TRANSPORT IN THE SYSTEM OF INTERSECTORAL INTERACTION

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THE REVIEW OF THE BOOK: Pozamantir, Elmar I. Computable general equilibrium balance of economy and transport. Transport in a dynamic intersectoral balance. Moscow, Poly Print Service publ., 2014, 280 p. ISBN 978–5–904466–07–7.

ABSTRACT OF THE BOOK (translated according to the text published in original Russian version). The monograph is devoted to the study of dynamic interaction of the sectors of economics. Simultaneously with the analysis of the problems of different economic sectors, its author pays special attention to the interaction of the industries with transport sector, first of all with railway, motor-road and road sectors. For the purpose of research on interindustry interaction the author uses a specially designed mathematical model that can be classified as a model of computable general equilibrium. It contains some newly developed blocks describing dynamics of basic production assets, their age structure, and impact of that structure on quality of production and economic efficiency, as well as some other blocks. Special modifications of general model have been developed in order to deeper examine interaction of economic sectors with rail and road transport. The author describes computer based implementation of developed mathematical models, and features of software. The book contains the results of experimental calculations made with the help of the described software.

ABSTRACT OF THE REVIEW. The review focuses on the productive role of transport sector for the national and global economics and its significant macro- and mega- economic effects. At the same time, with account for the «dispersed» nature of such effects, distributed among many economic actors, transport projects often do not have commercial appeal. That is why decisions on the implementation of transport development projects require rigorous evaluation of the generated macro-economic effects. For this purpose it is necessary to study the relationship between transport and other sectors of the economy. As the reviewed monograph is devoted to the study of the dynamic interaction of transport with other sectorial complexes, it contributes to the development of scientific approaches to studying of the mentioned problems. The methodological basis of the work is the interindustry balance model developed by V. V. Leontiev, supported by mathematical modeling that keeps key positions in the researches on world economics, and econometrics. The review shares the opinion on the correctness of the majority of the conclusions of the book, particularly on reasonable determination of the main result of road construction, that is the increase in speed; on the importance of closer relationship between the amount of funds allocated for the improvement of roads and achieved increase in speed; on the efficiency of public funding of rail construction added to proper investment of railway companies. On the whole the results of mathematical modeling are significant because they provide a quantitative measurement of qualitative estimates based on theoretical understanding of economic phenomena and on application of logical and analytical approach. But they themselves require «verification» by theoretical propositions of economics.

Keywords: transport, economy, interindustry interaction, development dynamics, mathematical model, computable general equilibrium, infrastructure, investment, fixed assets.

Providing barter processes, which are mutually profitable for their participants, transport thus contributes to the formation of additional GDP (and of GWP if we speak about world economy), that usually exceeds not only own costs of transport sector, but transport costs of the customers. This means that transport plays a productive role in the economy and, consequently, its development and improvement of the operation quality can produce significant macro- and mega- economic effects. At the same time, with account for the «dispersed» nature of such effects, distributed among many economic actors, transport projects often do not have commercial appeal, and the question of their financing from public budget arises.

Decisions on the implementation of transport development projects, especially under the conditions when they have insufficient commercial efficiency and need to attract budget funds, require rigorous evaluation of the generated macro-economic effects. For this purpose it is necessary to study the relationship between transport and other sectors of the economy.

The reviewed monograph is devoted to the study of the dynamic interaction of transport (in the first place of the main rail and motor transport, as well as of road sector) with other sectorial complexes, and makes its own contribution to the development of scientific approaches to studying of the identified problems.

Its author, professor E. I. Pozamantir, is a recognized authority in the field of mathematical modeling of solution of economic problems related to the functioning and development of transport systems.

The methodological basis of the work is the interindustry balance model developed by V. V. Leontiev, who later became a Nobel laureate in economics. It was supported by many major economists, who along with the author of the monograph, proposed their own interpretations and options of its implementation.

Mathematical modeling in general plays a significant role in the economy. After the so-called «marginal revolution», which occurred in the 70–90s of XIX century, the mathematical approach became a «mainstream» in the economic theory. Although the researches of many scientists often contain a harsh criticism of assumptions used in the economic-mathematical models as well as of the very desire to reduce economic theory to a level that can be «processed» (checked) with the help of a computer, this method keeps key positions in the world economics.

We should also note a well-developed scientific tradition of the use of econometric models in

transport, rising to the prominent representative of the mathematical school in economics, Nobel Prize winner academician L. V. Kantorovich. Thus, the monograph of E. I. Pozamantir relies not only on a powerful methodological foundation, but also on an equally strong scientific tradition, whose corner stone has been laid by prominent economists of XX century.

Creative use and development of the rich scientific heritage has allowed the author to come, basing on modeling, to a number of conclusions of common interest. There is no need to present all of them, if required the interested reader can refer to the original source itself. However I would like to highlight some points in more detail.

During model calculations it is noted, in particular, that «in the further work on development plans to improve roads, it is necessary to pay more attention to the reasonable determination of the main result of improved roads what is the increase in speed and to the development of measures that are called to build a closer relationship between the amount of funds allocated for the improvement of roads and achieved increase in speed» [p.255–256]. This thesis is fully confirmed by the general conclusions of the fundamental research carried out under the supervision of professor B. M. Lapidus, as according to them the increase in speed (that can be rightfully considered as an economic category), as well as in general speed efficiency of transportation is among the decisive vectors of transport developments in XXI century and a significant innovative factor of long-term acceleration of the economic growth.

Calculations, performed by E. I. Pozamantir, «have shown that the use of rail freight transportation of high quality is cost-effective for customers, despite the significantly higher freight rates, as well as for rail transport, as its product profitability increases, despite the need for increase in its production costs for such transportation» [p. 260]. This evaluation is consistent with the developed provisions of the profitability of improving the quality of transportation for all participants of the transport market (producers, customers, logistics companies and railways, that can be seen in detail in [1]).

The author of the monograph in the process of modeling states that the overall growth in the economy of the country increases, if, own sources of investment of railways, generated via revenues from transportation services, are complemented with very large state investment (about 1% of GDP) in railway infrastructure development [p. 261].

In this regard we note that even the founder of the theory of the market economy, Adam Smith, pointed out the need for public participation in the development of transport infrastructure. Currently reputable economists consider budget spending on infrastructure projects as a factor that increases the return on private investment. Moreover this factorial dependence is directly connected with more consistent efforts of the state in the field of transport construction, provided for e. g. in Russia by the Railway transport development strategy and the Transport Strategy of the Russian Federation until 2030.

Thus, the results of mathematical modeling confirm the theoretical ideas and give them a quantitative measurement, which is very significant under current complicated market conditions.

We should specially mention the finding, made in the monograph, that an increase in road financing within the current total amount of government spending (and hence by reducing spending on other items) results in macroeconomic effect that is 2,5–3,5 times lower than if the increase in financing was made on the background of the overall growth of government spending. It seems that such a result needs some kind of rendering, and it can be interpreted in two ways.

Straightforward interpretation is that it is necessary to increase the overall amount of public expenditure, and then the effect will be higher. However, in our opinion, it would be an oversimplification, and another output should be made. The overall growth of government spending means, by one way or another, a reduction of private costs. This can be due either to increased taxation, or, if additional budget financing is performed by «printing press», due to inflation, or, as is often said, the inflation tax. And GDP losses from reduced private spending should be thus considered in the same way as losses from the reduction of budget spending on other items. That is by taking into account losses of the decline in private spending, macroeconomic performance of increase in budget costs changes noticeably, and this must be taken into account when assessing the optimal level of public spending.

As a whole, the results of mathematical modeling are significant in that they provide a quantitative measurement of qualitative estimates based on theoretical understanding of economic phenomena and on application of logical and analytical approach. But they themselves require «verification» by theoretical propositions of economics.

Therefore, the application of mathematical methods in economic research should be in harmony with deductive logic and empirical analysis, conducted relying on theoretical understanding of economic laws. High convergence of the findings of the monograph on the basis of mathematical modeling with the results of application of other methods shows the reality of such a harmony.

The book of E. I. Pozamantir, by deepening understanding of the mutual impact of transport and other sectors of the economy, and giving a reliable research tool for quantitative assessments of options for the market development, is of great interest for researchers, dealing with macroeconomics, economic and mathematical modeling, management of transport economy, for employees of public administrations, for management of transport companies, as well as for teachers, Ph. D. students, students of economic and transport universities.

REFERENCES

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