CURRENT YIELD OF COMMERCIAL REAL ESTATE AS AN INDICATOR OF INVESTMENT APPEAL OF THE REGION

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Introduction

2015 turned out to be a year of crisis for the Russian economy. Decline was observed in the majority of industrial and financial industries. The construction and real estate market also reflected general negative tendencies in the economy.

Consequently, the construction industry came under the influence of a host of external factors including the ruble exchange rate, negative dynamics of GDP, high interest rates, political instability and many others. The commercial real estate market suffered strongly in 2015 because of currency risks. The trustee of Raiffeisenbank in Russia, Oksana Panchenko, noted that negative credit dynamics for developers were influenced "by fixing large volumes of lease contracts in rubles" (Aleshkina & Seregin, 2016). The building of commercial real estate structures is influenced directly by the reduction in demand in the consumer sector, caused by both general deterioration of a social and economic situation at the national level, as well as the decline of the consumer credit sector. Analysts of CUSHMAN&WAKFIELD stated that there was a 35 % decline in investments into commercial real estate in 2015, and that the long-anticipated recovery is possible no earlier than late 2016 - early 2017.

On the other hand, the crisis in the Russian economy has made the prices of commercial real estate extremely attractive for purchasing. Increasingly, there are situations when tenants buy out real estate objects for the purpose of optimising their expenses. For example, it is possible to sample *Yandex* transactions on the partial acquisition of the *Red Rose* development; in particular, the purchase of premises in the business centre on Lev Tolstoy street in Moscow where the company headquarters are situated (nearby 90 000 m2) (Suharevskaja & Derjabina, 2016). Moreover, the decrease in construction costs as a consequence of the crisis opens interesting possibilities for receiving high investment revenues in the future.

Non-economic aspects also play a crucial role in the evaluation of investment efficiency. Social, political and legal factors can be listed here. Among them are included imperfections in the legal base and the influence of special interests on investment processes, resulting in a decreasing level of investor trust in state institutes. Consequently, since the beginning of 2016 in Moscow, there has been a mass demolition of commercial constructions from the 1990s erected on the basis of doubtful building permits.

In turn, the situation in the commercial real estate market affects allied industries. Thus, DIY markets in Russia have gone into the red for the first time

in 6 years; specialists estimated a fall in the construction materials market of 15 % and predict a further decrease (Dulenkova & Chich'janc, 2016).

The fall of GDP by more than 3 % and depreciation of the ruble, in addition to non-economic risks, have all led to an outflow of investments from the Russian economy. In such a situation, regional struggles to attract external investments become highly relevant.

The investment appeal of a region (country, city) is determined by a host of objective social, economic, political, ecological, natural resource- and climate-related factors of regional growth, which in sum characterise the real conditions of economic management being developed in a region. The investment potential of a territory is comprised of its competitive advantages taking into account all risks and limitations of investment in long-term assets for the purposes of earning profits, and other results of economic activities. Geostrategic, natural resource, climatic and demographic conditions related to absolute advantages. The important factor is the possibility of realising the strategy to decrease costs and increase the yield of investments into regional assets. The major indicator of investment appeal in regional assets is the yield level of commercial real estate; here again we see an extremely non-uniform picture across Russia.

From the point of view of harnessing absolute regional advantages, the most important resource, which provides economic results for the external investor, is land and natural resources whose cost essentially varies from region to region. Investments into commercial real estate objects are still attractive even in a crisis; however, investments in real estate require a complex analysis of comparative regional development factors.

Investment decisions relating to the construction of commercial real estate objects are accepted by the investor based on a number of indicators among which those most taken into account include the volume of investments and the current yield of real estate; these are determined as a ratio of net operating income and initial investments.

Both environmental conditions and the level of social and economic development of the region influence the volume of capital investments in building as well as cash flows in the process of real estate objects operation. The territory of Russia is divided into 9 federal districts on the basis of geostrategic, economic and climatic characteristics; the cities are specified as administrative centres (see Fig. 1). Administrative centres of the Central and Crimean federal districts, Moscow and Sevastopol, owing to features of historical development, possess the specific characteristics of an economic system typical of other Russian cities. The current yield of commercial objects calculated for specified cities will not be indicative of the Russian real estate market. For this reason, the cities of Moscow and Sevastopol have been excluded from the analysis. Therefore, the commercial real estate markets of the following cities: St. Petersburg, Ekaterinburg, Rostov-on-Don, Khabarovsk,

Novosibirsk, Nizhnij Novgorod and Stavropol became the subjects of our research.

Figure 1. The regions of Russia included in the research.

The purpose of this paper is an analysis of the current yield of commercial real estate in the cities of Russia listed above, based on the simulation modelling method. The analysis was conducted on the example of a sample shopping centre building with a set area, space-planning decisions, and technical and economic characteristics. During the modelling of a sample building in each researched city, the volume of necessary capital investment was calculated on the basis of territorial cost indexes of construction goods in each considered region.

Generally, the lower the volume of investment costs, the higher the current yield of real estate; however, return is determined not only by construction cost, but also by pure operational income of commercial real estate at the operation stage. Within the framework of the offered model, the net operating income was determined on the basis of the current yield from real estate rent minus expenses for maintenance of the service characteristics of the object. Rent rates were calculated on the basis of market research of shopping centres in considered cities. Operating expenses included land lease, property tax, administrative and maintenance expenses, as well as facilities. The land lease payment was determined on the basis of its market value for different cities under the rates fixed by the corporate legislation of the Russian Federation.

Theoretical Background

Regions possess unequal possibilities in production of goods and services that directly influence their economic indicators. The concept of absolute advantage was introduced by 'the father of economy', Adam Smith. Absolute advantage is determined by the capability of the country (region) to produce any particular sort of goods or services with the least unit cost. In the case of commercial real estate, it is determined by:

- Natural factors directly affecting the price of land and the availability of building materials;
- Business factors: general level of social and economic development of region and the branch structure of regional economy;
- Demographic factors affecting availability of human capital resources in region and customer demand;
- Tax legislation determining the tax burden on business;
- Political and legal factors which reflect the attitude of regional authorities towards development of certain industries of economy that can range from restrictive to supportive.

According to Porter, if the state creates conditions for business, which allow it to operate successfully on local and global markets, then such policy is a competitive advantage of the country. The same principle can be applied at regional levels.

The 1980's were marked by a transition to investment policy in the nonindustrial sector of economy (finance, insurance, real estate - FIRE). Real estate has gained an essential share in portfolios of institutional investors. At that time, the optimum share of real estate investments in portfolio ranged from 5 to 15 % (Hartzell, 1986; Ross & Zisler, 1991; Giliberto, 1991). At the same time, there was an issue of portfolio diversification; however, the uniform approach to determination of diversification criteria was absent. (David J.; Hartzell; Piet Eichholtz; and Arthur Selender ,1993) Research was conducted to determine possibilities for investment diversification in 74 European regions. The research was based on macroeconomic indicators, in particular, employment characteristics including the dominating economic sector in the region.

In Russia, the first mutual investment fund of real estate *Concordia asset management* appeared in 2003. By 2013, Russia had 657 real estate funds and 77 rent funds already listed (Antonec, 2013).

Vandell (2003) analysed the commercial real estate market from positions of macroeconomic models (demand, supply, market equilibrium, as well as the influence of the tax environment). This research defined important market mechanisms; first of all, factors of elasticity of supply and demand; and secondly, factors that establish an equilibrium in the level of rent.

An attempt to create an integrated rental index on the basis of data from the National Council of Real Estate Investment Fiduciaries (NCREIF) for the 10-year-period has been more recently undertaken (An, Deng, Fisher, & Hu, 2015). On the basis of this research, an important conclusion was drawn between the relationship of rental growth and general economic growth. Rental growth is cyclical and repeats a business cycle precisely enough; however, with a lag of approximately one year. Besides, essential distinctions in indicators of rental growth in different regions have been revealed. For example, indicators of Washington DC essentially differed from Chicago, Atlanta, Dallas and Los Angeles, which have almost identical indicators. The authors explain this phenomenon by the fact that the Federal Government is situated in Washington DC along with hosts of services and companies serving it. This raises demand for office real estate and generally makes the commercial real estate market in Washington DC more resilient to recessions.

Thus, indicators of social and economic development of regions and accompanying structural features of their economy play a major role in determining its investment appeal. In transition economies, the difference in levels of social and economic development between regions can be very essential. So, just 10 Russian regions (Tyumen region (including Hanty-Mansijskij and Yamalo-Nenetskij autonomous regions, Moscow, Tatarstan, Krasnodar region, St. Petersburg, Krasnoyarsk region, Moscow Region, Bashkortostan, Sverdlovsk region, Samara region) collect more than 50 % of investments in Russia (Social'nyj atlas rossijskih regionov [Social atlas of the Russian regions], 2016). Approximately the same picture is observed in GDP distribution on regions of Russia. This phenomenon was defined by the Russian economist-geographer N.V. Zubarevich as "the theory of four Russias". Russia-1 is comprised of Moscow and a million cities where 21 % of the population of Russia lives. Russia-2 is comprised of industrial cities, i.e. monocities, with a population from 20 to 250 thousand inhabitants (or slightly larger). The population of these cities constitutes 25 % of the population of the country occupied, basically, in the relevant industry. The paying capacity of this population is low. Russia-3 is comprised of Russian remote locations – small cities and villages where 38 % of all the population of the country is located. Russia-4 is comprised of the republics of the North Caucasus, Tyvu and Altai where 6 % of the population of the country live. The economy of these regions depends to a large extent on transfers from the federal centre. The author postulates that this system has stayed in Russia as an inheritance from the Soviet central-peripheral system, which was developed in the 1970's.

Methodology

The concept of yield level as a tool of real estate evaluation and analysis of efficiency of investments into object construction is specified in Hungria-Garcia, H. Lind, & Karlsson, 2004. The level of yield indicators can change due

to the preferred definition of investment income, operational expenses, volume of capital investments and current cost of reverter. The choice of method of defining these indicators depends on the specific research goal.

In the context of an estimation of the efficiency of real estate investments, two sorts of yield indicators of commercial real estate can be distinguished: current yield, defined by the ratio of the rental income from real estate operation minus expenses on asset management; and the yield at the end of the project that is equal to the net profit at the percentage of the selling price of real estate. The first indicator is the indicator of investment appeal of real estate object at the entry of the project. The dynamics of current yield during the operation of real estate reflects changes in market conditions, external and internal risks influencing the development of the project as well as the effectiveness of the object management system. The second indicator specifies the potential yield of real assets for the buyer at the moment of object acquisition. The change in the total amount of return of commercial real estate throughout a project life cycle was investigated by Larionova, in 2014.

Indicators of the current yield of various objects of commercial real estate in the cities of Russia were explored by Lefer L.A., Grishanina M.D. (Privolzhskij centr finansovogo konsaltinga i ocenki [Volga Center of Financial Consulting and Valuation], 2016). This research was based on the method of expert evaluations by asset valuators in certain Russian cities. The main advantage of this research method is the obtaining of information from qualified specialists working at the real estate market of the specific region. However, the problem of trust in the data obtained by such a method is still unresolved; in connection with this, the indicators were calculated on the basis that collective expert evaluations have to be checked for compliance to objective market indicators.

An alternative research method consists in experiment. In 2008, A. Joelsson & L. Gustavsson conducted research on the evidence of real-life buildings located in various regions of the country. Individual houses constructed according to standard projects during the same period were accepted as objects of the analysis. In the research, the influence on the operational expenses of house owners was estimated on the basis of the following factors:

- means of realisation and properties of building cladding;
- quality of heating systems and possibilities of application of alternative energy sources;
- government policies targeting the increase of power efficiency in houses and reduction of carbon dioxide emissions.

As a result, the factors capable of optimally lowering operational expenses for house owners and, consequently, increasing the current yield of real estate, were revealed.

However, as a rule, commercial real estate objects are constructed on the basis of individual projects. In this regard, the usage of existing commercial buildings located in various regions of our country as a model for our research is impossible. The research methodology used consisted in a virtual experiment based on the creation of simulation models of construction of real estate objects in considered regions. By means of software, the architectural project and solid model of a future building was created; its main technical and economic characteristics and cost of construction in various cities of Russia were calculated taking into account regional features. Market researches of the regional real estate markets and accounting of expenses on operation management of real estate on the basis of open and available information of the prices of service providers will enable an adequate evaluation of the current yield of real estate without resorting to expert opinion.

Results and Discussion

Object Construction Costs

At the first stage of simulation modelling of the construction project on a shopping centre standard building in each of the studied cities, volumes of necessary capital costs for project implementation, taking into account climatic and economic features of the region, were calculated. For scoping of capital investments, the estimated cost of construction on the basis of pricing standards and territorial single quotations on construction works were determined. Costing standards regulate the separate elements of direct costs expressed in a natural form per volume unit of construction works and structural components, including construction material expenses, labour costs of construction workers, operating costs of construction site engines and equipment. Construction standards are developed by the Federal Centre for Pricing in Construction and Industry of Construction Materials according to a datum level of the prices for 2001 and are recommended for use across the entire territory of the Russian Federation.

Referring to the price level of 2001, estimated costs were transferred to the price level of the forecast start date of construction by means of indexes of cost fluctuations in building and construction works. Construction costs depend on a set of factors: material costs and delivery, the salary level in a given region, the construction regulations operating in the region of construction and many others. Construction rules and regulations define constructive solutions; also heat-insulating, light blocking and sound-proofing properties of the designs, in addition to what available materials are used for construction originating from the geographic location of a region, are all taken into account when arriving at an estimate. Indexes of cost change in building and construction work represent the weighted average indicator of change in value of material resources, salary, and transportation expenses in each location of the Russian Federation.

Therefore, such a method for the calculation of the volume of capital investments enables a consideration of all key factors influencing the cost value of construction products in each of the studied regions.

The results of cost accounting of construction of the standard shopping centre building in different regions of Russia are shown In Fig. 2. In today's climate, the average unit construction cost of such an object makes an estimated 30 thousand rubles per square metre (Stroitel'stvo torgovyh kompleksov: "umnye" investicii [Construction of malls: "smart" investments], 2014).
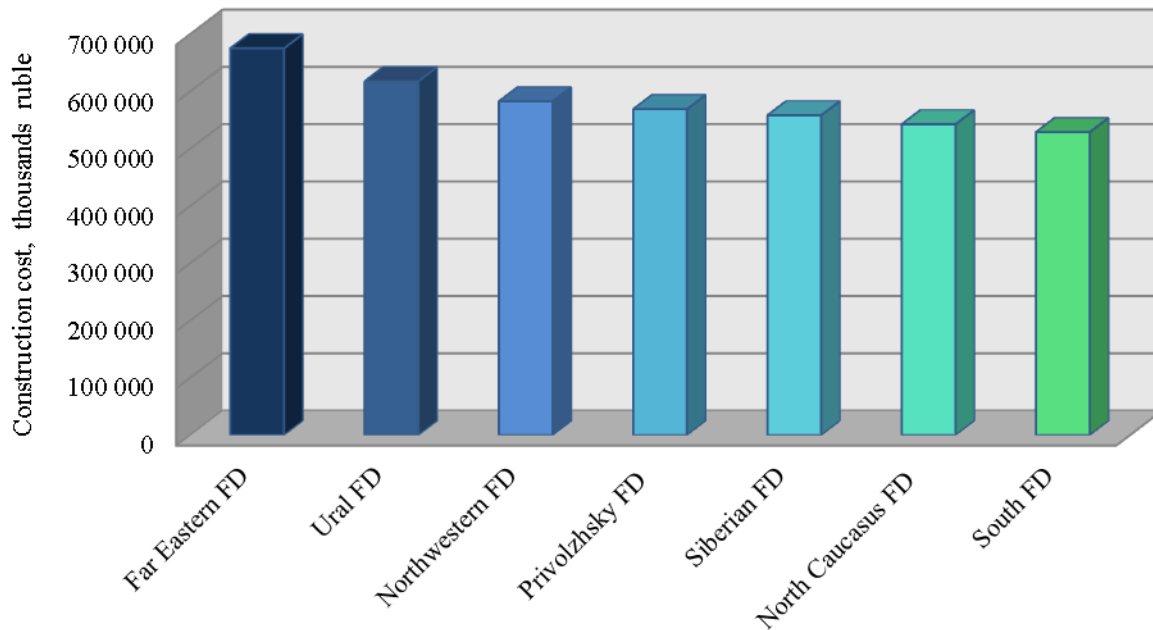

Figure 2. Construction costs of the standard shopping centre building

The results of this calculation have shown that the current lowest cost value of construction products is observed in the Southern and North Caucasian Federal districts, most notably due to their favourable climatic conditions. The frost-free period in this territory is long, lasting 5–6 months in the northern half, 6–7 months on the Ciscaucasian plains and 7–9 months on the Black Sea coast.

The climate of the Far East of Russia necessitates an increase in the volume of investment necessary for the construction of real estate objects for the following reasons: the long winter period (up to 9 months), high humidity in the summer, increased labour input and complicated production processes of works on a construction site. Taking such variables into account, make it possible to trace dependence of cost value of construction products on climatic conditions of a given region of construction.

All other things being equal, it is expected that a contraction in the volume of capital investments in construction projects will lead to a growth of the current yield of commercial real estate as a relative indicator of the operating profit on an object's operations and of total investments. In regions with optimal climatic conditions for construction, investment projects will possess higher

rates of current yield. However, this requires a trial, otherwise it would be necessary to make calculation of cash flows at a stage of operation of real estate object in each of the studied cities.

Net Operating Income

Within the presented model, the net operating income is defined by the conditions of the object, namely, the current rental income minus maintenance expenses on the operating ability of the object. Rental rates are calculated on the basis of market research of shopping centres in the studied cities (BeBoss, 2016). Land lease payments, property tax and profit, management and operation expenses of the real estate object, as well as utility payments, are included in the operating expenses considered. The last cost item is calculated according to project data of the building's required access to electric power, water supply, heating and water disposal. Heating costs for the duration of the heating period are calculated on the basis of the rates acting today for each of the cities of Russia Federation as previously defined by the Federal Tariff Service.

Evaluations of business and management expenses, and costs for maintaining a decent level of repair were made on the basis of the analysis of accounting records of the managing companies, which are engaged in the operation of commercial real estate objects. As a result of the analysis, it was accepted that shares of the specified expenses in the comprehensive rent income are:

- management expenses – 5%;
- business expenses – 5%;
- expenses of repair and maintenance – 0.5%.

Land lease payment was determined proceeding from its market value in the different cities according to the rates fixed by the corporate legislation of the Russian Federation. Income tax was calculated at the rate, uniform across all regions of Russia: 20%.

Based on the analysis of the current income generated by a real estate object in each of the analysed cities, the average monthly rated gross payroll of employees is calculated in Federal Districts of the Russian Federation (Federal State Statistics Service, 2016) on the size of net operating income (NOI) as is shown in Figure 3.
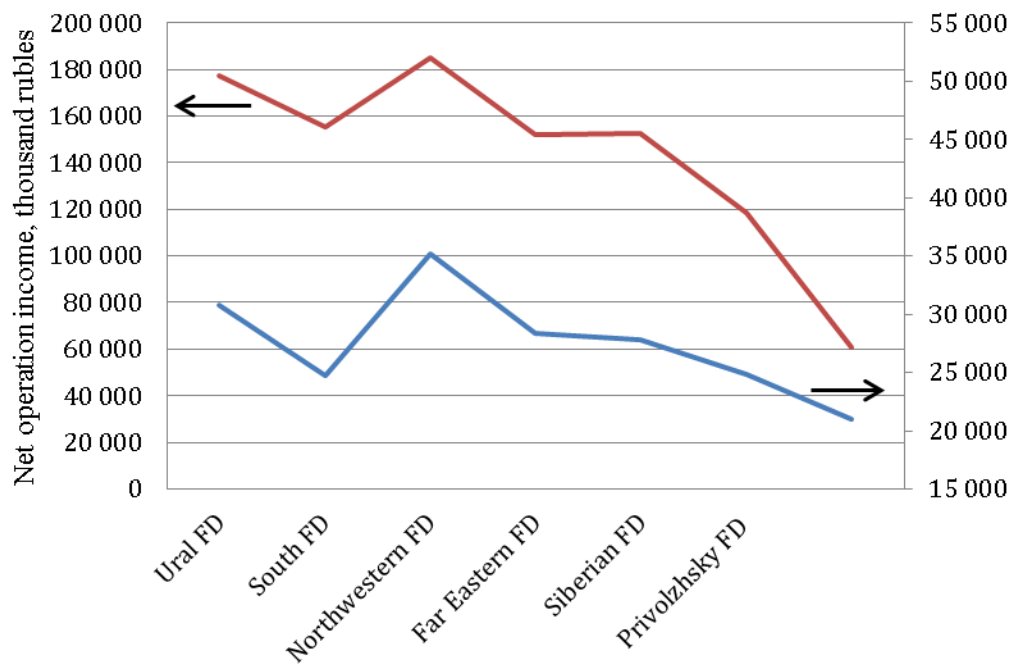
Figure 3. Net Operating Income (NOI) and data on average rated gross payroll in regions of Russia

The average rated gross payroll cleared of the additional territorial charges established by the state in the form of district coefficients is one of the most important indicators of social and economic development of the region. From Fig. 3 it is possible to draw a conclusion about the influence of socio-economic factors of the region in which the investment project is implemented on the size of net operating income.

Current Yield

Finally, the current yield was calculated as the ratio of net operating income to the volume of capital investments. The results of calculation provided in Fig. 4 revealed the cities with the maximum and minimum indicators of current yield of trade real estate. Apparently from Fig 4, the objects located in St. Petersburg possess the greatest profitability; this is explained by the highest level of economic development of the city. Objects in Stavropol had the lowest yield. The economic system of the North Caucasus Federal District is one of the weakest in Russia because this region has high rates on the level of transfers from the federal budget. Despite the favourable climatic conditions promoting a decrease in construction costs, low indicators of economic development of the region negatively influence the yield of commercial real estate objects.
It is also necessary to note that indicators of current yield of trade real estate of the Southern and Ural Federal Districts accept close values. The growth of the economy of the Ural Region promotes rapid increase in demand for commercial real estate objects. The development of this market segment led to such growth of rental rates on objects of trade real estate that the gained income from real

estate easily covered the additional expenses of the building and construction works caused by climatic conditions of the region.
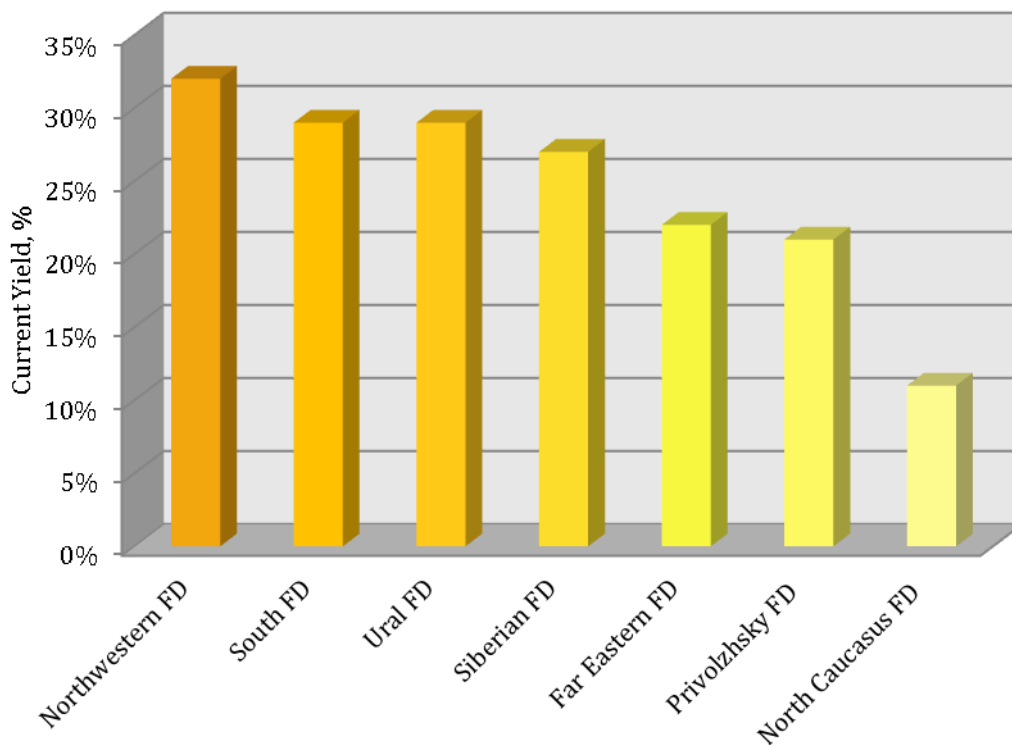

Figure 4. Indicator of current yield of trade real estate in regions of Russia

During data analysis of population size in the studied cities, influence dictated by indicators of the level of current yield of commercial real estate has revealed that that is a consequence of an agglomerative effect (see Fig. 5).
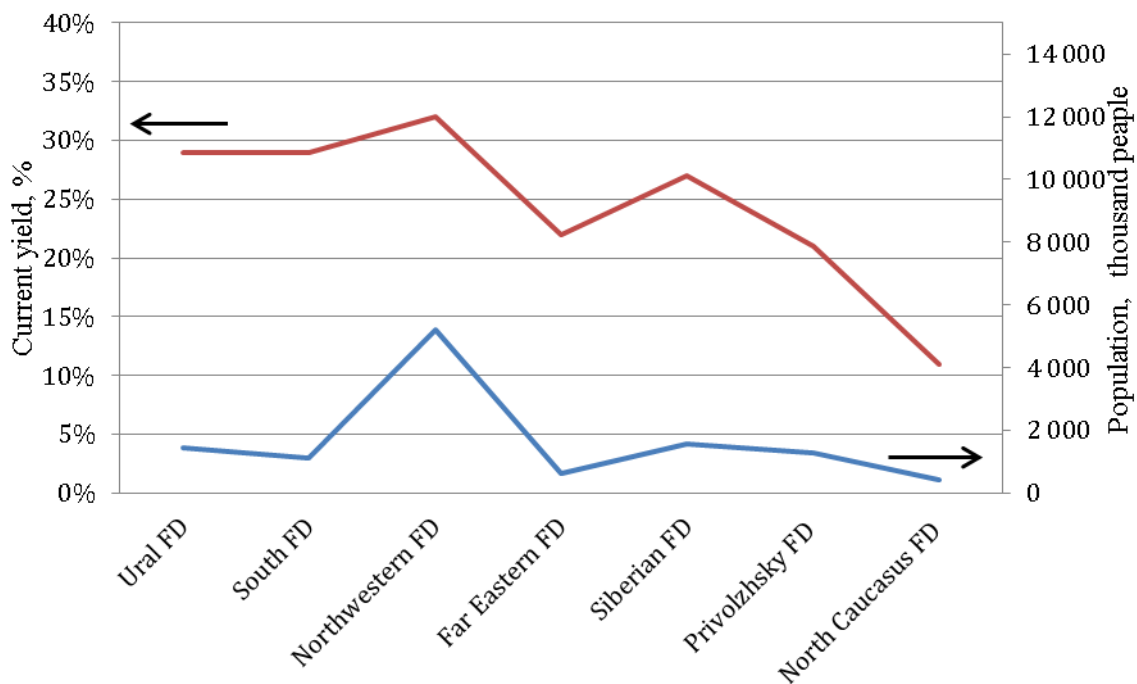
Figure 5. Indicators of current yield and population size

The values of current yield of the modelled shopping centre received as a result of research vary in the range from 11% to 32%. Whereas, the mean values of current yield of shopping centres received by method of expert evaluations were underestimated at 6–15%. This discrepancy in results can be explained with a different selection of cities. So, within the research conducted by the Volga Centre of Finance Consulting and Evaluation, the markets of either administrative centres of federal districts or other settlements including Vladivostok, Ivanovo, Izhevsk, Kaliningrad, Nizhny Novgorod, Perm, Petropavlovsk Kamchatka, Omsk, Kazan, Khabarovsk, Arkhangelsk and Saratov were analysed. Population size in such cities, price level, quantity and variety of objects of commercial real estate and demand for them is significantly lower, than in the capitals of regions; therefore, conjoint analysis of the cities with the different status gave lower averages of current yield.

Conclusions

The main objective of this work was to identify the general tendencies of the real estate market in Russia, as well as to analyse the dependence on region specific statistics to arrive at the current yield of commercial real estate objects from variables such as climate and socio-economic factors. The virtual experiment made within research of current yield of commercial trade real estate by the simulation modelling method has shown that the volume of investment costs in asset construction is defined by object power, constructive

decisions, as well as the materials used within the framework of construction regulations and requirements in line with heat and insulating standards for different regions. Along with poor physical characteristics of a building, outdated materials and construction methods increase the level of operating expenses at the operational level of the object and reduce its attractiveness for potential tenants. In this work the situation of construction of the building using modern materials and construction methods was modelled.

However, the volume of investment costs has no decisive effect on the adoption of financing decisions on the investment of capital in asset construction. The analysis has shown that current yield of commercial real estate is primarily determined by the level of social and economic development of the region in which the object is built. During the research it was revealed that the cities having the maximum (minimum) indicators of current yield of commercial real estate are characterised by the greatest (smallest) indicators of population size. Population size, on the one hand, exerts impact on market development through supply and demand; on the other hand, it is one of the most important indicators of the social and economic development of any region. Large agglomerations with developed infrastructures and a high resource potential are capable of providing a high level of return on investment into different projects; that in turn brings an increase of investment appeal to the region. Therefore, socio-economic factors of the region have the defining influence on current yield of commercial real estate.

The findings of this research can be used in project development of territories, and also act as investment projections into the construction of commercial real estate objects.

References

(20/02/2016). Retrieved from BeBoss: http://www.beboss.ru

(20/02/2016). Retrieved from Federal Tariff Service : http://www.fstrf.ru./

(20/02/2016). Retrieved from Federal State Statistics Service : http://www.gks.ru/

(20/02/2016). Retrieved from Goroda Rosii [Cities of Russia]: http://города-россия.рф/

A. Joelsson, & L. Gustavsson. (2008). Perspectives on implementing energy efficiency in existing Swedish detached houses. Energy Policy, 36, 84–96.

Aleshkina, T., & Seregin, V. (20/02/2016). Fermery vmesto stroitelej [Farmers instead of builders]. Ezhednevnaja delovaja gazeta RBK [RBC Daily](031).

An, X., Deng, Y., Fisher, J. D., & Hu, M. R. (2015). Commercial real estate rental index: A dynamic panel data model estimation. Real Estate Economics, doi: 10/11/11/1540-6229.12101.

Antonec, O. (2013, September). PAJ-rant'e [share rent-seeker]. RBK [RBC], 94.

CUSHMAN&WAKFIELD. (2015). MARKETBEAT Q4. Retrieved 20/02/2016, from http://www.cushmanwakefield.com/~/media/reports/russia/2015%20Q4% 20MarketBeat%20RUS%20PDF.pdf

Dulenkova, A., & Chich'janc, O. (15/02/2016). Rossijanam stalo ne do remonta [Russians think less about repair]. Kommersant [Merchant Daily](25).

Giliberto, S. (1991). Real estate in the portfolio: then and now. Salomon Brothers Real Estate Research.

Hartzel, D. J., Eichholtz, P., & Selender, A. (1993). Economic diversification in European real estate portfolios. Journal of Property Research, 10(1), 5-25.

Hartzell, D. (1986). Real estate in the portfolio. Salomon Brothers Real Estate Research, August.

Hungria-Garcia, R., H.Lind, & Karlsson, B. (2004). Property yields as tools for valuation and analysis: report. Stockoholm: Royal institute of technology.

Larionova, V. (2014). Imitacionnoe modelirovanie dohodnosti developerskogo proekta na protjazhenii zhiznennogo cikla nedvizhimosti [Simulation modeling of the developer project yield throughout life cycle of real estate]. Sbornik statej XII Mezhdunarodnoj nauchnoj konferencii "Ustojchivoe razvitie rossijskih regionov" [Proceedings of the XII International scientific conference "Sustainable development of the Russian regions"]. Ekaterinburg: Ural Federal University, (pp. 1018-1023)

Porter, M. (1990). The competitive advantage of nations. London: MacMillan Press.

Privolzhskij centr finansovogo konsaltinga i ocenki [Volga center of financial consulting and valuation]. (20/02/2016). Retrieved from http://www.pcfko.ru/research33.html#1

Ross, S., & Zisler, R. (1991). Risk and return in real estate. Journal of Real Estate Finance and Economics, 4(2), 175-190.

Smith, A. (1937). An Inquiry into the Nature and Causes of the Wealth of Nations. New York: Modern Library.

Social'nyj atlas rossijskih regionov [Social atlas of the Russian regions]. (20/02/2016). Retrieved from http://atlas.socpol.ru/overviews/social_sphere/kris.shtml#no29

Stroitel'stvo torgovyh kompleksov: "umnye" investicii [Construction of malls: "smart" investments]. (12/11/2014). Retrieved from Komsomol'skaja pravda: http://www.kp.ru/guide/stroitel-stvo-torgovykh-tsentrov.html

Suharevskaja, A., & Derjabina, A. (20/02/2016). Ofis v obmen na akcii [Office in exchange for shares]. Ezhednevnaja delovaja gazeta RBK [RBC Daily](031).

Vandell, K. D. (2003). Tax structure and natural vacancy rates in the commercial real estate market. Real Estate Economics, 31(2), 245-267.

Zubarevich, N. (1997). Jevoljucija vzaimootnoshenij centra i regionov Rossii: ot konfliktov k poisku soglasija [Evolution of the relations between center and regions of Russia: from conflicts to search of harmony]. Moskva [Moscow]: Kompleks-Progress [Complex-Progress].