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Self-development of rural areas under digital economy conditions as exemplified by Northwestern Federal District regions

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Abstract. The present article is addressing theoretical aspects of self-developing regions evaluation under digital economy conditions. The present article is (i) giving evaluation of main Northwestern Federal District (NWFD) regions in accordance with self-developing region identification methodology proposed by domestic scientists and (ii) substantiating the necessity of additional investigations aiming to identify the criteria of self-developing region. It is presenting analysis of problems associated with NWFD rural areas endogenous development under digital economy conditions. It has been found that in digital economy conditions any region acquires additional possibilities for self-development including also local population's entrepreneurial activity growth without sacrificing the authentic territorial features. The paper presents indicators of digital economy development in RF rural areas and identifies strategic objectives which, if achieved by country inhabitants, will help them use digital economy advantages and facilitate region's socio-economic development.

1. Introduction

Currently, considerable part of Russian Federation rural areas is facing the problem of local population outflow to the towns. Such outflow is caused mainly by low quality of life which consists not only in low salaries or unemployment but, to a greater extent, in underdeveloped social infrastructure, namely, health protection, educational services, accommodation, recreations, environment protection etc. Population outflow, in its turn, is intensifying the process of destruction and excessive wear of infrastructural facilities which are remaining in agricultural sector. Besides, lack of high-qualification labor resources makes living in rural areas non-prestigious and leads to population marginalization.

Most outlying rural areas are objectively lacking sufficient financial, managerial and other types of aid from the state and from other entities which could help them solve vital problems of rural areas socio-economic development. In view of this we consider it expedient to orient rural municipal bodies on endogenous development. In other words, on rural area's self-development which is generally understood as development of socio-economic system in compliance with own strategic viewing and

proceeding from availability and efficient management and employment of intrinsic resources (human, natural, cultural etc.).

2. Investigation methodology

The below listed NWFD regions were selected for investigation: Arkhangelsk oblast (exclusive of Nenets autonomous okrug), Vologda oblast, Kaliningrad oblast, Leningrad oblast, Murmansk oblast, Novgorod oblast, Pskov oblast, Republic of Karelia and Republic of Komi. Saint Petersburg was excluded as it is a Federal entity. Nenets autonomous okrug was also excluded due to specificity of local area's climatic features and resource constituents. Investigation was undertaken during 1998-2016. Methods proposed by Ye. A. Zakharchuk, A. F. Pasynkov and A. A. Nekrasov [1] were taken as a basis thereof. Also, theoretical and practical fundamentals of regional socio-economic systems were disclosed by national scientists A. I. Tatarkin [2], V. S. Fedolyak [3] et al.

In order to analyze problems of rural areas endogenous development (under digital economy conditions) which is aimed at local population's entrepreneurial activity growth without sacrificing the authentic territorial features it is necessary to point out not only papers by C. Ray [4], L. Townsend, C. Wallace, G. Fairhurst [5, 6] dedicated namely to intensifying of rural residents entrepreneurial activity but also issues associated with obstacles impeding appearance in the global markets specified by S. Grimes [7], L. Townsend, C. Wallace, G. Fairhurst, A. Anderson [6]. In this respect, as we consider, worth mentioning are not only brand promotion and strengthening measures but also forecasting of turnover growth in risk management system proposed by A. R. Bril, O. V. Kalinina, I. Ilyin, A. S. Dubgorn, O. Yu. Iliashenko [8]. Idea of rural areas ICT- based endogenous development (as a more advanced idea) is supported also by S. Cecchini and C. Scott [6].

3. Self-developing areas assessment criteria

Viewpoints regarding applicability of Russian rural areas self-development theory are rather contradictory as well as the criteria and methods of self-development area identification. For instance, according to criteria estimated by Ye. A. Zakharchuk, A. F. Pasynkov and A. A. Nekrasov [1] it is possible to track positive tendency of self-developing NWFD areas number increase. While for the period 1998–2009 only Arkhangelsk, Kaliningrad and Leningrad oblast could be mentioned as self-developing areas it may happen that according to period 1998–2016 all NWFD areas will be considered as self-developing (table 1).

Table 1. Indicators of NWFD regions for the period 1998–2016 according to self-development criteria proposed by Ye. A. Zakharchuk, A. F. Pasynkov and A. A. Nekrasov (Source: compiled by authors according to data provided by the Federal State Statistics Service of the Russian Federation [15]).

Region – NWFD	Local Gross Regional Product (GRP) departure from RF average, %	Growth / decrease of criterion indicator as compared with previous
Republic of Karelia	3.48	++
Arkhangelsk oblast	6.85	++
Leningrad oblast	7.85	++
Republic of Komi	3.11	++
Vologda oblast	4.10	++
Kaliningrad oblast	6.94	++
Murmansk oblast	2.06	++
Novgorod oblast	5.66	++
Pskov oblast	3.98	++

In this connection, it is necessary to point out the warning given by Joseph Stiglitz about "self-righteousness risk" [7] which means that current success may not be cornerstone of success in future. Care shall be taken about inequality liquidation and each individual's right for free choice of residence enabling better living conditions. Here we again return to the problem of rural areas and their residents' development; namely rural residents are representing most disadvantaged groups of RF population.

Regional development issues are representing the viewpoints according to which it is necessary either (i) to create agglomerations aiming to optimize costs or (ii) to shift to rural areas self-development which will result in "regional flourishing" and "social sphere" improvement [8]. Idea of self-development was scrutinized by A. I. Tatarkin. This scientist opposing the idea of agglomerations is putting forward the following viewpoint: agglomeration establishment effect will become monopolized by large centers due to their larger development potentials. A. I. Tatarkin is also pointing out "lack of serious scientific developments dedicated to establishment and "launching" of agglomerations" [2].

A. I. Tatarkin further underlines the necessity of territorial competitiveness enhancement aiming to unlock potentials of an area being a self-developing socio-economic system and identifies (as a reference) the "*idea of territorial consolidation*" and sustainable development of entire territory in which namely "rural areas will become emerging centers of competitiveness" [2]. To achieve the established objective, it is required to enhance the role of human factor so as to shape *rural population's "innovative attitude*" [2].

V. S. Fedolyak [3] addressing the issue of territory endogenous development points out, apart from demand for orientation on own resources, the requirement of "*maximum possible expansion of economic relations with other regions*" specifying proper and efficient resources management as a basis for successful regional self-development. Today, when Internet technologies are widely spreading, this statement takes on particular significance.

4. Self-development of NWFD regions under digital economy conditions

Digital economy development may give impetus to NWFD regions self-development. Firstly, presence of Internet is considered today as a powerful resource giving additional possibilities for satisfying the population's demand for jobs, education, recreation etc. It should be mentioned that possibility to have main and additional earnings in rural area are currently important, especially if to take into account the fact that most part of main earnings of local budgets of NWFD areas under consideration is formed at the expense of physical persons taxes. Secondly, owing to wide Internet coverage, users connected thereto obtain new managerial opportunities in the public sector. Thirdly, implementation of new software, apart from solving educational, managerial and/or auxiliary tasks, allows minimizing transaction costs both for population and for public sector. This is mostly important for outlying areas where in order to solve any problem it is necessary to visit regional center.

Attention in issues connected with Internet advancement to rural areas for the purpose of self-development shall be, in our opinion, concentrated on e-commerce development that could enable the population to sale their products and services to any part of the world especially taking into account that main products and services of local inhabitants are associated mainly with natural blessings (berries, mushrooms, fish, hunting trophies) and products made thereof, popular craftwork items, other unique products, which fact, on the one hand, facilitates shaping of regional brand and image, on the other hand – provides possibility for local population to gain primary or additional profit with the use of e-commerce. This type of profit also helps to shape a consolidated regional tourist-related product where any tourist visiting the rural area can be provided with a full set of services of any kind. At another point, implementation of these services via Internet during "low" season will cushion the differences in profits depending on the season. Development of rural tourism contributes to local economy diversification [9].

In theory, this way of things looks attractive, especially in the context of program targeting self-development of rural areas according to which the region will in this case have more financially reliable inhabitants and, as a result, more tax payments. Nevertheless, currently there is a number of obstacles on the way to achieve the scheduled goals, namely, small number of active broadband Internet users and, in some cases, failure to connect to Internet even using mobile telephony [10]. On the one hand,

low Internet coverage is characteristic not only for Russian rural areas but also for well-developed countries like Great Britain [5, 11], on the other hand, countries like Finland already coped with this task.

According to investigation performed by RF Higher School of Economics [12], 94% of Finnish population is Internet users, in Russia – only 73%. Investigations show that Access to Internet is performed today more often with the use of smart phones or pads, therefore, it is expedient to estimate share of population accessing Internet using these gadgets. In Finland 71% of inhabitants are using smart phones for Internet access, in Russia – only 45%.

Furthermore, quite pessimistic are indicators characterizing population's knowledge of special software usage for proper working. According to investigation performed by RF Higher School of Economics, in 2017 only 28.9% of RF rural population had text editing program skill which is most common skill which is required for personal computer and Internet usage. For comparison, in 2017, in rural areas, only 18.8% of the population aged 15 years and older already owns the skills to transfer files between a computer and peripheral devices while in Finland this figure is reaching 67%. Proportion of photo, image and audio files editing software users in Russia is 15.9% of total population, in Finland – 51%.

Possibility to find remote e-work is affirmed by information provided by various recruiting sites and by Higher School of Economics presenting some figures regarding salary amounts in some e-economy sectors. According to table 2, average salary in ICT and Internet sectors normally exceeds the same in NWFD regions which amounts to 45 665 rubles [13] with exclusion of Nenets okrug and Saint Petersburg. It should be mentioned that statistical data regarding average salary is often overstated at the expense of high salaries in municipal settlements or salaries of public officers while average salary in the regions is much lower. According to Higher School of Economics maximum salary in ICT sector in 2017 was: 67.6 thousand rubles – sector of information technologies, 57.5 thousand rubles – in ICT production sector and 26.9 thousand rubles – other information services. Working in the sphere of information technologies requires special computer and Internet skills, while, according Higher School of Economics, proportion of RF population possessing such skills is under 2.8%. Furthermore, during 2014–2016 this index decreased by 0.2%.

Table 2. Salaries in some Internet-related ICT sectors in year 2017 (Source: Higher School of Economics).

Type of work performed	Monthly average gross payroll, K RUR
Information technologies	67.6
ICT production	57.5
Other information services in ICT sector	26.9
Other services in the sector of content and mass media	57.5
Production of cinema, video films, TV programs	30.8
Activities in the sphere of TV and radio broadcasting	56.5
Producing of books, periodical publications, another kind of publishing activities	35.2

Among positive factors it should be mentioned that according to investigations performed by Higher School of Economics, proportion of ICT specialists under 35 years of age reached 56% in 2017, which is behind the same indicator displayed by Turkey and Malta which are accordingly 65% and 63%; Finnish indicator is only 29%. However, field investigation results show that young people shift from rural areas due to unavailable social infrastructure and even due to lack of Internet access.

Access to Internet by small and medium entrepreneurs for the purpose of products and services promotion, apart from seeming positive prospects like competitive advantage, improvement of consumptive qualities and exclusivity and quest for new markets, has a number of negative consequences for entrepreneurs and for the region as a whole. Entrepreneur needs first of all to deliver information displaying competitive advantages of product or service he is providing. However, today any products and services are easily reproducible, and this requires additional brand reinforcement attempts. Field investigations performed by the authors as well as international surveys show that in rural areas local entrepreneurs often experience difficulties in shaping their personal brands and therefore impede promotion and implementation of their own products and services via Internet; besides, low-qualification entrepreneurs who are advancing to the global market often fail to withstand competition which they have never faced working with local businessmen and consumers [11]. In order to reinforce competitive strength, quest for new e-markets and so forth, it is necessary to acquire definite (even minimum) skills. However, according to aforesaid figures, population of the Russian Federation possesses these skills in a minimum degree, and rural population – even in a lesser.

Also, investigations that we performed showed that so far there have not been any mobile applications developed to promote and implement services in the sphere of common tourism, rural tourism and related services in rural areas and NWFD regions neither for domestic nor for foreign users [14].

Another proof of lacking skills and lacking understanding of necessity to use Internet is represented by the below listed factors which are restricting Internet employment in rural households (survey of 2017, proportion of households not using Internet): main factor – unwillingness and lack of interest – 22%, second – 8.9% absence of Internet usage skills.

5. Conclusions

Summarizing the above, we consider that working in Internet and in ICT sector is challenging for rural inhabitants. Today, rural inhabitants do not possess sufficient professional skills. In view of this, it is necessary to focus more attention to working with local population in the sphere of computer and Internet literacy and imparting skills to promotion and implementation of their products and services and personal brand shaping. Another important factor enabling territory competitive strength improvement is coverage and provision of access to Internet in rural areas without which it is impossible to implement the first task. Here, it is also necessary to focus on pricing policy and on-line educational services promotion.

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