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ABSTRACT

The article considers different aspects of the impact of the transport on economic growth and on increasing public well-being. The author argues that historical retrospective analysis proves the relationship between transport and transportation developments and economic and demographic

situation. The developed graph model also can be used as a proof of positive influence of transport on economic development of countries and societies, in the growth of populations' well-being thanks to extended customer choice. The author highlights the evident contributions of both passenger and freight transportation.

Keywords: transport, economic growth, well-being, exchanges, diversification, differentiation, customer choice, innovation.

Background. Transportation activities were among consistent preconditions of emergence of first civilizations. Even in ancient times cities and densely populated agricultural areas in the valleys of «great historical rivers», that had become primitive cradles of civilizations [1], could not exist without long distance transporting of large volumes of various goods, without transport support for interregional exchange of metals and timber for agricultural goods.

Objective. The author's objective is to show long term relationship between transport and transportation developments and economic and demographic situation.

Methods. The author uses contents and historical analysis, economic analytical methods, graph construction techniques.

Results.

1.

Developments of transport, as well as social and economic developments overall, have never been permanently progressing. But despite long stagnation and regressive periods, progressive trends finally have always dominated.

Progress in transportation was among key factors that had put an end to the millenarian period of Middle Ages and starting from the Age of Discovery has paved the way to global open market society [2].

It was exactly then, at the epoch of early merchant capitalism, that first evident signs and markers of acceleration of economic and demographic growth emerged [3]. And the rise and development of industrial capitalism in 19th century characterized as by key factor by emergence and evolution of steam transport (steam vessels and railways), made it possible the advance of the era of modern economic growth followed by qualitatively higher rates of production and population growth. It is to note that for the first time in the history of the mankind the rates of economic developments began to constantly outpace the population growth [4, p. 22]. It meant considerable and consecutive increase in people's well-being. If from the beginning of the Common Era and till first industrial revolution and era of modern economic growth (i.e. from 1 A.D. till years 1820s) world GDP per capita had increased, in accordance with known estimations, by 1,4 times, then from 1820 till the beginning of the 21st century it has increased by more than 9 times [3, pp. 576–577].

Quantitative analysis shows meaningful relationship between the development of the railway network and the economic growth in 19th and early 20th century in biggest national economies (Great Britain, France, Germany, United States and Russia) [5, 6].

Interstate analysis of modern situation also reveals significant development of the level of

economic development on the development of infrastructure of land transport (both road and railway transport) [7]. The relationship between long term economic dynamics (Kondratiev long waves) and intensity of transport innovations has been established at the example of railway transportation sector [8, 9].

Development of transport means extension of exchanges that increase well-being of participating economic actors as each exchange action results in «goods transfer from one who less appreciates them to another who more appreciates them» [10, p. 348]. Consequently, goods exchange between two economic actors results in increase of public well-being. Nobel prize winner Friedrich A. von Hayek underlined creation of new values caused by displacement of goods: «...Quantitative increase in existing stock of physical means of subsistence and amenities of life depends mostly not on visible transformation of given substances and materials into other ones, but rather on the process of their displacement, as thank to that moving their relative importance and value change!» [11, p. 161].

Besides, market exchanges conditioned by transportation activities opens opportunity for diversification and differentiation of the production, and this is a powerful factor of growth of economics and of its efficiency on the basis of the the law of comparative advantage formulated by David Ricardo [12].

2.

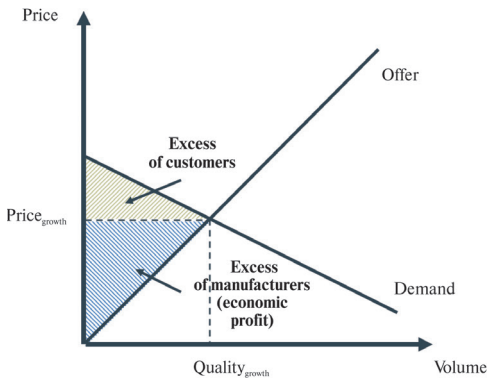
The graph model developed by the author showed that creation of new interregional transportation networks has allowed the regions to focus on those goods, for production of which they have comparative advantage, and resulted in increase in production and consumption in all the regions that participate in differentiation of production, and in decrease in prices of goods [13]. In other words, economic growth gets additional impetus, and the public well-being grows.

But well-being or wealth of people and, consequently, of societies that they constitute are not determined purely by number of goods either by volume of revenues: «...The wealth can be determined as range of customer's choice. A person perceives extension of capacity to choose as a growth of the wealth, and this extension cannot be quantitative only as in conformity with the theory of marginal utility the value of each good diminishes following increase in its number. Extension of possibility should be of qualitative character. In that very sense economic growth to some extent is qualitative extension of possibility of customer choice...» [10, p. 317].

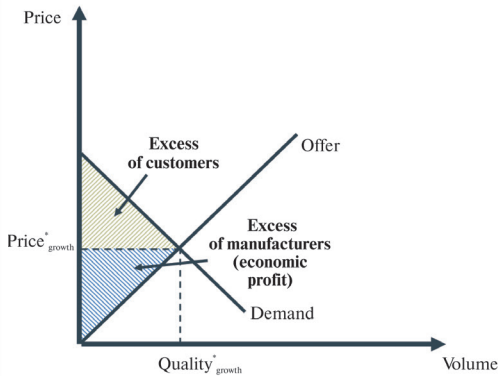
The impact of the transport on economic growth and public well-being through extension of customer

¹ Here and after – return remittance from Russian text – ed.note





Pic. 1. Regional market of a conditional good where substitute items are absent.



Pic. 2. Regional market of a conventional good where substitute items are present.

choice can be illustrated with the help of a graphic model (Pic. 1–3).

Pic. 1 shows main features (demand, offer, market-clearing price and volume) of the regional market of a conventional commodity in the case when close analog goods (substitute goods) are absent and demand is satisfied by local production. Then, thanks to organization of transportation networks, an analog (substitute) good, manufactured in another region, emerges. In order to identify the very impact of extension of customer choice on the level of well-being, let's agree that the schedule of offer of substitute good fully coincides with the schedule of offer of the original good (the situation when an imported good, even taking into account transportation costs, is offered at the exactly the same price as the price of local product is a plausible assumption, as manufacturing of items focused on their wide distribution in different regions is followed by the scale effect, that allows to sell them even cheaper than goods of local manufacturers who are focused on local markets only).

Let's suppose that qualitative features of a substitute item don't differ too much from the features of an original product, their differences depend rather on taste-based option, and so some customers will switch over to substitute good, other will remain loyal to the usual product, and some will combine purchases of original and substitute goods (to diversify their needs). Let's assume that such a choice will result in equal distribution of demand rate between

traditional item and a substitute item at each price level. It means that the graphs of demand regarding traditional item and substitute item will be identical and will have angle of inclination towards horizontal axle that will be twice larger than the angle at the initial graph of the demand regarding original item.

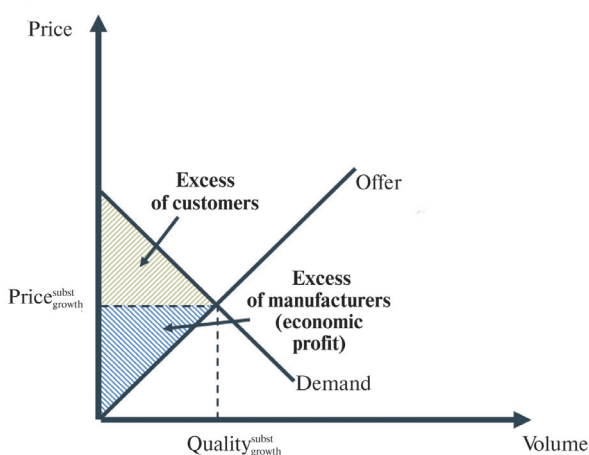
So organization of transportation facilities in a considered region will result in development of the markets of two analog items with the same parameters (Pic. 2 and 3). The impact of transportation on the level of well-being will be determined only by the emergence of possibility for customers to opt for one of two similar products offered at the same prices. This impact is illustrated by comparison of the Pic. 1 with Pic. 2 and 3. Market-clearing price of each of two items will be lower than the price of the original item in the absence of substituting goods, and the total volume of consumption of both items will be higher than the volume of consumption of the original item in the absence of substituting goods. In that situation total customer excess considerably grows and customers will be uniquely in a winning position, the well-being of customers being finally main indicator of economic progress [14, p. 233].

3.

Total excess of manufacturers (that can be considered as economic profit) grows slightly and is distributed equally between local manufacturers of original item and manufacturers of a substitute good originated from another region. If we consider production volumes of the original item for the needs of a local region, relevant revenues and economic profitability for local manufacturers, they considerably decrease. But those losses can be considered as a damage to regional economics only in the case when one use four centuries old merchant doctrines (it should be nevertheless noted that they are still alive). First, local manufacturers can use developed transportation facilities to forward their products to other regions (if only they can provide for their competitiveness), that will not cause reduction but will result in growing production volumes, profits and revenues. Second, less competitive manufacturers should either reduce costs (and that is always positive for economic growth and increase in public well-being), or, if they fail, should leave the market. In the last case labor and material resources, previously used for manufacturing of an item that turned to be ineffective in the market, will be refocused on the other needs, more demanded by customers.

The described model reveals important positive impact of emergence on the market, thanks to transportation developments, of a single alternative item with the same features that the traditional item possessed. The real life that is enormously richer than any model, and many thousands of new goods with very different price and qualitative features entered the markets thanks to transport contribution. This is one of the most important constituent elements of economic growth and increasing well-being over the world. Diversification of lists of offered goods and of customer options have continued since high antiquity and the continuation of that process into the future will guarantee that transportation services will be in high demand [15].

As far as passenger transportation is concerned, it also contributes to the extension of customer choice, particularly in the sphere of services



Pic. 3. Regional market of a substitute item.

(education and training, health, recreation), thus positively affecting increasing public well-being and economic growth [16]. On the whole developments in transport sphere extends for «most people their capacity to choose and to develop the quality of their own life» [10, pp. 343–344], and this is a key aspect of human well-being.

Finally, developments of transport and exchanges, by facilitating distribution of products of efficient innovative enterprises, of new technology and fast travelling of persons possessing high knowledge and competence, «reduces costs of inventions and innovations, thus in turn increasing the wealth of the society» [10, p. 346]. E.g. growth of common well-being is explained by the fact that transportation resources provide mutually beneficial exchange of goods and services in the enlarged markets, extend opportunity to diversify and differentiate production and to implement the law of comparative advantage, accelerate diffusion of innovation, and give impetus to creative searching of new quality of life.

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