

## Multiplier Effects of The Moscow Construction Complex

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### Abstract

The current approach to assessing the contribution of construction activity in the Moscow economy as a "Construction" economic activity only (according to the National Classification of Economic Activities (OKVED)) must be supplemented by the transition from "Construction" type of economic activity to the interbranch complex of economic activities interconnected with the system of interbranch relations – a construction complex. At that, multiplier effects arising from the activities of the construction complex in Moscow economy should be taken into account. Based on analysis of interbranch relations, the proportion of the construction complex in the gross regional product (GRP) of Moscow was calculated, and also the multiplier effects to Moscow and Russian economies at increasing the volume of construction works were calculated. The specific multipliers for the construction complex of Moscow by segments and employment multipliers were calculated. The proportion of GRP of Moscow formed as a result of the multiplier effect of the activity of the construction complex was determined. The town-planning activity carried out taking into account the multiplier effects could have a stimulating effect on economic growth in the following areas: housing and civil construction, infrastructure development, transport development, investment demand, area of housing and utility services (HUS). Economic policy covering these areas will ensure sustainable development and the formation of real estate markets, markets of housing and utility services, transport services markets, and will form a long-term investment demand for the construction complex.

**Keywords:** Construction Complex, Multiplier, Multiplier Effect, Interbranch Relations, Input-Output Model (IOM), Gross Regional Product (GRP), Specific Multipliers, Employment Multiplier.

### Introduction

One of the main factors determining the socio-economic development at the moment is the steady economic growth [21], [4], [3]. Solution of the issue of the increase in economic growth at the federal or regional level is largely dependent on the actions of central or regional government that can and should implement economic policies that promote economic growth. The interconnectedness of the processes of production and consumption determines the directions of government regulation and economic policy. First, the state has the capacity and authority both to create favorable institutional conditions for increasing investment in fixed assets and to make investments itself. Second, the state is able to form high-capacity, primarily domestic markets, which will ensure the future demand for goods and services. Although the implementation of economic policy at

the federal or regional level aimed at increasing investment in fixed assets and the creation of markets may rely on the use of similar instruments, the economic policy of the regional government depends on the specifics of a particular region. Specificity of Moscow is the capital status of the city as well as the passage of a significant part of financial flows in the national economy through the capital, thanks to which Moscow sees the presence of high effective demand and fairly large real estate, leasing, distribution, logistics, retail markets and so on. At the same time, direct administration and regulation of city economy and solution of rather complex issues, such as transport, is the responsibility of Moscow City Government. Thus, in accordance with applicable law, Moscow City Government is responsible for objects of social structure (except federal) located in the city, as well as the residential sector [8], [20], [10], [11], [12], [13]. Modernization and replacement of fixed assets and formation of various sectoral markets on the territory of Moscow, especially in the long-term prospects, are the subject of its activities.

Optimization of action for the modernization and replacement of fixed assets, as well as the formation of various markets as a sustainable source of domestic demand for goods and services, should be based on a systematic approach, when the economic policy of Moscow City Government is built taking into account the perception of Moscow economy as a coherent system, within which economic activities carried out in the city are somehow linked.

### Methodology

It should be noted that Moscow economy is built in the national economic system: on the one hand, the federation creates the demand for services provided by Moscow, on the other – Moscow, being the biggest market of the Russian Federation, creates the demand for products produced in the entire territory of Russia [1], [3].

#### *A. The structure of the gross regional product of Moscow by economic activity*

Table 1 shows the structure of Moscow economy in the form of the structure of the gross regional product (GRP) of Moscow (Federal State Statistics Service, National Accounts, 2011). Although "Construction" economic activity, according to Table 1, makes up only 2.4% of GRP of Moscow, a systematic approach to the analysis of the city economy indicates that the construction activity due to the nature of interbranch interactions affect most other economic activities. For example, the "Wholesale and retail trade" economic

activity is mainly formed and developed due to the high incomes of Moscow population, which are largely determined by the place and role of the city in the national economy, but even here it is necessary to take into account that without the functioning of the construction complex, there will be a shortage of retail space, etc. The second important sector in Moscow economy, according to Table 1, is "Real estate, renting and business activities". The physical basis for the real estate and leasing market is made up by capital construction projects, which are the main product of the construction industry. Accordingly, in education and health, capital construction projects become objects of social infrastructure, which are indispensable for the provision of socially significant services, just like transport cannot function without a road construction.

**Table 1:** Structure of GRP of Moscow by economic activity, % from total

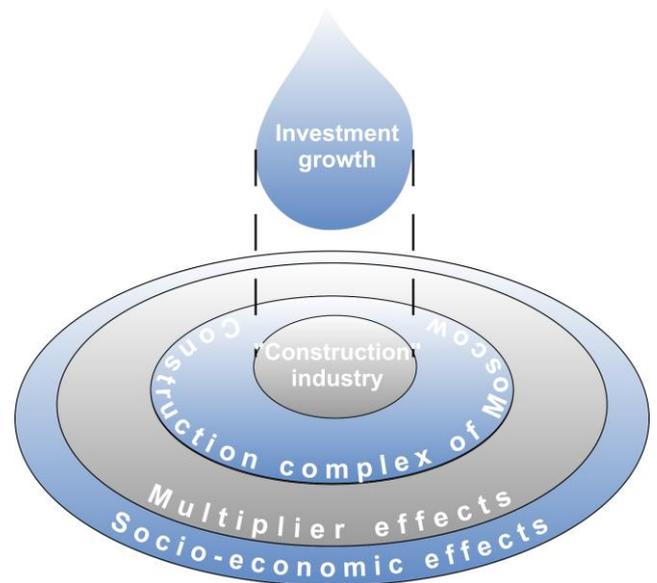
	2011
Total	100.0
of which:	
Agriculture, hunting and forestry	0.1
Fishing, fish farming	0.0
Mining	0.0
Processing industries	13.0
Production and distribution of electricity, gas and water	4.0
<b>Construction</b>	<b>2.4</b>
Wholesale and retail trade; repair of motor vehicles, motorcycles, household goods and personal items	38.5
Hotels and restaurants	0.8
Transport and communications	9.3
Financial activities	1.2
Real estate operations, rent and services	19.7
Public administration and defense; social insurance	3.2
Education	2.2
Healthcare and social services	3.0
Other utilities, social and personal services	2.6

As a result of interbranch interactions in the city economy, the so-called multiplier effects are formed, which represent additional revenues arising in related industries. Multiplier effects in the most general form are additional effects in the overall economy, which arise when investing in specific sectors in adjacent and related industries. An example is the emergence of multiplicative effects. Investment in the construction industry increases the need for construction machinery, labor force, building materials and so on. These needs can be met at the expense of employment growth, increasing the output of building materials and construction equipment. At that, investments in production and training should also increase. In turn, the growth of output and investment in production of building materials can lead to increased production of raw materials needed for this purpose, i.e. to the increase in the output in the sector adjacent to the production of building materials. All these processes are accompanied by the formation of additional amounts of income: profits, wages and taxes. Thus, it is possible to fix the appearance of multiplier effects that can be seen as a kind of waves (Figure 1). With regard to the construction industry, these waves are as follows. The first wave generates a multiplier effect from construction as a kind of economic activity in the building

materials industry, the second – from the building materials industry in the extraction of raw materials, and so on.

The second and subsequent waves are usually weaker than the initial impulse, but in general the multiplier effect is calculated by the maximum possible range of industries, taking into account the existing statistical base. Multiplier effects can be negative when the decline in output in one industry may cause a reduction in output in related industries. Multiplier effects are inextricably linked with the concept of the multiplier. The multiplier is a numerical coefficient that characterizes the change in income in response to changing investment. In a broad sense, the concept of the multiplier is the presence of the relationship between the change in the gross domestic product (GDP) in response to changes in investment or output, which is expressed in a multiplier effect. As a rule, a multiplier effect in the national economy is the GDP growth in response to growth in investment and production, so that the GDP increases by a larger amount than the increase in investment. Accordingly, in the case of Moscow regional economy, we are talking about a similar change in GRP.

Thus, a *multiplier (in macroeconomics)* refers to a numerical coefficient that indicates how many times the totals of national or regional economy will change with an increase in investment or production in the analyzed activity [4]. *Multiplier effect* is the product of a multiplier by the change in the volume of production, investment, etc. in the industry, which reflects the effect from the increase of indicators in the analyzed activity based on its contribution to economic dynamics.



**Figure 1:** Scheme of assessment of multiplier effects

**B. Input-output model**

Practical calculation of the multiplier provides an estimate of the economic effects resulting from interbranch relations and further redistribution of income in the economy. A tool that allows to take into account interbranch relations existing in modern Russian economy is input-output model (IOM), which includes the structure of the economy and the main

macroeconomic indicators: GDP, gross output, gross value added, elements of final demand (household consumption, government consumption, fixed capital formation, exports and imports). The basic idea of the input-output model is the possibility of interlinkages between the key elements of national accounts: accounts of GDP use, accounts of GDP production and accounts of generation of income [15], [22]. In other words, all three main ways of calculating GDP used in modern Russian practice are implemented at the level of individual economic activities in the input-output model (Figure 2).

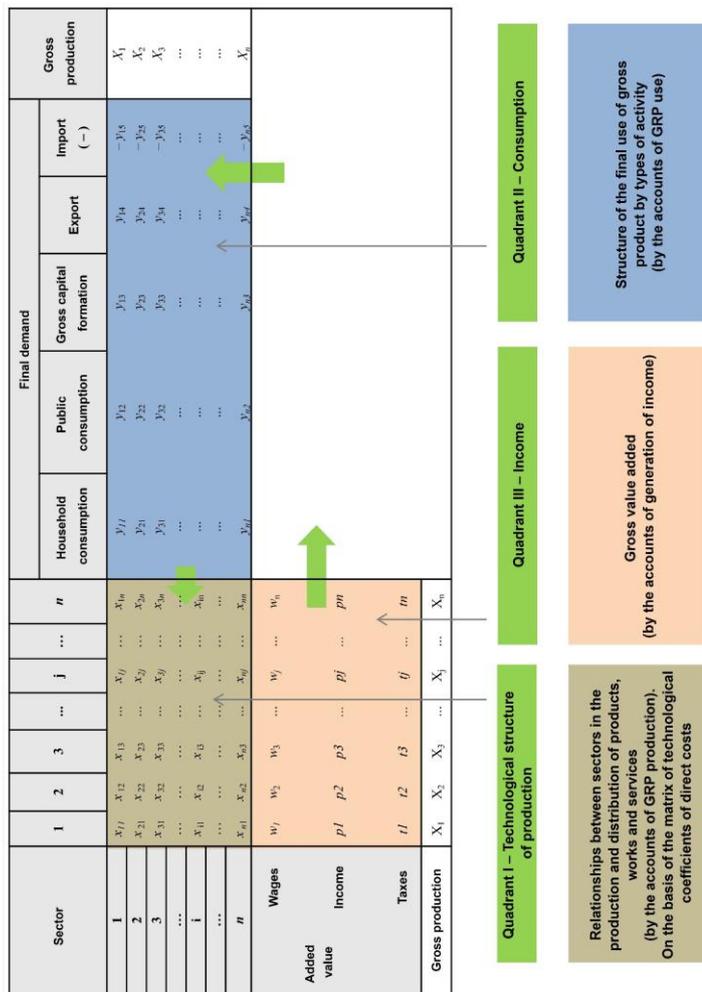


Figure 2: Input-output model – the basis for calculating the multiplier

In general, the input-output model [23], [20], [23] can be written as follows:

$$X=AX+Y,$$

where:

X – vector of volume of production of n economy sectors,

$X_i$  – volume of production of sector i;

Y – vector of volumes of the final product (value of all products of the sectors, which in the period of the production cycle under review transfers from production area to the area of final demand, and a set of final products of the economy sectors forms the gross domestic product);

A – matrix of technological coefficients of direct expenditures  $a_{ij}$ , which shows how much product of the sector i must be expended to produce one unit of the product of the sector j.

By summing these effects, we obtain the total production growth of the economy, and by attributing them to the initial increase in production – the **multiplier**: a coefficient that reflects the change in the total production of the economy with an increase in production in the analyzed sector. Since the cost structure for each sector of the economy is individual, the multipliers by economic activities may differ materially. The multiplier reflects the cost structure existing in a given sector of the economy [24], [25], [2], [5].

The multiplier shows the change in the gross output of the economy with increasing the output of the analyzed activity.

### C. Calculation of multiplier effects with increasing the volume of construction works

The impact of the multiplier can be broken down into three main components:

- 1) Direct effects associated with increased production in the sector;
- 2) Additional effects due to interbranch relations;
- 3) Effects from the income distribution.

The mechanism of unfolding the multiplier effect in this case is the following. Growth of production leads to a corresponding increase in the costs of intermediate products, which leads to the initial momentum of production growth in related industries. Then, a growth of almost the entire economy is caused by the costs of the related industries. The increase in gross output is accompanied by a corresponding increase in income: taxes, wages and income that are redistributed and transformed into final demand growth of the government, business and population. Table 2 shows the calculation of multiplier effects for Moscow and Russian economy with increasing the volume of construction works.

Table 2 consists of several blocks: the first is associated with the initial stage with the increase of output; the second reflects direct effects and corresponds to the quadrant I of the general IOM model; the third reflects the effects of the distribution of income and corresponds to the quadrant II of the general IOM model; the next block is the sum of the direct effects and the effects of income distribution; the last block contains a total economic effect, which is the total of the initial stage, direct effects and effects of income distribution. The first column in Table 2 contains the main sectors where the direct effects of construction appear (the second block of the table). The other two columns of the table show the multiplier effects of the sector activities in Russia and in Moscow in relation to the output (the second block of the table).

As can be seen from Table 2, the multiplier effects of the construction industry for Moscow differ from those for Russia. This is due to the fact that, as a rule, the multipliers at the regional level are less than the figures calculated for the national economy, because the value of the multiplier for the national economy can be reduced only because of imports, while the reduction of the multiplier for the regional economy is due to not only imports, but also orders placed in

other regions. Table 2 shows that the most significant multiplier effect in Moscow from the activity in "Construction" sector is noted in the wholesale and retail trade, where an increase in output by 100 rub. gives a multiplier effect of 8.2 rub., followed by the production of other non-metallic mineral products (construction industry) – 3.9 rub., followed by finance and insurance – 3.8 rub. The last place is taken by processing of wood and manufacture of wood products – 0.1 rub. Compared to Russia, the multipliers are less (the same values for Moscow and Russia in finance and insurance), in particular, for example, the demand for building materials is largely met by manufacturing facilities located outside Moscow.

**Table 2:** Formation of economic effects with increasing the volume of construction works in Russia and in Moscow (rub)

	"Construction" sector	
	Russia	Moscow
<b>Initial stage</b>		
Construction activity	100.0	100.0
<b>Direct effects</b>		
Mining of fossil fuels	3.8	0
Mining of metal ores and other minerals except fuel	2.0	0.0
Processing of wood and manufacture of wood products	3.2	0.1
Production of coke, petroleum products and nuclear products	4.0	0
Chemical production	2.2	1.0
Production of other non-metallic mineral products	11.8	3.9
Ferrous metallurgy	6.4	1.6
Production of metal products except machinery and equipment	2.4	0.6
Mechanical engineering	3.4	1.1
Production and distribution of electricity, gas and water	4.9	2.7
Wholesale and retail trade, repair	13.0	8.2
Transportation and storage	7.5	2.8
Telecommunications	0.7	0.3
Finance and insurance	3.8	3.8
Real estate transactions, services	2.2	1.3
Public administration	1.9	0.2
Other sectors	4.7	1.6
<b>Total:</b>	<b>77.9</b>	<b>29.2</b>
<b>Effects of income distribution</b>		
Household consumption	24.5	14.7
Investments	24.5	14.7
Public consumption	4.7	2.8
<b>Total:</b>	<b>53.7</b>	<b>32.2</b>
<b>Total multiplier</b>	<b>131.6</b>	<b>61.4</b>
<b>Total specific economic effect</b>	<b>231.6</b>	<b>161.4</b>

To calculate the multiplier effects, we used: database of the Institute of Economic Forecasting of the Russian Academy of Sciences, which includes the complete Rosstat database, data on the account of GRP production, form 1-enterprise for 2011, form P-1 and P-2 for January-December 2012, form 5-z for the first 9 months of 2012; input-output model (IOM) and the corresponding software system of the Institute of Economic Forecasting of the

Russian Academy of Sciences, which allows to calculate the multipliers and estimate multiplier effects. It analyzes the income structure, cost structure and the share of imports.

**D. Calculation of the multipliers**

When calculating the multipliers, the construction complex can be divided into the following segments: housing and civil (non-productive) construction; industrial construction; traffic engineering; infrastructure construction; design works; production of building materials [6], [7], [9], [10], [12-18]. Specific multipliers by segments indicate to what extent the output of regional or national economy will increase with an increase in production in the corresponding segment.

**i. Specific multipliers by the activities in construction complex segments**

Table 3 presents the values of specific multipliers by the activities in construction complex segments for Moscow and Russia.

**Table 3:** Specific multipliers by construction complex segments

	Russia	Moscow
Housing and civil (non-productive) construction	1.43	0.65
Industrial construction	1.23	0.63
Traffic engineering	1.37	0.64
Infrastructure construction	1.11	0.52
Design works	0.93	0.53
Production of building materials	1.25	0.53
<i>Construction</i>	<i>1.32</i>	<i>0.61</i>

The data presented in Table 3 shows that the highest values of the multiplier in Moscow are characteristic for housing and civil construction – 0.65 and traffic engineering – 0.64. The lowest values of the multiplier in Moscow are characteristic for infrastructure construction – 0.52, design works and production of building materials – 0.53. This leads to the following provisions:

- With the growth in production by 100 rub. in housing and civil construction, the output in related industries in Moscow will grow by 65 rub.
- With the growth in production by 100 rub. in traffic engineering, the output in related industries in Moscow will grow by 64 rub.
- With the growth in production by 100 rub. in infrastructure construction, the output in related industries in Moscow will grow by 52 rub.
- With the growth in production by 100 rub. in design works, the output in related industries in Moscow will grow by 53 rub.
- With the growth in production by 100 rub. in construction industry, the output in related industries in Moscow will grow by 53 rub.

**ii. Employment multiplier**

Assessment of the effects of employment, i.e. an assessment of the job growth in related sectors from the activity of the construction industry is conducted in accordance with the

general methodology of assessment of the multiplier on the basis of interbranch interactions. The employment multiplier is the ratio showing the increase in the number of jobs in related and associated industries (pers.) with an increase in output in the construction (rub.). The increase in the number of employed in the economy is calculated as the sum of job growth by sectors, and this growth, in turn, as the product of average specific costs of labor in this type of activity and growth in production volumes (or, equivalently, the current number of employees in the specific type of activity and a relative increase in production).

Given the hypothesis of maintaining the level of labor productivity by industry sectors, the value of multiplier effects on employment in the economy is calculated as the sum of products of growth in gross outputs and the average specific costs by types of economic activity.

$$ML = \sum_i \left( \frac{X_i + \Delta X_i}{X_i} * L_i \right)$$

where:

$L_i$  – the number of workers employed in the  $i$ -th type of economic activity

$X_i$  – gross output in the  $i$ -th type of economic activity

$\Delta X_i$  – growth of gross output in the  $i$ -th type of economic activity due to the multiplier effects.

Using a methodical approach to the assessment of employment on the basis of the IOM also allows to compare these multiplier effects for Moscow and Russia. When interpreting the results of a comparison, you must take into account a relatively large share of employees in the construction industry of Moscow attracted from other regions and countries, which creates an additional negative effect on the employment multipliers, because a substantial portion of wages is taken not only outside the region, but also outside the country. Table 4 presents the results of the calculation of employment multipliers by the construction complex segments for Moscow and Russia.

**Table 4:** Multipliers of change in employment by construction complex segments, growth of employment, persons per 1 bln. rub of production

Construction activity, segments	Russia	Moscow
Housing and civil (non-productive) construction	0.82	0.31
Industrial construction	0.76	0.32
Traffic engineering	0.81	0.31
Infrastructure construction	0.64	0.26
Design works	0.71	0.29
Production of building materials	0.71	0.26
<i>Construction</i>	<i>0.76</i>	<i>0.27</i>

The data presented in Table 4 shows that the highest values of the multiplier of the change in employment in Moscow are characteristic for industrial construction – 0.32, as well as housing and civil construction and traffic engineering – 0.31. The lowest values of the multiplier in Moscow are characteristic for infrastructure construction and production of building materials – 0.26, as well as for design works – 0.29. This leads to the following provisions:

- With the growth in production by 1 bln. rub. in industrial construction, the employment in Moscow economy will increase by 320 people.
- With the growth in production by 1 bln. rub. in housing and civil construction, the employment in Moscow economy will increase by 310 people.
- With the growth in production by 1 bln. rub. in traffic engineering, the employment in Moscow economy will increase by 310 people.
- With the growth in production by 1 bln. rub. in infrastructure construction, the employment in Moscow economy will increase by 260 people.
- With the growth in production by 1 bln. rub. in design works, the employment in Moscow economy will increase by 290 people.

#### **E. Multiplier effect in the regional economy**

As noted above, the multiplier effect in the regional economy as a whole is the growth of GRP in response to an increase in output or investment. Consequently, it is necessary to calculate this effect, which is performed at least in two iterations. The first iteration is the transition from "Construction" type of economic activity to the interbranch complex of economic activities interconnected with the system of interbranch relations – a construction complex. This is justified by the fact that, in practice, construction activity is not limited only to the "Construction" economic activity, as the latter cannot be realized without engineering and activities of the construction sectors, as well as without free primary real estate sales. The latter sector transforms the product of the construction activity into the finished consumer product sold on the market to the end user.

Calculation based on the total database of Rosstat of the share of Moscow construction complex in GRP, taking into account the abovementioned sectors, indicates that the share of the construction complex in Moscow's GRP is 6.8% of GRP. Since the implementation of this approach is related to the organization of special requests to the Federal State Statistics Service to provide comprehensive database, a simplified method of calculation of the share of construction complex can be used, consisting in summing the share of "Construction" economic activity (Section F of OKVED), taken with a weight of 1 and the share of "Real estate, lease and business services" economic activity (Section K of OKVED), taken with a weight of 0.2 (estimated coefficient of 0.2 is justified by IEF RAS). This calculation corresponds to the lower boundary estimate of the share of the construction complex in Moscow's GRP, which will be 6.3% of GRP.

The second iteration is the calculation of multiplicative effects of the influence of the construction complex on GRP. The multiplier effects of the influence of the construction complex on GRP are defined as the sum of additional growth in gross value added by economy sectors. The sectoral increase in gross value added can be evaluated as a product of output growth by this type of activity generated by the initial increase in production and the share of gross value added in gross output of the sector.

$$M_{GVA} = \sum_i \Delta GVA_i = \sum_i \Delta X_i * \frac{GVA_i}{X_i}$$

where:

$M_{GVA}$  – measure of the influence of the construction complex on GRP.

$X_i$  – gross output in the i-th type of economic activity.

$\Delta X_i$  – growth in gross output in the i-th type of economic activity due to the multiplier effects.

$GVA_i$  – gross value added in the i-th type of economic activity.

Calculation of the multiplier effects for GRP differs from calculation of the multiplier effects for output, because the first calculation is carried out for the construction complex of Moscow, and the second – for the "Construction" industry, which corresponds only to "Construction" economic activity. Calculation of the multiplier effects for GRP is presented in Table 5, which contains two columns: a list of sectors and multiplier effects from the activity of the construction complex relative to GRP.

When calculating the multiplier factor of influence on GRP, the range of sectors examined in terms of the formation of the direct effects is changing. Their structure does not include subsectors of the construction complex (production of other non-metallic mineral products and operations with real estate in terms of engineering and the primary real estate). The magnitude of the multiplier factor (for GRP) is determined only by the direct effects in related industries, where gross value added increases.

Applying the formula for calculating the multiplier effects for GRP is due to the fact that the multiplier effects for the gross domestic product or, in the case of the regional economy, for the gross regional product are defined as the sum of additional growth in gross value added by economy sectors. In turn, the growth of the sectoral gross value added can be evaluated as a product of growth in output in this type of activity generated by the initial increase in production and the share of gross value added in gross output of the sector. Thus, the assessment of this factor is produced as follows:

- Gross value added (GVA) is extracted from the output.
- Volume of GVA corresponding to GRP created by a construction complex is multiplied by the estimated coefficient to assess the influence of the construction complex on GRP, which characterizes the relationship between GRP formed in the economic sectors related to the construction complex under its influence and GRP of the construction complex.

In accordance with the calculation, to estimate the influence of the construction complex of Moscow on the GRP growth in related sectors of the economy, the value of this coefficient is equal to 1.141, which allows to determine the share of GRP formed under the influence of the construction complex as:

$$6.3\% * 1.141 = 7.188\%$$

In other words, as a result of the multiplier effect of the activity of the construction complex, about 7.2% of GRP is formed in Moscow's economy.

**Table 5:** Formation of economic effects by increasing the volume of construction works in Russia and in Moscow (rub)

	Construction complex
	Moscow
<b>Initial stage</b>	
Construction activity	100.0
<b>Direct effects</b>	
Mining of fossil fuels	0
Mining of metal ores and other minerals except fuel	0.0
Processing of wood and manufacture of wood products	0.1
Production of coke, petroleum products and nuclear products	0
Chemical production	0.4
Production of other non-metallic mineral products	-
Ferrous metallurgy	0.7
Production of metal products except machinery and equipment	0.2
Mechanical engineering	0.5
Production and distribution of electricity, gas and water	1.5
Wholesale and retail trade, repair	5.3
Transportation and storage	1.9
Telecommunications	0.2
Finance and insurance	2.8
Real estate transactions, services	-
Public administration	0.1
Other sectors	0.4
<b>Total:</b>	<b>14.1</b>
<b>Effects of income distribution</b>	
Household consumption	-
Investments	-
Public consumption	-
<b>Total:</b>	
<b>Total multiplier</b>	<b>14.1</b>
<b>Total specific economic effect</b>	<b>114.1*</b>

\* relationship between GRP formed in the economic sectors related to the construction complex under its influence and GRP of the construction complex.

## Results

Analysis of the multiplier effects from the activity of the construction complex of Moscow shows that the development of domestic markets and socio-economic development of Moscow are in no small measure related to the activity of the city construction complex, due to which, taking into account the multiplier effects, 7.2% of GRP of Moscow is formed. The multiplier effect reflects the perception of construction activity as the activity of the construction complex, which is an interconnected system.

Without the development of the construction complex, it is impossible to improve the quality of life in Moscow or meet the challenges of socio-economic development. At the same time, investment in fixed assets necessary for the

development of markets for goods and services in Moscow is carried out both in the form of purchases of new equipment and in the form of construction and installation works performed with the help of the construction complex. Since the activity of the construction complex causes multiplier effects in related industries, it is possible to prioritize the construction activity depending on the segment, knowing the segment multiplier, which is necessary for more targeted spending of scarce budgetary resources.

Construction activity is one of the most important indicators of economic activity, as the construction complex of Moscow, being the largest part of the construction complex of Russia, forms the overall dynamics of the construction industry in Russia and, to a certain extent, is an indicator of the level of economic activity in the national economy.

### Discussion

Understanding the multiplier effects and choice of priorities in construction allows to solve various problems of socio-economic development set to the complex of town-planning policy and Moscow planning by various components of these problems: economic component, town-planning component, social component, the overall direction of the city development, etc.

Multiplier effects in general are characterized by an economic component. At the same time, the town-planning component is implicitly present in the multiplier effects, because the quality of town-planning activity and city planning influences the overall economic effect and the city economy. In other words, town-planning activity, carried out considering the multiplier effects, could have a stimulating effect on economic growth in the following areas:

- housing and civil construction;
- infrastructure development;
- transport development;
- investment demand;
- utilities sector.

Economic policy covering these areas will ensure sustainable development and the formation of real estate markets, markets for housing and utility services, transport services markets, and will form a long-term investment demand for the construction complex.

Town-planning policy that takes into account the multiplier effects in the activity of the construction complex could have a stimulating effect on economic growth in the following areas: housing and civil construction, infrastructure development, transport development, investment demand, the area of housing and utility services (HUS). The economic strategy that involves these areas will cause the formation and sustainable development of real estate markets, markets for housing and utility services, transport services markets, as well as provide long-term investment in the construction complex.

### Conclusion

The construction complex is a composition of many sectors of construction production, which takes into account the multiplicity and diversity of the subject-object structure of construction and complexity of relationships between various elements of the complex, its subsystems and other sectors of the economy. From this perspective, it is presented in the regional economy as a diversified investment and construction industrial complex.

Thus, the construction should be regarded as interbranch complex, which combines and provides the interaction of several sectors of the national economy and their elements, integrating the various stages of production and distribution of the product and reflecting all key technological aspects of the construction process.

The promising areas of research on the issues under consideration, as well as useful practical purposes, should include the following:

- expansion and development of the methodology for assessing multiplier effects for the construction complexes of other cities, as well as the implementation of comparative assessments for a number of developed and developing countries;
- expanding opportunities for the practical use of official government statistics by including reference materials on interbranch economic effects in its composition;
- reasonable extension of information published by state statistics service to allow to directly assess such segments of the construction complex as the industry of building materials, design activities, real estate;
- set of studies to assess the social and town-planning effects of the construction complex.

### References

- [1] Abyanov, R.R. and V.A. Shcheglov, 2014. Comprehensive assessment of multiplier effects of construction. *Town-planning*, 1(29): 52-57.
- [2] Ivanov, Yu.N., 1998. *Economic statistics*, Eds., Ivanov, Yu.N. Moscow.
- [3] Ivanter, V.V., M.N. Uzyakov, M.Yu. Ksenofontov, A.A. Shirov, V.S. Panfilov, O.J. Govtvan, D.B. Kovalin and B.N. Porfiriyev, 2013. *New economic policy. Policy of economic growth*, Eds., Ivanter, V.V. Moscow: Institute of Economic Forecasting of the Russian Academy of Sciences.
- [4] Keynes, J.M., 1999. *The General Theory of Employment, Interest and Money*, Transl. from English, Lyubimov, N.N., Ed. Kurakov, L.P. Moscow: Helios ARV.
- [5] Kievskiy, L.V., 1987. *Complexity and flow: organization of district development*. Moscow: Stroyizdat, pp: 136.
- [6] Kievskiy, L.V., 1999. Participation of investors in the development of engineering infrastructure of the city. *Housing Construction*, 5: 21-24.
- [7] Kievskiy, L.V., 2003. Targeted development of engineering infrastructure in Moscow. *Industrial and Civil Construction*, 4: 11-14.
- [8] Kievskiy, L.V., 2005. Modern methods of network planning and management. *Industrial and Civil Construction*, 11: 47-50.
- [9] Kievskiy, L.V., 2008. *Planning and organization of the construction of utility lines*. Moscow: SvR-ARGUS, pp: 464.
- [10] Kievskiy, L.V. and I.L. Kievskiy, 2011. Prioritizing the development of the transport frame of the city. *Industrial and Civil Construction*, 10: 3-6.

- [11] Kievskiy, L.V., 2012. Town planning aspects of the sectoral government programs. *Industrial and Civil Construction*, 6: 26-33.
- [12] Kievskiy, L.V. (2013). Dynamics of the office market development in Moscow. *Industrial and Civil Construction*, 6: 3-6.
- [13] Kievskiy, L.V., 2013. Influence of town-planning decisions on the real estate markets. *Industrial and Civil Construction*, 6: 27-31.
- [14] Kievskiy, L.V., 2013. Implementation of town-planning policy priorities for the balanced development of Moscow. *Industrial and Civil Construction*, 8: 54-57.
- [15] Kievskiy, L.V., 2014. From construction organization to organization of investment processes in construction. "City development": Proceedings of 2006-2014, Eds. Kievskiy, L.V. Moscow: SvR-ARGUS, pp: 592 (pp: 205-221).
- [16] Kievskiy, L.V., 2014. Town-planning policy and sectoral government programs. "City development": Proceedings of 2006-2014, Eds. Kievskiy, L.V. Moscow: SvR-ARGUS, pp: 103-117.
- [17] Kievskiy, L.V. and R.R. Abyanov, 2014. Evaluation of the role and place of a building complex in Moscow economy. *Building Materials, Equipment, Technologies of XXI Century*, 5(184): 48-51.
- [18] Kievskiy, L.V. and A.S. Sergeev, 2015. Town planning and productivity. *Housing Construction*, 9: 1-5.
- [19] Levkin, S.I. and L.V. Kievskiy, 2011. Program-targeted approach to town-planning policy. *Industrial and Civil Construction*, 8: 6-9.
- [20] Levkin, S.I., L.V. Kievskiy and A.A. Shirov, 2014. Multiplier effect of the building complex of Moscow. *Industrial and Civil Construction*, 3: 3-9.
- [21] Mankiw, N.G., 1994. *Macroeconomics* (Trans. from English). Moscow. MGU Publ., pp: 736.
- [22] System of National Accounts 2008, 2009. Commission of the European Communities, International Monetary Fund, Organization for Economic Cooperation and Development, United Nations, World Bank, pp: 1682.
- [23] Shirov, A.A. and A.A. Yantovskiy, 2011. Evaluation of the multiplier effects in the economy. Opportunities and limitations. *Russian Economic Magazine ECO*, 2.
- [24] Shcheglov, V.A., 1970. Method for determining the valuation of time consumption of the population. In the collection "To help the designer – urban planner. Issues of Economics of Town Planning and Regional Planning, 4.
- [25] Shcheglov, V.A., 1978. Methods and practice of applying valuation of time consumption in town-planning calculations. In the collection "Economic evaluation of leisure time of the population in the design calculations of service sectors", Issue 3. Moscow: Institute for System Studies.
- [26] Volkov, A., L. Kievskiy and O. Kyzina, 2014. The development of Moscow office real estate market and key features for system approach application, *Advanced Materials Research*, 1065-1069: 2534-2537, (<http://www.scientific.net/AMR.1065-1069.2534>).