

Model of industry under the instability of demand on its production.

This work concerns a model of production industry. The industry undergoes the competition with import. It causes the instability in realization and the deficit of circulating assets. We suppose the time intervals between two realizations of commodity are exponentially allocated. The given model is a modification of the Houthakker-Johansen model and it takes into account the management of circulating assets.

The analysis of our model brings us to a linear programming problem in the function space with infinite number of constraints. The Arkin-Levin theorem reduces this problem to the problem of mathematical programming. The solution of the latter problem can be found in analytic form.

The main result represents the analogue of the generalized Neiman-Pirson lemma. We also give the necessary and sufficient conditions for the inefficient resources distribution under the deficit of circulating assets. We investigated different schemes of financial management in such industry.

Our model was developed to make clear the characteristic features of modern Russian economy. It is known that the extra strict monetary policy is held in Russia during the last decade of years. Still, the resources allocation goes on being inefficient. Another paradox of modern Russian economy is the fact that the Gresham law is not satisfied. The model investigation enables to explain both of these paradoxes.

References

- [1] Arkin V.I., Levin B.L. Variational problems with multi-variables functions and a resource allocation model. // Mathematical economy and function analysis. Moscow, Nauka, 1974 p.7-34.
- [2] Akparova A.V., Shanenin A.A. Investigation of barter equilibrium under the non-competitive credit market. // Reports on applied mathematics. Moscow, CC RAS, 2002 p.3-33.
- [3] Houthakker H.S. The Pareto distribution and the Cobb - Douglas production function in activity analysis. // Rev. Econ. Studies, 1955 -1956. v.23(1), N60. p.27 31.
- [4] Johansen L. Production functions. Amsterdam - London, North Holland Co., 1972.