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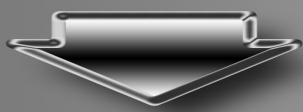
РЕЗЮМЕ РЕДАКЦИИ

Отдельные критические моменты, высказанные автором при анализе состояния железнодорожной отрасли, возможно, нуждаются в более детальном рассмотрении, однако они подводят к четкому пониманию значения железных дорог для социально-экономического развития страны.

Если бесперебойное функционирование железных дорог представляется бесспорным для обеспечения полноценной экономической жизнедеятельности, других стратегических интересов государства, то мнение, что развитие железнодорожной сети воздействует не только на собственную отраслевую инфраструктуру, но и имеет многогранный синергетический эффект (социальный, экономический, регионального развития) для общества и государства, не сводимый исключительно к экономическим расчетам рентабельности строительства дорог и самих перевозок, требует серьезных дополнительных аргументов.

В этой связи, несомненно, ценными представляются предложенные автором варианты расчетов системных эффектов от развития железнодорожной сети. Соглашаясь на основе этих или иных расчетов с синергетическим фактором, стоит все-таки более критически и взвешенно оценить как обращение за государственной поддержкой, так и возможное привлечение целевых ресурсов в рамках государственно-частного партнерства.

SYNERGETIC EFFECT OF TRANSPORT

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ABSTRACT

The article underlines problems of insufficient funding of innovative development of Russian railways, shows ways to attract funding via non transport (synergetic) effect for the customers of transportation services in the framework of private-public partnership. The author proposes formulae of definition of reduced expenditures and results for assessment of investment in infrastructural projects, methods of calculation of some elements of synergetic effect, which is achieved through accelerated rotation of material resources, reduced inventory norms, increased incomes of realty owners in the regions adjacent to transport networks, social effect of increased mobility of population if innovative transport capacity of the country considerably develops.

ENGLISH SUMMARY

Background. *Railways constitute a sensible indicator of changes in Russian economics; on the contrary the malfunction of railways causes failures in the economics. Of course some reproaches to railways can be considered justified, and they are mostly linked to some decisions concerning reforming of rail sector. But according to the author's opinion the main problem rests in insufficient state support to main railways which are strategic economic sector of Russia.*

The government insisted on the reforms, but doesn't follow this requirement by large economic efforts. Strategic program of development of railways till the year 2030 [1] is implemented slowly. The funding, planned at the amount of 450 bln rubles, only partially contributes to local problems solution concerning links of central Russia with Volga region and Far Eastern region. Not a single kilometer of transit railways has been constructed for more than 20 years (besides stub tracks to Yakutsk and Yamal, which were constructed mostly with the use of non-public funds). The JSC Russian Railways, working in conformity with publically regulated fares and tariffs, accomplishing large social obligations, has yearly profitability of 1–2%. Those resources are not sufficient to maintain fixed assets of the rail sector.

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Objectives. *As the main problem is to find sources of funding for development of rail infrastructure, the objective of the article is to show that resources can be found inter alia through the use of synergetic (also they can be named «off-transport") effects.*

Methods. *The economists have proved that the transport is a «locomotive» of economics. The customers of transportation services receive important advantages thanks to new transportation routes or reconstruction of existing mainlines, but those advantages are not directly reflected in GDP. Those synergetic effects relate to savings in floating funds and resources of enterprises, to growth of profits of owners of real estate and exploration of new natural resources' areas. The costs of real estate (lands, apartments etc.) in the areas of new rail construction demonstrate 4–5 times growth. According to author's calculations off-transport effect for customers of transportation services exceeds by 3–4 times the effect for transport caused by increase in traffic [2].*
To substantiate the synergetic effects the author uses a system of expressions related to different aspects of economic and other effects of development of rail network.

Results.
The total cost of a transport project can be calculated with a formula of reduced expenditures and results:

$$C_{пр} = Э_{тр} + E_н (K_{тр} - \Delta Э_{внт}),$$

where $Э_{тр}$ are current transportation expenditures;
$E_н$ *– factor of reduction of expenditures and effects (0,10);*
$\Delta Э_{внт}$ *– change in off-transport effect;*
$K_{тр}$ *– capital investments in transport development.*
The author supposes that in order to determine required public investments for development of different modes of transport, it is necessary to substantiate their project costs on the basis of reduced expenditures and compared synergetic effects, which are to be obtained during the period equal to the period of capital investment expenditure with the account for inflation rate. It will permit to accelerate investment project implementation with the help of co-funding within private-public partnership by customers of transportation services of capital expenditures for transport infrastructure development. It is an implementation of market approach to transportation costs because customer pays for enhanced quality of service.
Criterion of effectiveness of investments in transport infrastructure development can be expressed within the conditions when synergetic effect is at least 2 times more than capital investment:

$$\frac{E_н \times B_{внт}(1 - \alpha_и)}{E_н \times K_{тр}} \geq 2,$$

where $\alpha_и$ is an inflation rate.
General formula for definition of synergetic effect of transport is the following [3]:
$$\Delta B_{внт} = \Delta M_{об} + \Delta Э_{уоб} + \Delta Э_{зап} + \Delta Э_{пот} + \Delta П_{нд} + \Delta Э_{соц} - \Delta У_{тр}, RUB.$$
The author also describes formulas of calculation of savings of floating assets of enterprises that receive freight thanks to acceleration of freight delivery ($\Delta M_{об}$):

$$\Delta M_{об} = \frac{\sum P_{год} \times Ц_{гр}}{365} \times (t_1 - t_2), thousand rubles,$$

where $\sum P_{год}$ – yearly volume of traffic of certain goods in thousand tons;
$Ц_{гр}$ *– gross price of 1 t of carried freight in rubles;*
$(t_1 - t_2)$ *– reduction of time of delivery, in days.*
The author also gives expressions for savings of enterprises thanks to acceleration of assets of turnover of capital and exploration of natural resources; for savings of maintenance of materials; for savings caused by decrease in losses of freight; for increase of incomes of owners of real estate; for social effects thanks to enhanced transportation services; for damages caused by environment pollution due to transport activities. He notes that it is necessary to account for long-term inflation rate and raw materials price change ($\alpha_и$).

Conclusions.
The equations mentioned in the article can be used to calculate the effectiveness of investment projects. It is necessary to assume that if the life of a development project for a certain transportation route is of 10 years then the off-transport effect should be forecasted for the same 10-years period. It is also necessary to forecast in the most accurate manner possible freight flows.

<u>*Key words*</u>: *transport infrastructure, off-transport synergetic effect, criterion of investment effectiveness, saving of floating assets, real estate price, social effect, co-funding of innovative projects, private-public partnership.*

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