

Innovations and Administrative Coordination in the Economic System

L.S. Tarasevich, D.Y. Miropolsky and E.D. Bunin

Saint-Petersburg State Economic University, Saint-Petersburg, Sadovaya St. 21, Russia

Abstract: In the study on the basis of the two-sector model of the economic system the correlation between the growth of the innovative activities in the economy and enhancement of the market or administrative coordination is investigated. The two-sector model includes the basic and pioneer sectors. The basic sector produces the essential products and is characterized by exceedance of results over the expenditures. The pioneer sector applies the new products; therefore, the results are lower than the costs. Innovations are performed in the pioneer sector of the economy. It is proved that under otherwise equal conditions intensification of the innovative activities is accompanied by enhancement of the administrative coordination and slackening of the market one. This correlation is determined by changes in the structural proportion between the basic and pioneer sectors of the economy in favor of the pioneer one. This relates to the fact that in any economy there is redeployment of resources from the basic to the pioneer sector. However if the share of the pioneer sector is large the redeployment range is enhanced and can not be covered by the market transactions. In its turn, the specified structural proportion depends on a number of parameters. The study analyzes the impact of such structural parameters as the specific efficiency of the basic sector, scope of the basic sector, specific efficiency of the pioneer sector, scope of the pioneer sector, rates of the performance growth in the pioneer sector. It is concluded that transition of Russia to the innovation development will result in enhancement of administrative coordination in its economy. However, activation of the innovative activity is followed by enhancement of administrative coordination only under otherwise equal conditions. In the study factors that are countervailing this trend are specified.

Key words: Innovations, market and administrative coordination, two-sector model of the economic system, basic sector, pioneer sector

INTRODUCTION

In Russia, at the highest governmental levels the task of transition from the resource-oriented economy to the economy developed on the innovative basis is set. According to Voronina (2014) 17 state programs work for solution of this task. In general, the concept of the innovative development is supported in the scientific literature. The disputes arise only regarding the degree and nature of such development. For example, Petukhova (2014), believes that 'orientation of the Russian economy towards the innovative breakthrough with the ultra-modern technologies upon high level of the fixed assets and complete destruction of the machine building productive potential appears to be rather doubtful'. Instead of this she proposes the alternative of the moderate modernization. Polterovich (2007) believes that today the imitation type of development of the basis of the 'wise borrowing and adaptation of the Western

technologies' is more preferable to Russia. This point of view is shared by Voronina and Pykhteev (2014).

On the contrary, a number of voters call for revolutionary innovative upgrading of the Russian economy (Gazizullin, 2013; Astapenko, 2014; Varavva, 2014). According to Barkhatov (2013) 'the innovative u[grading of the industrial sector, i.e., substitution of the obsolete 4 technological mode through technologies of a higher order shall become the imperative of survival of Russia in the global world and withdrawal from the underdeveloped status'. There are scientists holding the intermediate position between the two specified points of view (Morozov, 2014; Markovskaya, 2014; Tertyshny, 2014).

However, even if the objective the innovative type of development is determined, it does not mean that the methods of implementation thereof are clear. The two fundamental methods of performing the innovative development may be distinguished the market and the planned one (or method of administrative coordination).

And the same, there may be both the direct and inverse relationship between the objective and methods of achieving it. On the one hand, the objective transition to innovative development may affect the methods of implementation changing the type of the economic system. On the other hand, the method market or planned type of the economic system itself affects the rates and nature of the innovative development.

The researchers interpret this relationship in different ways. If we refer to classical works then for example, Schumpeter (2008) believes that innovations are performed by entrepreneurs. However, he associates the function of an entrepreneur 'with all those individuals that actually perform it in any social formation. The said refers both to the governing body of the socialistic society and to a landlord or the head of the primitive society'. Thus, Schumpeter (2008) analyzes rather an inverse effect of the type of economy on innovations without giving preference to the market or planned organization of the economy.

The modern researches evaluate the interaction of the innovative development and type of economy in different ways. It should be noted that most researchers interpret the administrative coordination in the restricted sense as the government regulation of the economy only. We believe that administrative coordination shows itself at all economic levels from the world economy to a particular working place.

A number of researchers think that the market stimulation of innovative activities is more efficient than government regulation (Berube *et al.*, 2012; Hashmi, 2013; Polder and Veldhuizen, 2012). For example, M. Grot by studying the impact of the market economy on stimulation of innovations writes that 'in conditions of the competitive environment the high level of innovative activities is observed which cannot be said about the conditions of the state monopoly' (Grothe, 2014).

On the contrary, other researchers with different degree of clarity and certainty state that intensification of innovative activities is connected with activation of the government efforts. There is a point according to which development of the Russian economy is possible only under conditions of the radically emerging role of the state (Volovich, 2012). There are authors who put emphasis on activation of the industrial policy (Tatarkin and Romanova, 2014). A number of researchers suggest shifting the action of the state to the level of platforms, clusters and consortiums (Glassman, 2013; Volkova, 2012; Arkin *et al.*, 2012).

Some researchers put emphasis on the new network form of organization of the innovative processes. However, at the same time these authors reasonably emphasize that a network is not a completely new

system of economic relationships (Sergeyev, 2013; Blyachman and Gazizullin, 2014). A network just integrates the market and administrative coordination in a new manner: 'Hybrid methods of economic organization occupy in the range of institutional alternatives intermediate positions between the market and comprehensive integration (hierarchy)' (Sergeyev, 2013).

In this study, we intend to make our own contribution to this dispute and consider in which way the objective transition to the innovative type of development affects the methods of achievement thereof the market or administrative coordination in the economy.

TWO-SECTOR MODEL OF ECONOMICS

The root idea underlying the two-sector model consists in the fact that the economy in its simplest form is production and consumption of a product. Let's represent the process of production by means of a chart (Fig. 1). In Fig. 1 along the abscissas axis the abstract economic entities S' making production are located. Along the axis of ordinates the marginal products of manufacturing MP' . The line $MP'_1-S'_1$ is the function of marginal products of production by economic entities $f(S')$. We can see that an additional entity involved in the production process within the frameworks of an economic system produces a smaller additional product. The area of the triangle $OMP'_1S'_1$ is the total product made by the system.

Let's illustrate the process of consumption by means of the chart in Fig. 2. In the figure along the abscissas axis the same economic entities are located but now they act as consumers of resources. Along the axis of ordinates the value of the marginal products of consumption is shown. The horizontal position of the function $f(S'')$ means that all entities consume the same quantity of resources. This assumption is strictly theoretic but very convenient as it allows calculating the output as per the same cost unit for all economic entities.

The economic system is the single process of production and consumption that's why we combine the charts in Fig. 1 and 2 (Fig. 3). In Fig. 3, the area of the triangle OAE is the product made and the area of the quad OKLE is the product consumed. As we can see, the economic system in Fig. 3 is formed by two sectors. The first study is the result-excessive one. Here the value of the product made (OABP) exceeds the value of the product consumed (OKBP). As the result, the excess of resources in the amount KAB appears. The second sector the resource-insufficient one. In this sector, the resource expenditures (PBLE) are larger than the value of the product made (PBE) by BLE.

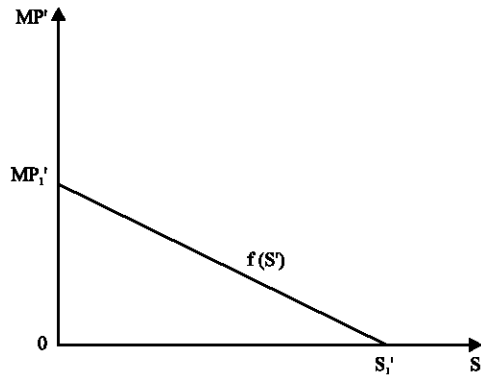


Fig. 1: The dynamics of the marginal products of production by economic entities

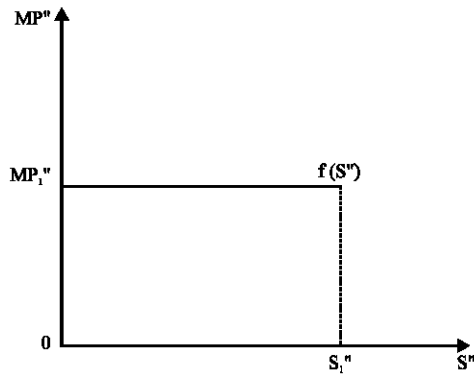


Fig. 2: The dynamics of the marginal products of consumption by economic entities

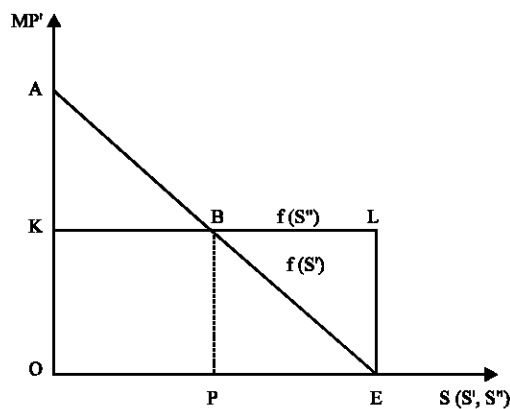


Fig. 3: Single process of production and consumption

The economic substance of the resource-excessive sector is clear. Here efficient economic entities operate in which the output amount is larger than the amount of expenses. But what is the filling of the

resource-insufficient sector? The following components constituting the resource-insufficient sector may be distinguished:

- Uncompleted commercial facilities
- Enterprises that are unprofitable but necessary to a system due to lack of substitutes or necessity of maintenance of the economic and social safety
- Social and subsidized cultural spheres

However, the specified positions are not the main substance of the resource insufficient sector. The main substance of this sector is production of the pilot products. We divide the manufactured products into the basic and pilot ones. The basic products are: essential products and the performance by production thereof is high. The combination of these two features results in that the manufacturing of such products is characterized by high performance and low cost, i.e., it is the resource-excessive sector (Fig. 3) where most of the essential products are made. The pilot products: are not included in the life-sustaining set and the performance by production thereof is low due to the novelty and originality. The combination of such features results in that by manufacturing of the pilot products the output appears to be lower than the costs. This is why, the entities manufacturing the pilot products are located in the resource-insufficient sector. They constitute the most essential segment thereof.

The study is dedicated to development of the economy on the innovative basis this is why such terms as 'innovation' and the 'pilot product' shall be introduced. Many researchers understand innovation as a new product launched at the market or as a new process launched within the enterprise (Levin *et al.*, 2014; Baranov and Dolgopyaora, 2013; Anonymous, 2005). According to our reasoning, firstly not each pilot product is innovative. Only the product that appeared on a global scale for the first time may be considered to be innovative. And if any country or enterprise masters a new product by their standard that has been made in other places for a long time then such a product shall be considered to be pilot and not innovative. Secondly, making of the pilot products and thus innovations as was mentioned above is followed by output that is lower than costs. In this context, innovation may be commercialized only if there will be people willing to purchase it at unreasonably high price. The pilot products demonstrate the actual efficiency, i.e., exceedance of the output over the costs only when they cease being pilot and move to the basic products category. However in this case, they cease being innovations in the strict sense of the word.

Thus in our opinion, innovations are a narrower term than a pilot product. However for the purposes of simplification of the analysis we equate these terms in this study.

Let's turn back to Fig. 3. It can be seen from the model that the resource-insufficient sector can not exist without the resource-excessive one. Lack of resources in the resource-insufficient sector (BLE) may be covered only by resources from the resource-excessive sector (KAB). For the purposes of the analysis simplification, we assume that only pilot products are produced in the resource-insufficient sector. Then, it may be designated as the pilot sector. In this case the resource-excessive sector becomes the basic one. We have obtained a simpler two-sector model consisting of the basic and pilot sectors where pilot products are understood as innovations. However, even in this case the problem persists: lack of resources in the pilot sector (BLE, Fig. 3) may be covered only by resources from the basic sector (KAB, Fig. 3). Therefore, the question arises: which economic mechanism will move the excessive resources from the basic sector to the pilot one?

INTERACTION OF INNOVATIONS, STRUCTURE AND COORDINATION

Let's consider situations presented in Fig. 4a and b. For the purposes of simplicity and clarity of the analysis we assume that the economies modeled in Fig. 4a and b are closed. So what do they differ through?

The fundamental difference is that in Fig. 4a, the Pilot sector (PBLG) appears to be small as against the basic one (OAFD). Now let's assume that the economic system presented in Fig. 4a is the community of the individual private owners (entities along the abscissas axis) pursuing their economic interests by means of trade transactions. Then, manufacturers of the pilot product shall sell them to the basic sector of economy at prices providing reimbursement of expenses and receiving a normal profit. Let's assume that along OK of the cost units the normal profit will make KM units (Fig. 4a). Then it appears that the manufacturers of the pilot sector to be able to act as individual private owners need to reimburse the portion of expenses amounting to BLE and make the profit amount to BCNL at the expense of the prices

If in the economic system under consideration the price level will be as high that the profit will reach the level MN then the interests of the entities (S) will be fulfilled. The entities of the basic sector along the segment OD offset the costs (OKHD) and gain acceptable profit (KMFH). The entities of the pilot sector along the segment PG having sold their products also recovered

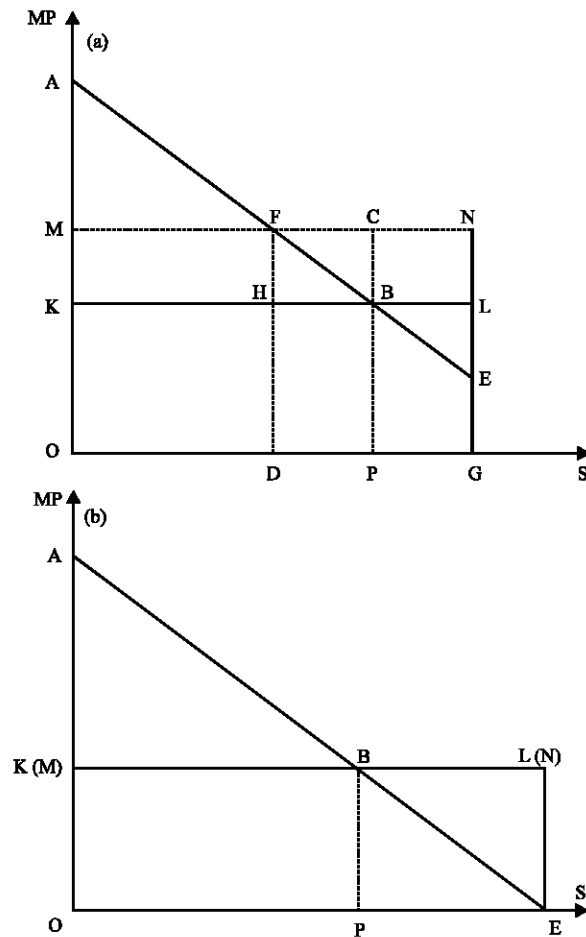


Fig. 4: Structural conditions of development of economies with the market and administrative coordination

their expenses and received profit. The economies located along the segment DP may raise eyebrows. On the one hand, they relate to the basic sector, on the other hand, at the level of the profit MN they get a profit share (FCB) at the expense of their own counterparts from the basic sector. The point is that the slope of the line AE means that all entities S possess production of different degree of basicness and pilotness. Along the segment DF the owners that are already basic but still a bit pilot this is why if they sell their products at the cost price they receive profit but a lower than the normal rate. This determines the necessity of partial redeployment of resources.

It may be concluded that a trade transaction appeared to be that tool that will provide the required redeployment of resources of the basic sector in favor of the pilot one. The basic sector has lost its resources in the amount of MAF and the pilot and semi-pilot ones have gained them in the amount of FNE.

It shall be emphasized that both the entities that lost resources and the entities that gained them have sufficient return on capital employed. This means, they can exist as individual private owners. Such situation is possible due to the fact that the basic sector in Fig. 4a is substantially larger than the pilot one. Consequently, the excessive resources of the basic sector suffice to provide the entities of the pilot sector and maintain the normal profit in the basic sector itself.

The main conclusion that shall be drawn from the analysis performed is that the main prerequisite of formation of the market process and individual private property is a certain ratio between the basic and the pilot sectors of the economy, i.e., the ultimate cause of the formation and successful operation of the economic system is the material structure of the economy.

Now let's enlarge the pilot sector as shown in the Fig. 4b. The enhancement of the pilot sector in Fig. 4b graphically illustrates the process of realization of the objective set by a particular community transition to the innovative type of development at the specified scope of the basic sector ($OABP$, Fig. 4a = $OABP$, Fig. 4b).

The ratio between the sectors has changed in such a manner that now for maintenance of the pilot sector within the specified range ($PBL(N)E$) the withdrawal of all excessive resources from the basic sector is required ($K(M)AB = BL(N)E$). The question arises: if in this situation, we would like to redistribute the excessive resources of the basic sector by means of trade transactions what the price level will be? It is easy to see that in this case the price level will be as high that the profit will equal to the expenses (the line MN will match KL in Fig. 4b) and none private owner will gain profit which is impossible as a sustainable phenomenon. Consequently, against such ratio between the basic and the pilot sector the trade transactions mechanism, i.e., the market can not be implemented.

However if the society considers it to be necessary to maintain such ratio between the sector during a long time then which economic mechanism will able to reproduce this structure of the economy? It makes sense to assume that when the individual private owners are not able to perform the function of such reproduction other owners shall appear that will be able coping with this task. The state bureaucracy acts as such sole private owner.

The task of bureaucracy consists in withdrawing the excessive resources from the basic sector ($K(M)AB$) and redistribute them in favor of the pilot sector ($BL(N)E$). We'd like to put special emphasis on the crucial point. Individual private owners the behavior of which is illustrated in Fig. 4a were interested in their product pricing. It was the price level that determined whether they will reimburse their expenses and gain profit. And

bureaucracy (Fig. 4b) is interested not in prices but in the resource volumes that have to be withdrawn from the basic sector and redistributed to the pilot one. Thus, we obtain an economic variable opposing to the price and namely the volume.

Let's assume that firstly bureaucracy seeks to provide the pilot sector by means of taxes and grants retaining both individual private owners and flexible process. However as follows from the preceding analysis of the situation presented in the in Fig. 4b by means of taxes the total profit is withdrawn from the producers in the basic sector. Grants and subsidies to the enterprises of the pilot sector will also ensure no profit. Hence, trying to escape the exactions the producers of the basic sector will start: reducing or suppress the volume of output and overvalue their products. The entities of the pilot sector seeking to get more resources will also start reducing the volume of output and overvaluing the expenses.

As the result, the volume of the basic resources that have been put at the disposal of bureaucracy will be reduced and the need for resources on the part of the pilot economies will increase. This will result in the reduction of the pilot sector and we have intentionally mentioned that bureaucracy shall retain the volumes of the basic and the pilot sectors at the level illustrated in Fig. 4b.

In order to fulfill this task, bureaucracy liquidates the individual private owners and fixes prices at the level ensuring normal profit to all entities ($OK(M)L(N)E$) (Fig. 4b). The fixed prices lose their incentive and regulatory functions and turn into countable numbers.

Using these countable numbers a state (economic center) determines the rate of production and consumption for the basic sector entities and rates of production and consumption for the pilot sector. Now if there are data of the number and capacities of the basic and pilot entities and production and consumption rates available the necessary volumes of production and consumption of the basic and pilot products may be determined. These volumes are expressed in fixed process and balanced against each other.

Having specified the standard volumes of production and consumption the economic Center disaggregates them into the list of the target figures for producers of the basic and pilot sectors. Disaggregation is a complex process of interaction between the center and plan executors which we will not consider in this study. The only point to be emphasized is that in the market conditions the private owners enter into relations by means of the trade transactions then in disaggregation conditions the hierarchic relationships of the superior bureaucracy to the subordinate bureaucracy are established.

After achievement of the target figures the center and executors enter into inverse relation: aggregation of the actual stock list into the actual volume of production and consumption. Therefore, administrative coordination or planning is a reciprocal process of disaggregation of the volume into the stock list and aggregation of the stock list into the volume.

Thus, transition to innovative development as the objective affects the ratio between the basic and pilot sectors of the economy towards increasing the share of the private sector. This ratio is an essential characteristic of the material structure of economy which in its turn has a significant effect on the means towards this end the enhancement of the administrative coordination role.

STRUCTURAL PARAMETERS DETERMINING THE RATIO BETWEEN THE SECTORS OF ECONOMY

However, the ratio between the basic and pilot sectors itself depends on a number of structural parameters of economy. Within the frameworks of this study we'd like to consider five of such structural parameters: specific efficiency of the basic sector, scope of the basic sector, specific efficiency of the pioneer sector, scope of the pioneer sector, rates of the performance growth in the pioneer sector.

For the purposes of clearer analysis of effect of these parameters we simplify the two-sector model as shown in Fig. 5a. If we compare Fig. 4 and 5a, we will see that they are equal in this regard, i.e., all economic entities have the same level of costs. The difference between the figures consists in the fact that in Fig. 4 the marginal products of production as they move along the abscissas axis are reduced steadily while in Fig. 5a the marginal products in all entities of the Basic sector are equally large (OABP) and in all entities of the Pilot sector equally small (PCEG). The equality of the marginal products within each sector transforms the function of the marginal products of production into a polyline (ABCE, Fig. 5a).

Thus, the first structural parameter we consider is the specific efficiency of the basic sector.

Let's assume that in Fig. 5a some reference economic system is presented. This reference economic system has 5 economic entities within the settlement OP. Each of these five entities bears the costs and obtains the output. For example, costs of the entity No. 1 is the bar OKWT. The output of the entity No. 1 is the bar OART. Consequently, the excessive resources produced by the entity No. 1 equal to the quad KARW. We proceed from the assumption that all entities of the reference system within the sector have equal costs and output. Then at

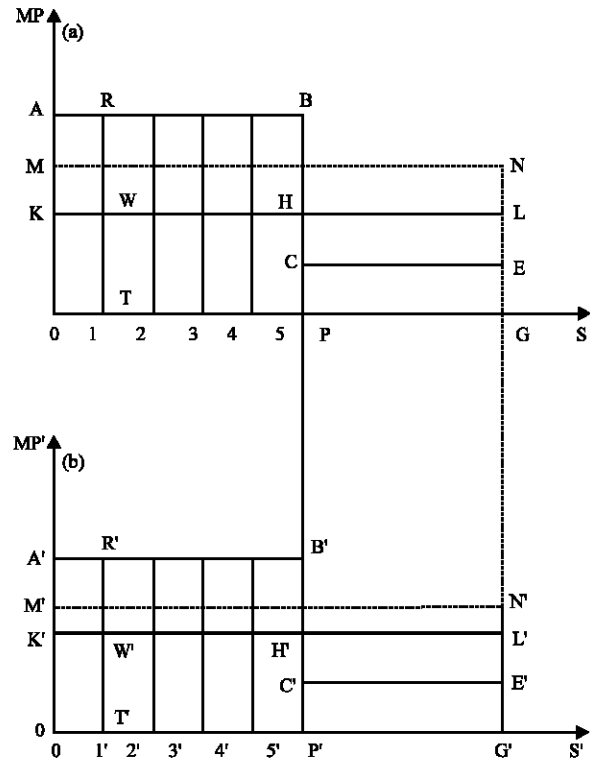


Fig. 5: The effect of the specific efficiency of the basic sector on the formation of economy with administrative coordination

the specified scope of the Pilot sector (PHLG) the Profit line (MN) demonstrates normal return on the capital employed.

Now let's consider the chart below (Fig. 5b). Here, the number of entities in the basic sector is the same as in the reference system. The pilot sector also demonstrates no differences. The amount of costs in all entities equals to the costs of entities in the reference system. If we consider the entity No. 1 again then $OK'WT' = OKWT$. The fundamental difference consists in the fact that all entities of the non-reference system produce smaller output than the reference entities: $O'A'R'T' < OART$. As the result, $K'A'B'H' < KABH$, the profit line (M'N') begins to approximate the costs (K'L'). Functioning of such economy is possible only under conditions of administrative coordination. Thus, the low level of efficiency of the basic sector entities is one of the prerequisites of emergence and functioning of the planned economy. Higher efficiency of entities of the reference system from the material perspective is its turn determined by all factors enabling higher output per a cost unit. These are primarily: quality of the labor power; quality of the technology and natural environment.

The next parameter promoting to enhancement of administrative coordination is the scope of the basic sector (Fig. 6).

If we compare the situation in Fig. 6 with the situation in Fig. 5, we will see that in contrast with the Fig. 5 the efficiency of each particular entity of the basic sector in Fig. 6 at the upper and the bottom charts is equal ($OART = O'A'R'T'$; $OKWT = O'K'W'T'$). Originating of the planned economy is related to the fact that though each economic entity features high efficiency the number of such entities is substantially smaller than in the upper reference economic system. The reference system has 5 entities in the basic sector and the non-reference one only three. As the result, $KAB\dot{I} > K'A'B'I'$ at $PHLG = P'H'L'G'$ with all the consequences that come with it.

The scope of the basic sector is related not to the quality of the production factors but to their quantity. This means the labor force and production means available, natural resources that can be involved in the economic turnover at the current level of the technology development.

The third structural parameter being considered is the specific efficiency of the pilot sector. The effect of this parameter is similar to the effect of the specific efficiency of the basic sector just vice versa (Fig. 7).

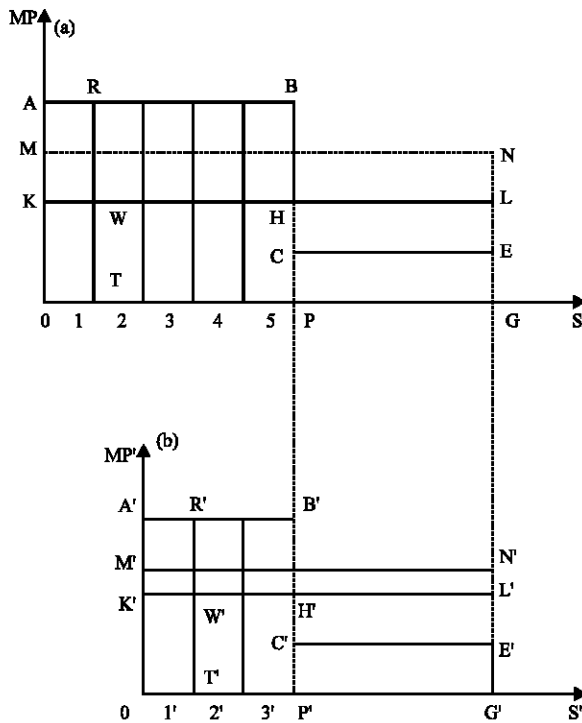


Fig. 6: The effect of the basic sector scope on enhancement of the administrative coordination

In the upper part of Fig. 7a, the reference economic system is located. Its pilot sector is presented by three entities. Let's consider the entity No. 1. Its costs exceed the output ($PHRT > PCWT$) which is normal for an economy producing pilot products. The costs exceed the output in the two other entities as well. However, in each of the entities such exceedance makes as much that the total lack of resources in the pilot sector ($CHLE$) may be covered by means of the available excessive resources of the basic sector; on top of this all entities of the pilot sector may be granted normal return on the capital employed ($HZNL$).

At the lower chart in Fig. 7b three entities of the pilot sector at the same costs show a much more modest result ($P'C'E'G' < PCEG$). As the result, the need of these economies for additional resources is larger ($C'H'L'E' > CHLE$). Given that the basic sectors in the system compared are equal the resource load on the basic sector in a non-reference system will increase, the profit line ($M'N'$) starts approaching the costs ($K'L'$) and the economy under consideration gradually transits to the administrative coordination mode.

The forth parameter scope of the pilot sector. The action on this parameter consists in the fact that in the

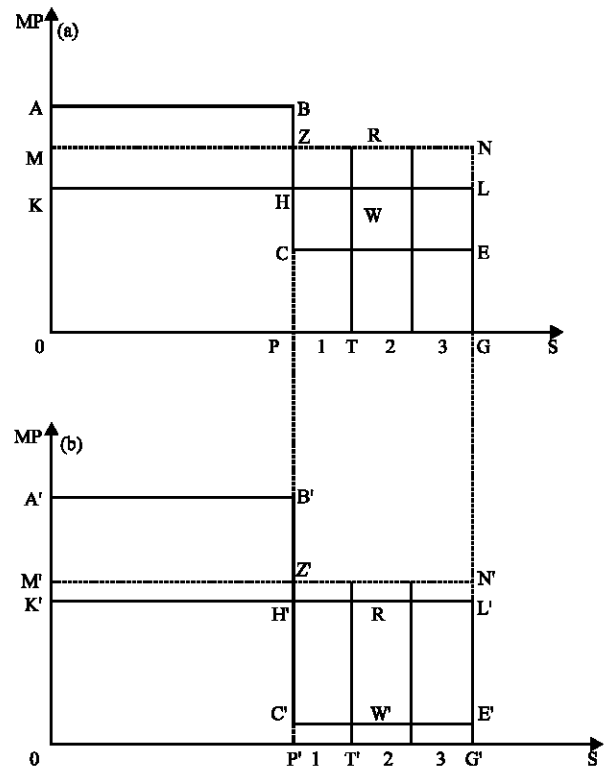


Fig. 7: The effect of the specific efficiency of the pilot sector on formation of economy with administrative coordination

private sector of the non-reference economy the efficiency of each entity is the same as in the reference one. However, there are more of such entities. Since there is more of pilot entities the aggregate demand of the pilot sector for resources increases which give rise to the economy with administrative coordination.

The last fifth parameter considered in this study the rates of the performance growth in the pilot sector of the economy. Allocating this parameter as a particular one is based on the fact that the pilot products turn into the basic ones with the assimilation thereof. Let's assume that the two competing economic systems created each for itself the same pilot sectors that determined the equal resource load on their basic sectors that are also equal. Also, let's assume that this load suggested the market organization of the economy. However, the first system managed to relatively quickly increase the performance in the pilot sector and to move the pilot products to the basic category. As the result, assimilation of further pilot products did not create additional load on the basic sector and the system continued operating in the market mode. In the second system transformation of the pilot products into the basic ones proceeded substantially slower. Consequently, having failed to timely transfer the obsolete pilot products to the basic category, this economy, competing with the first one, began assimilating the new pilot products. As the result, the resource load on the basic sector was increased, reached the critical limit and the economy changed over to administrative coordination.

SUMMARY

However such a conclusion is true under otherwise equal conditions only. Firstly, according to the logic of the two-sector model if the increase of the pilot sector is followed by the corresponding growth of the scope and efficiency of the basic sector no enhancement of the administrative coordination takes place. Besides as was mentioned, the innovative products constitute only a segment of the resource-insufficient sector. This is why, the growth of the number of innovations may be compensated through reduction of the other structural components of the resource-insufficient sector keeping it unchanged in relation to the resource-excessive sector.

Secondly as was mentioned above, the objective (transition to innovative development) affects the means (market or administrative coordination). It is this effect through transformation of the material structure that we considered in the study. But, the means affect the objective as well. This inverse effect was not analyzed in

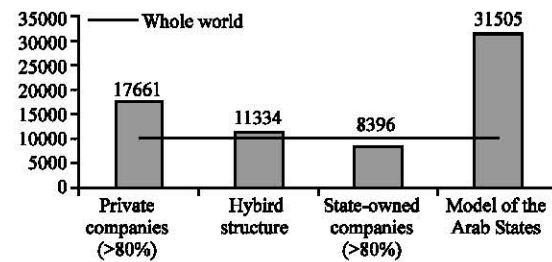


Fig. 8: GDP per capita in 2011 in oil-gas-economies

the study. However, in conclusion it should be noted that the market economy much more actively stimulates the output growth and the cost reduction than the planned one. This is why by enhancing administrative coordination for the purpose of mobilization of resources for innovations the society inevitably faces the situation of decline in the economic efficiency (Polder and Veldhuizen, 2012; Arundel and Huber, 2013; Gault, 2012). In Fig. 8 the GDP figures per capita are presented for some of the most relevant oil-and-gas-producing countries. The economic figures are divided into four groups: 'mostly private' (over 80% of hydrocarbon production fall within the private property; seven countries); 'hybrid structure' (from 20- 80% are privately owned; 10 countries, including Russia); 'mostly state-owned' (over 80% belonging to government-owned companies; seven countries) and the 'gulf model' for six countries of the Cooperation Council for the Arab States of the Gulf (GCC). The analysis shows (Fig. 8) that there is a strong tendency to the increase of income per capita (and other development indicators) in the countries having private oil companies as well as lower level of the real GDP per capita in the countries under government control.

Thus, if the loss of resources caused by decline in efficiency exceeds the scope of administrative mobilization thereof enhancement of administrative coordination is rendered useless.

CONCLUSION

The main conclusion of this study consists in the following: under otherwise equal conditions the more active the innovative process proceeds in the economic system the more it is shifted towards the administrative coordination. This conclusion refers not only to the national economy. Economy of any level from the world one to the economy of a business group or a particular enterprise may be considered as an economic system.

As for Russia, the analysis performed shows that under otherwise equal conditions the transition from the resource-oriented economy to the economy of innovative

kind will result in and already does the enhancement of the administrative coordination and market oppression. In 2005 the gross domestic expenditures on innovations on the part of the business made 22.4% while the state funding share 60.1%. The 5 years later in 2010, the share of the business made 18.3% and that of the state 68.8%. Even though as compared to other developed countries in Russia the share of the innovation funding on the part of the business is very low and the share of the state funding in the area of research and developments is rather high. For example, in 2010 in the USA the share of the state funding of innovations equaled to 27.1% and that of the business 67.3% (Mechanik, 2013; Karkkainen, 2013).

ACKNOWLEDGEMENTS

This study was prepared within the frameworks of execution of the Assignment No. 2014/194 for performance of the state works in the scientific research area (basic part), Project No. 2303 Modeling of structural determination of the nature of economic dynamics.

REFERENCES

- Anonymous, 2005. Oslo Manual: guidelines for Collecting and Interpreting Innovation Data/OECD and European Communities. Paris, OECD Publication.
- Arkin, P.A., R.I. Burkhanov and M.N. Vlasenko, 2012. Improvement of industrial policy in the area of development of innovative clusters. Journal of the St. Petersburg Economic and Finance University, No. 3, pp: 52-55.
- Arundel, A. and D. Huber, 2013. From too Little to Too Much Innovation? Issues in Measuring Innovation in the Public Sector. Structural Change and Economic Dynamic, 27: 146-159.
- Astapenko, M.S., 2014. Innovative rigidity of the Russian economy: threats and challenges of the national security. The issues of the modern economy, No. 2, pp: 40-42.
- Baranov, A.Y. and T.G. Dolgopyaova, 2013. Business corruption and corporate innovation: empirical analysis. Finance and business, No. 4, pp: 84-99.
- Barkhatov, V.I., 2013. Innovative-creative economy as an alternative way of the de-industrialization of the Russian economy. J. Econ. Theor, No. 3, pp: 20.
- Berube, C., M. Duhamel and D. Ershov, 2012. Market Incentives for Business Innovation: Results from Canada. J. Industry, Competition and Trade, 12 (1): 47-65.
- Blyachman, L.S. and N.F. Gazizullin, 2014. Theoretical fundamentals of transition to the social-innovative planned economy. The issues of the modern economy, No. 3, pp: 7-14.
- Gault, F., 2012. User Innovation and the Market. Sci.Public Policy, 39: 118-128.
- Gazizullin, F.G. and N.F. Gazizullin, 2013. Innovative and institutional breakthrough the dominants of development of the Russian economy in conditions of the new industrialization. The issues of the modern economy, No. 2, pp: 28-29.
- Glassman, G.L., 2013. Global innovative processes: Key players. Journal of the St. Petersburg Economic and Finance University, No. 6, pp: 67-70.
- Grothe, M., 2014. The impact of market structure on innovation incentives. Universitätsbibliothek Bielefeld. Bielefeld Doctoral Thesis, pp: 95.
- Hashmi, A.R., 2013. Competition and Innovation: The Inverted-U Relationship Revisited. The Review of Economics and Statistics, 95 (5): 1653-1668.
- Karkkainen, K., 2013. Bringing About Curriculum Innovation. Implicit Approaches in the OECD Area. OECD Education Working Papers, No. 82, OECD Publishing.
- Levin, M.I., K.A. Matrosova and N.V. Shilova, 2014. Concerning the discussion of the innovative policy and corruption as tools for increasing the capabilities at the macro level. Finance and business, No. 4, pp: 6-12.
- Markovskaya, E.I., 2014. Issues and prospects of investment in the innovative economy. Finance and business, No. 2, pp: 61-69.
- Mechanik, A., 2013. System illusions. In: A. Mechanik (Eds.). Expert, No. 13.
- Morozov, V.V., 2014. Strategic fundamentals of the taxation activation and stimulation of the investment-innovative processes. J. Econ. Theor., No. 3: 164-171.
- Petukhova, R.A., 2014. Investment and the innovative components of the taxation policy of the Russian Federation. Finance and business, No. 3, pp: 104.
- Polder, M. and E. Veldhuizen, 2012. Innovation and Competition in the Netherlands: Testing the Inverted-U for Industries and Firms. J. Industry, Competition and Trade, 12 (1): 67-91.
- Polterovich, V.M., 2007. Concerning the strategy of catching-up development for Russia. Economic science of the modern Russia, No. 3, pp: 17-23.
- Sergeyev, A.M., 2013. Transactions of the innovative process: theoretical-methodological aspect of analysis. Journal of Economic Theory, No. 4, pp: 134-141.
- Shumpeter, J., 2008. The theory of economic development: Capitalism, socialism and democracy. M.: 'Exmo', pp: 142.

- Tatarkin, A.I. and O.A. Romanova, 2014. Industrial Policy: genesis, regional features and legislative support. *The economy of the region*, No. 2, pp: 9-19.
- Tertyshny, S.A. Hi-tech industrialization of the Russian economy of the 21st century: pro et contra. The new industrialization of Russia. Theoretical and managerial aspects. SPb.: NPK 'Rost', pp: 30-36.
- Varavva, M.Y., 2014. Science and innovations: state and problems in conditions of formation of the knowledge-based economy in Russia. *J. Econ. Theor.*, No. 2, pp: 80-85.
- Volkova, T.I., 2012. Institutional risks in the system of relationships aimed at involving the intellectual products into the economic turnover. *J. Economic Theory*, No. 3, pp: 8-17.
- Volovich, V.N., 2012. The strategy of development of the Russian economy in the 21st century. *The issues of the modern economy*, No. 2, pp: 13-16.
- Voronina, A.S. and Y.N. Pykhteev, 2014. Innovative potential the basis of the long-term growth of the Russian economy. *The issues of the modern economy*, No. 3, pp: 25-30.
- Voronina, A.S., 2014. Peculiarities and conditions of transformation of the Russian economy into innovative one. The new industrialization of Russia. Theoretical and managerial aspects. SPb.: NPK 'Rost', pp: 73.