PROLOGUE

The presented book repeats, to major degree, the previously published monograph *"Light and Shadow"* (in Russian) 2013, [XXXII]. But this monograph contains some new materials concerning a wide and close insight into the problem connected with the development of entropy paradigm in psychology, which was developed and reflected in the recently published monograph by Kasianov V. A. *"Entropy Paradigm in the Theory of Active Systems"* (in Russian) 2016, [XXXIV].

Mainly, the presented monograph is dedicated to one example of the general theory application to an important economical problem. This is a very sharp trouble to our country nowadays.

There are two economies existing in parallel in the state: "Light" and "Shadow".

Therefore, when we say of economy in total and want to characterize its amounts, its main integral characteristic, its advantages and disadvantages, we have to take into account the reality of the two components of the entire economy. We do not dwell on studying detailed mechanisms of the shadow component coming into appearance, either shadow schemes realizations. There are specialists who deal with that in practice; we also do not try answering a question about usefulness or uselessness of the shadow turnout.

The task that we put for ourselves – it is to give a laconically minimally simple, however, not without a sense model, similar to the one proposed by S. P. Kapitsa in the sphere of demography [39].

We do go out from our deep convincing that principal participants of the process, in some sense, behave optimally on their own opinion. This gives us a possibility to solve a series of problems.

There is a large number of micro- and macroeconomic models differing from one another in the accepted suppositions. In the proposed model, there is absent a "round contour", i.e. it is not considered an issue about how the shadow income is used, turns its part into the real economy or not. In general, the production model (for example, production function of the Cobb-Douglas or Solow type) is not considered at all. In the model, there are three players: "firm", "racketeer" taxing the firm with a certain contribution, and "state", taxing the firm with a legal tax. In some respect the behavior of certain representatives of the state authorities is merely different from the one of the "pure" racketeer.

It is clear, that in the precise sense of wording, a burocrat is interested in the shadow component existence since it is impossible (or hard) to take bribes and "returns" form the light component of the turnout. Naturally, the used terminology has a conditional character, and the entire problem is much wider and deeper than it presentation in this work. For instance, a "bandit" of the 90th looks a respectful

gentleman for nowadays; his/her children study at Princeton, Harvard, Oxford and their "bandit's" inheritance is not noticeable absolutely yet. That is why the front cover picture of the book with the same title of 1997 is not actual for today. Nonetheless, conducted calculations gave numbers quite close to the experts' assessments, at least, being referred back down to the late 1990th early 2000th.

According with some experts' statements, the amount of "shadow" turnout approximately equals the one of the "light" at present time.

There is one more circumstance necessary to be noticed, which explains the purpose target of this work. The accepted models follow the known "principle of entropy maximum" by Jaynes [4, 5], oriented into the sphere of psychology and named "subjective entropy maximum principle" in relation to that. Method of the so-called "subjective analysis" [46] is developed on the basis of the principle. In the given case the authors consider this example as a possibility to substantiate the mentioned principle workability.

The presented work is a development of works [43] 1997 and [XXXII] 2013 with the same title; it is provided with some new research and calculations. It is unknown how much the presented results will be useful and for whom, although, the authors look at this research as at an intrinsically interesting optimization problem, having at the setting maximal simplicity and, on the other hand, reflecting rather essential circumstances related with the shadow economy. Limitations of the setting are stipulated also by the fact that a "stationary case" – stationary theory is being considered. Surely, a development of a non-stationary variant of the theory makes an interest; as well as its approaching to the reality with including into the model a chain of additional factors, for example, competition model, production processes model etc.

Out of the three subjects, participants of the economic process: "firm", "state" and a certain structure taxing the firm with a shadow taxation – "contribution", creating for it the necessity of the additional expenses; the central link of the triad is the firm.

Each participant of the economic triad – "Twofaced Janus".

It is obvious the necessity of introduction of a comprehensive, at the same time laconic, term reflecting for the third player the essence of his/her economic content. At this, one has to keep at one's mind that one must not get restricted with just a rude, in traditional understanding, term "racketeer", or "briber", as in the given case the function of the shadow subject converges not only to bribes, as well as to paying out wages in envelopes, but also supposes in the broadest sense escaping the official state tax. In such understanding, all the three considered subjects of economic activity have attributes of shadow economy structure to some degree of another. Also, legislative sphere gets into the area of the shadow structures competence since imperfect, form the economical point of view, legislation pushes the firm into the shadow. Sufficient stimuli and objective advantages of the firm activity without shadow component of the turnout are absent.

The difficulty of the problem investigation is also in the fact of absence of the reliable statistical data on the shadow economy, rather having just experts' assessments. That is why the "shadow economy" is called "shadow".

Thus, the problem of the term selection for the third player designation is an antiviral one. As it is, authors failed to find an appropriate designation in Russian yet. Using the lexical calques, loan translations of the English: "briber" – (from *Engl. briber: the one who gives a bribe, bribe-giver*), "bribe-taker" – (from *Engl. bribe-taker: the one who gets a bribe, bribe-receiver*). Both from *Engl. bribe: graft, subornation*. "Extortioner" – (from *Engl. extortionist: racketeer, exactor*), *burglar*, *robber*, *thief* and so on; authors came to conclusion that it is that difficulty of the term selection since each of the mentioned ones is not adequate the third subject in the given setting.

In many aspects the investigated problem is a conditional one as the production activity is not considered. It is not researched the use of taxes and contributions separately for accumulation and consumption. It is clear, that this proportion is different for each player. As it is, the state spends its income for the science, army, education, police etc.; as well as the state production sector of economy. A part of the contribution is used in the spheres of service and manufacture to some extent. However, apparently, much more portion of the income is spent upon consumption in the shadow sphere.

Notice an important in out opinion feature – the advantage of the considered models is that they do not contain experimental parameters and coefficients rather are based upon a certain postulated principle of optimality. Thus, marked above lack of statistics is compensated with the presence of the variational principle and proceeding from it models of economic behavior.

In further there will be used a term "racketeer", laconic, close enough to the essence of the problem and having a negative sense, understood by us as the conditional one although. This third player forms the shadow component together with the firm. The synthesized term: "racketeer", is obsolete, but conditionally depicts the entire complex of persons and circumstances forcing the firm have the shadow turnout.

The presented work, in the authors' opinion, touches fairly wide spectrum of scientific problems. Therefore, we deemed it expedient to accomplish the work in **FOUR PARTS** (and not chapters or sections); since each of them conveys a special sense charge. For the same reason, for a more relief presentation of some significant mathematical expressions and graphical illustrations, the separate numbering of formulas and figures in the **PARTS** is performed, and even in individual fragments of the monograph; as, for instance, in **PART III**, paragraphs 3.1 and 3.2, the formulas are designated as (A), (B) and (i)-(xx) correspondingly.

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