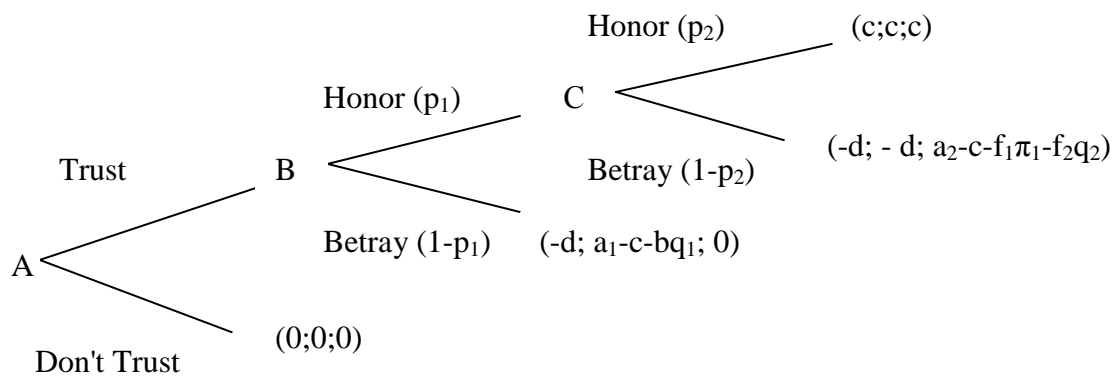
***The model of three-tiered hierarchy.*** The enlarged models of Huang and Wu for a three-tiered hierarchy “principal – supervisor –agent” permits to analyze more difficult relations between the players and consequently describes more precisely state structures which present a multilayered organization.

Introducing a mediator link – “supervisor” who acts as an agent to the principal and as a principal to the agent gives opportunity to reflect in the model that corruption behaviour is possible both at the low and at the high levels of organisation. Then the possibility of choosing fair strategy is influenced by the expectations concerning corruption both between agents of the same level and between the employees of a higher level. Indeed as in terms of the examined model the strategy is chosen firstly by the principal, then by the supervisor and by the agent finally, the

actions of the supervisor influence the gain of the agent therefore it is reasonable to suggest that the agent considers the anticipated level of corruption around supervisors when choosing his strategy.

This suggestion seems quite sound for a real state organisation. We suppose that an official committing a corruption action experiences negative emotions such as shame, regret, fear of being disclosed, the value of which depends on his expectations concerning what others expect from him. Herewith he orients himself not only at his colleagues' behaviour but – also at the behaviour of his superiors, i.e. officials of a higher level. If corruption is a spread fact in the superior's sphere than the agent will be at more ease to take a decision of his own unfair behaviour as his supervisors are paragon for him and thus he experiences both less shame and less fear believing that a corruptive official will hardly observe the behaviour of his subordinates strictly.

A formalized summing of Huang and Wu model for a three-tiered organisation is presented in picture 1 (in Huang and Wu's work this model is given only for particular numeric values of gains). Forth, A – principal (higher superiors), B – supervisor (middle superiors), C – agent (executors).



Picture 1. The game-theoretical model belongs to the class of psychological games for trust: general case of a three-tiered model “principal-supervisor-agent”.

In the terms of this model the behaviour of the employee depends not only on the range of corruption among the employees of the same level but on his anticipation concerning the range of corruption among the superior employees i.e. among his principals. This variant of the model not only counts for the possibility of corruption

appearing on different levels of the hierarchy but also stresses the importance of the role of the informal norms of behaviour which are the components of particular organisational culture. As the social norm in terms of society organisational culture defines the relations both between the employees of the same level and between superiors and subordinates by forming expectations concerning their behaviour. The character of inside-organisation relations influences the interior motivation of the employees. Thus if the relations are built upon mutual benefits each of the parties has incentives for fair behaviour to maintain the existing organisational culture. Herewith the expenses of inconformity to the norm of organisational culture as in the case of social norms are connected not only with the loss of trust of the other employees and termination of mutually beneficial relations with them but with inside negative emotions cause by the violation of behaviour norms in this organisation.

The authors obtained the equilibria in the three-level model in a general form. The analysis shows that the presence of informal norms influences the possible number of equilibria in the system. Indeed if all state superiors of the medium level (supervisor's level) choose fair behaviour the only optimal strategy for the employees of the lower level is also choosing fair behaviour strategy. If the superiors are corruptive in their behaviour then the most possible equilibrium will be the situation when all the officials also choose corruption behaviour. The exception is the case when the leaders' expenses in case of the fair behaviour and corruption behaviour of their subordinates are too high. Then even with the existence of a number of officials ready for fair behaviour the anticipated benefits of the leaders with the fair strategy are lower than those of corruption. If the equilibrium on the medium level is set in mixed strategies when only part of officials choose the corruption behaviour strategy the possibilities for the equilibrium on the lower level enlarge. Depending on different external causes implemented in the system parameters the agents can stick to either one of the clear strategies or a mixed one. The increase of the number of possible equilibria is caused exactly by the heterogeneous activities of the employees of higher levels.

The models of Huang and Wu permitting to consider the influence of social norms and elements of the organisational culture show that including into the analyses anticipation dependent emotions and particularly regret allows reaching equilibria caring Pareto-improvement in comparison with the models not regarding emotions. Thus the presence of established social norms in the society and organisational culture in a bureaucracy structure leads to the increase of welfare of all participants.

***Empirical study.*** To estimate the sufficiency of the conclusions of Huang and Wu's model in application to the authority structures an inquiry within the means of questioning was held among the employees of several committees and departments of the city administration in Perm, Russia. All in all 73 interviewees (from first class specialists to heads of departments) took part in the questioning. The respondents completed the questionnaire on their own, the research was anonymous.

The primary analyses of data held was based on the approach developed by the staff of the HSE Laboratory of Institutional Analysis of Economic Reforms (Balsevich, Podkolzina, 2009) permitted to characterise the structure of management of the city administrations as hierarchical which allows the application of Huang and Wu's model to the bureaucracy structure under analyses.

The analyses of various schemes of stimulating and observing fair work of the employees of the city administration showed the preferability of the abetment system – 75,3 % marked the answers “primarily” and “often” – in comparison with disciplinary methods of observing the implementation practice – 60% of respondents chose the answers “seldom” and “never”.

The estimation of the influence of informal incentives on the behaviour of city administration employees showed the following results. The most significant factors providing for fair work are the fair attitude of all employees to their work (83,6% including 42,5% “primarily” and 41,1% “often”) and the personal example of the immediate superior (71,2%). 60,3% of the respondents are ready to work fair not to lose their reputation of a fair employee. Almost half of the participants (49,3%) marked that their fair work is caused by the shame felt as a result of bad work.



The expectations of other employees also play an important role for the city administration employee when choosing the strategy of behaviour. 61,6% of respondents marked that their qualitative work is caused by the desire not to deceive the expectations of the immediate superiors, 54,8% name the unwillingness to deceive the anticipation of CEOs the same amount works fairly willing to prove their colleagues' expectations.

Such mechanisms as the possibility of denunciation by the superiors (68,5%) and denunciation by colleagues (35,6%) were marked as most important for implementation practice observance. Herewith the deprivation of prizes and bonuses as a significant means was marked by 53,4% of respondents. Thus among the mechanisms of implementation practice observance the informal means of punishment can provide more influence on the city administration employees than the formal mechanisms.

As a significant means of abatement the recognition of the employees success by the superiors is marked by 75,3% of respondents, by the colleagues – 38,4%. Herewith 71,2% of respondents consider the payments of personal surpluses, prizes and bonuses for the completed work, which proves the higher efficiency of the financial stimulating mechanism as abatement than as a penalty mechanism for unfair work.

The above mentioned results of the empirical studies do not contradict the theoretical conclusions of Huang and Wu's model: in the examined bureaucracy structure the expectations of the colleagues and superiors provide significant influence on employees' behaviour, bad work provokes the feeling of shame while the positive example from the side of the superior officials can be an incentive to fair work.

For further interpretation of the acquired data the cluster allocation was held as a result of which all the participants were divided into 3 groups on the base of indicator values including social-demographic characteristics of the respondents and characteristics reflecting the influence of informal norms on their behaviour. The cluster allocation was held by the method of k-average after the standardisation of

variables which allowed the observance equal influence of each factor on the final result. Therefore 3 clusters with equal characteristics inside the group were obtained. This classification of respondents can be interpreted the following way.

Cluster 1 (19 respondents) consists of employees with the medium-level jobs – lead specialists and head specialists, aged above the average in the excerpts however with a comparatively short record of work in the organisation: 1-2 years on a par. The representatives of this cluster are characterised by the low significance of informal norms. Assumption can be made that a short record of work stipulates the fact that informal norms of organisational culture have not speeded in becoming a significant factor for these employees while the plenary powers allow not to think of the colleagues expectations concerning their work. Nevertheless, fair attitude of all employees to their work can be a good incentive to fair work for the first cluster representatives (the indicator values for this factor are above average).

Cluster 2 (43 respondents) – the largest group composed of mainly lower and middle level employees (specialists of different classes) comparatively young and with a work record of less than 2 years in the given structures whose behaviour is significantly influenced by informal incentives, informal reproof and abetment (all indicators characterising informal norms influence are above average in the excerpt).

Cluster 3 (11 respondents) is a group consisting of the most aged employees who are working in the given organisation for quite a long period (5-10 years on a par) and occupy mainly high positions (deputy heads of the department, heads of department and sectors). The period of work provides for the significance of informal norms for these employees but the high position decreases the influence of such a factor as personal example of immediate superior, and the record of work allows to orient on other employees' expectations in a less degree. However the possibility of reproof by the colleagues and the superior act as a significant means of discipline maintenance while the recognition of the success by other employees as an important way of abetment for the 3<sup>rd</sup> cluster representatives.

**Conclusion.** The analyses of the data of the enquiry of the employees of city administration in Perm allows speaking of the substantiality of the conclusions of

game-theoretical model of Huang and Wu concerning the influence of informal norms in application to the given structure of the authorities. Herewith the informal norms can play different roles depending on the age, position and record of work in the organisation of the employee. However, a conclusion can be made on the base of the results of the analyses that forming expectations concerning fair work of officials inside the particular structure and in the society as a whole can aid to solve the problem of unfair behaviour of state officials.

### ***References***

Balsevich A., and E. Podkolzina. 2009. “Economics study of transactions management structures in state sector at the example of Ministry for economic development of the Russian Federation” [In Russian]. *Questions of State and Municipal management* 2: 144—163. Available on the HSE web-site:

<http://www.hse.ru/data/2009/10/29/1226762093/Text.pdf>

Clague, C. 1994. “Bureaucracy and economic development”. *Structural Change and Economic Dynamics* 5, No. 2: 273-292.

Huang P.H., and H.-M. Wu. 1994. “More Order without More Law: A Theory of Social Norms and Organizational Cultures” *Journal of Law, Economics, & Organization* 10, No. 2: 390-406.

Tirole J. 1994. “The Internal Organization of Government”. *Oxford Economic Papers, New Series* 46, No. 1: 1-29.

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