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Correlation of Migration Level and City Attractiveness

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Abstract: Modern cities being in competition, try to create a more attractive environment for their residents, investors, tourists and businessmen. In this study, we investigate the correlation of migration level and city attractiveness (by the example of millionaire cities of Russia). The investigation is based on the hypothesis that the higher rate of balance of migration indicates a higher level of attractiveness of the city for its residents. To verify the suggested assumption the research was conducted which was based on correlation analysis of amount of balance of migration and activities of attractiveness of the city. This method allowed to reveal the interrelation of the given characteristics of the territory. Then, we ranked the cities in the level of their socio-economic attractiveness.

Key words: Regional economy, economy of the city, quality of life, migration, the attractiveness of the territory attractiveness

INTRODUCTION

In the conditions of decentralization the cities become independent socio-economic subjects which are noted for dynamic growth and susceptibility to the negative influence of external factors. At the same time, the cities possessing relatively commensurable activities of socio-economic development are beginning a fierce struggle for the resources that can be used for further development of the area. Mainly, they are labor, investment, financial. The significant influence on it exerts the achieved level of development of the territory which determines its attractiveness. In a market economy, the territory considered:

- As an object of human use of his intellectual, financial, innovation potential
- As a place to meet human needs for recreation, entertainment
- As a place of non-profit activities

In whole, a consumer in not interested in the territory itself while its value which is determined by the main characteristics. Mix of material goods which a consumer can acquire receiving a certain amount of income. Per se it is the cost of living conditions in the city. For a city resident, the important economic indicators are income and expenses levels which are determined by the average wage and the average cost of basic goods and services for the population including taxes.

Mix of non-material characteristics that are linked with the possibility of receiving professional services in all areas of human life, the comfort of residence, the opportunity for personal and professional growth; uniqueness of the territory which is determined by the location of the city, its landscape, ecology as well as peculiarities of the taxation, attractiveness of the city with relation to running the business, existence of unique institutions or architectural features.

The baseline of our investigation reposes on the hypothesis that the determinant "Amount of balance of migration" can be considered as an indicator, reflecting socio-economic attraction of the city. According to our assumption, the higher the level of attractiveness of the city for its residents, the more people will move to this territory and the less people will leave it. We have chosen the of millionaire cities of Russia as the object of our investigation (Volgograd, Ekaterinburg, Kazan, Nizhny Novgorod, Novosibirsk, Omsk, Rostov-on-Don, Samara, Ufa, Chelyabinsk) as they are the most competitive at the present stage of development.

Literature review: Within the framework of the investigation of the city attractiveness Jolita Sinkien and Saulius Kromalcas consider the city as an open system, whose development is determined by both external factors and internal conditions. In the context of this approach, the researchers evaluate the factors of its attractiveness not for a particular group but distinguish three key specific audiences-business, residents, tourists. It allows to evaluate the external attractiveness of the city and determine the relative level of the city competitiveness in comparison with other territories as well as to assess the internal absolute attractiveness of the city, due to the

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achieved level of development. The investigations of such scholars as Glebova *et al.* (2013) Khabibrakhmanova, Yasnitskaya (Rich, 2011; Haq and Zia, 2013), etc. are also dedicated to the issue of city attractiveness. However, at present the analysis of the attractiveness of the territory, based on not only the value of economic factors but also the criterions that reflect the comfort of living and quality of life (Glebova *et al.*, 2013; Haq and Zia, 2013; Sander, 2014) is becoming increasingly relevant. Quality of life; it is a complex phenomenon which spans social and individual welfare, that goes beyond the traditional concept of material prosperity, living standards and including philosophical, cultural and psychological components which hard giving in to quantifiable determination.

In connection with it the question of the attractiveness of the territory for its residents becomes especially relevant. From our point of view, the socio-economic attractiveness of the city is denoted in the desire of the citizens to come to this territory, to participate in its economic life to work, run their business and also actively use its social and cultural infrastructure.

In this regard, the indicator of amount of balance of migration which can reflect the socio-economic attractiveness of the city, becomes interesting to analyze. At present, migration, its regulation and impact on the development and attractiveness of the area is an extremely relevant issue. Therefore, it is considered by many. Geiger and Pecoud (2014), Rich (2011) and Gaston and Rajaguru (2013) examine international migration, its causing factors and its influence on the development of the territory. Another group of scientists including Danzer *et al.* (2014) and Cox and Geisen (2014) apply to internal migration. The significance of migration in the modern world proves the works where the interrelation between migration and other socio-economic phenomena such as intergovernmental transfers, unemployment benefits, the level of welfare of citizens (Charney, 1993) the level of development of public health, etc. is examined. At the same time, the concentration focuses on the level of the entire state. Within the limits of the investigation the interrelation between migration and other socio-economic indicators will be considered but not in the frames of the whole state while at the level of individual cities.

MATERIALS AND METHODS

The investigation included several stages. At the first stage, a group of indicators which fully reflects the socio-economic attractiveness of the city was distinguished. Thus on the basis of correlation analysis, the interrelation between the given indicators and the amount of balance of migration was determined. The calculation of the correlation parameters with each other was conducted using the equation:

$$r = \frac{\overline{xy} - \overline{x} \times \overline{y}}{(\overline{x^2} - (\overline{x})^2) \times (\overline{y^2}) - (\overline{y})^2}$$

Where:

r = The correlation coefficient

x, y = Parameters between which the force and the direction of the interrelations are established

The main indicators of the attractiveness of the city were chosen as follows: social indicators (number of working-age population, average monthly nominal wage, enterprises debts on wages, living wage, number of children in preschool educational institutions (per 100 spots), number of people engaged in physical training and sports, number of reported crimes, housing provision per capita, number of students); economic indicators (average number of employees of organizations, unemployment rate, number of small businesses (for 10 thousand people), unprofitable enterprises participation rate, budgetary cost of education and sport, costs of the minimum food basket, housing construction, number of enterprises of innovation infrastructure).

The correlation analysis permitted to reveal the interrelation between the amount of balance of migration and each of the indicators of attractiveness. Also, it was necessary to determine whether the amount of balance of migration can reflect the attractiveness of the city.

Further the ranking of cities in terms of amount of balance of migration (the rating No. 1) and the level of attractiveness (rating No. 2) was conducted. For the (rating No. 1) we calculated the average amount of balance of migration over 5 years (2009-2013). The city with the highest rate of migration took up the 1st place, with the lowest the 10th.

On the basis of the social and economic indicators referred above the rating of cities was charted in terms of their socio-economic attractiveness (as of 2013). The rating of each city (R) in this rating are defined as follows:

$$R = \sum_1^n (R_n \times r_i)$$

Where:

R_n = Ranking position of the city in certain indicators of social and economic attractiveness

r_i = Correlation coefficient of the given indicator of amount of balance of migration

The cities were ranked from 1-10 places where the 1st place is taken up by the city with the highest rating. Comparison of the data received during the compilation of

Table 1: The calculation of the correlation of the indicator of migration balance with the indicators of socio-economic attractiveness of the city

Indicators of socio-economic attractiveness	Correlation coefficient
Number of working-age population	0.86
Average monthly nominal wage	0.73
Enterprises debts on wages	-0.03
Number of children in preschool educational institutions, per 100 spots	0.08
Number of people engaged in physical training and sports	0.56
Living wage	0.59
Number of reported crimes	-0.46
Housing provision per capita	0.27
Number of students	0.88
Average number of employees of organizations	0.66
Number of small businesses (for 10 thousand people)	0.68
Unprofitable enterprises participation rate	-0.32
Budgetary cost of preschool education	0.90
Budgetary cost of education and sport	0.59
Costs of the minimum food basket	0.72
Unemployment rate	-0.27
Housing construction	0.83
Number of enterprises of innovation infrastructure	0.35

ratings allowed to determine the interrelation between the amount of balance of migration and socio-economic attractiveness of the cities and to make a conclusion about the hypothesis of the investigation.

RESULTS AND DISCUSSION

Within the framework of the first stage of the investigation the following results (Table 1) were obtained. Table 1 shows that most of the indicators have strong enough connection with the indicators of socio-economic attractiveness, what proves the hypothesis that the amount of balance of migration may be used to assess the socio-economic attractiveness of the city. At the second stage of the investigation, the following results (Table 2) were obtained.

At the same time, the matrix of the interrelation between the indicator of migration balance and the level of socio-economic attractiveness was built up on the basis of the rating results (Fig. 1).

Consequently, based on the ranking of the city were correlated with each other in terms of the level of migration and socio-economic attractiveness. Moreover, we compared the data results of these ratings with each other. In the course of the conducted investigation we have the following pattern: the results of the ratings in terms of the level of migration and attractiveness coincide for 8 of the 10 analyzed cities. On the basis of it, one can assert that the amount of balance of migration really reflects the level of attractiveness of the city. Mostly noteworthy are the cities whose level of attractiveness does not correspond with the indicator of balance of migration. These cities are Kazan and Samara. If one considers the given cities separately, then one can tell the following about them. Kazan is currently the venue for many large-scale sports and cultural events (Universiade

Table 2: The results of ranking the millionaire cities in terms of level of migration and socio-economic attractiveness

City	Rating No. 1 (in terms of migration)	Rating No. 2 (in terms of attractiveness)
Volgograd	10	10
Ekaterinburg	1	1
Kazan	4	7
Nizhny Novgorod	3	3
Novosibirsk	2	2
Omsk	9	9
Rostov-on-Don	6	6
Samara	7	4
Ufa	8	8
Chelyabinsk	5	5

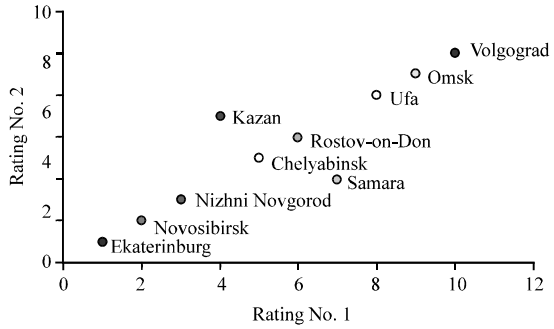

Fig. 1: Matrix of the interrelation between the indicator of migration balance and the level of socio-economic attractiveness

in 2013, FINA Championship in 2015 and FIFA World Cup in 2018 etc.). Carrying out these events and the preparation for them makes the city more famous and attractive to move here. However, the actual level of development which provides social and economic attractiveness of the city is changing much more slowly than increasing popularity of Kazan. Therefore, Kazan takes a higher position in terms of migration, than in the level of its attractiveness. Samara, on the contrary, has

long ago established itself as a major economic center that allows the city to maintain a high position in the ranking of the attractiveness of the city. However, the low popularity of the city for the ordinary citizens does not allow to increase the flow of migrants. Because of it, the city's position in the ranking of the level of migration is much lower than the level of its attractiveness.

CONCLUSION

Summing up, it can be noted that the initially advanced hypothesis that the indicator of migration balance may be used as an indicator of assessment of the city attractiveness has been confirmed. In the context of the work it has been proved that the level of migration balance is not determined by separate factors of attractiveness of the territory but by the whole complex of socio-economic development and has close interrelation with them, so it can reflect the level of socio-economic attractiveness of the city.

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