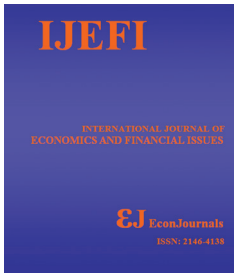

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Theoretical and Empirical Studies of Economic Growth Processes of Agricultural Production in Russian Federation

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ABSTRACT

Based on the analysis of the economic growth theories, economic cyclicality and industrial markets the article presents a concept of economic growth of industrial complexes. The concept focuses on factors, determinators and conditions of economic growth and their causal relationships, the latter being additional driving force of economic dynamics of an industrial complex. The practical aspects of the designed concept are shown on the example of the Russian agro-industrial complex (AIC). With account for the limitations of the present conditions which do not help provide for the essential functions of AIC as a subsystem of national economy, the authors identified the causes of insufficient economic dynamics of AIC. On the basis of the designed concept of economic growth of industrial complexes there were made conclusions about necessity to create growth conditions which, with appropriate balance of factors and growth determinators, will ensure quantitative, qualitative and reproductive dynamics of agro-industrial production. There have been devised strategic initiatives on managing economic growth of agro-industrial production at the stage of building-up sustainable dynamics and new quality of AIC growth.

Keywords: Economic Growth, Agro-industrial Complex of Russian Federation, Agro-industrial Complex
JEL Classifications: J47, O14, Q01, Q18

1. INTRODUCTION

The issue of economic growth is particularly important for Russia today in the view of complicated global economic and political situation. Sustainability and dynamics of national economy provide the foundation for maintaining national sovereignty, increasing competitiveness of the economy and reaching a new quality level, reducing current social tension. To ensure effectiveness in building environment for sustainable development in the long-term perspective and addressing insufficient economic dynamics there should be high level of scientific validity and applicability of underlying methodological concepts. This stipulates the necessity to formulate conceptual framework aimed at ensuring economic growth and to formulate the concept of economic growth.

The aim of the presented study was to design conceptual basis for the model of economic growth of industrial complexes taking into account the impact of factors and conditions ensuring quantitative, qualitative and reproductive changes.

2. METHODOLOGY AND METHODS OF RESEARCH

Economic growth of an industrial complex is understood as the process of its socio-economic development with quantitative, qualitative and reproductive changes in volume and content of created public good taken together and in conjunction with present and future consumer values. In accordance with the indicated three components of economic growth the authors believe it necessary to consider the existing theories and concepts aimed at addressing problems of economic growth which analyze factors and conditions explaining economic dynamics through the aforementioned parameters. With regard to both, special features of an industrial complex as a business unit for managing economic

growth and cyclical pattern of economic dynamics process, there was carried out the analysis of relevant theoretical publications and identified three main groups of theories: Theories of economic growth, theories of economic cyclicality and theories of industrial markets.

The methodological analysis showed that theories of economic growth are fundamental in identifying common denominators and factors of economic dynamics for industrial complexes. In formulating the concepts of economic growth of industrial complexes the authors found of uppermost relevance the theories of economic cyclicality as their particular aspects reflect core features of economic dynamics. The theories of industrial markets help account for industrial features of a unit of management as regard to framework conditions of economic management, market structure and behavior of economic agents.

The authors believe that conceptual basis for the theory of economic growth of industrial complexes can be found in the synergy of these three groups of theories.

The analyzed publications indicate that economic theory on scientific fundamentals of economic growth with a multitude of development research and concepts demonstrates a mismatch between a formidable body of theoretical facts and a limited number of methodological approaches which can help address the issues of economic dynamics.

Research and analysis of economic growth by classical economists laid foundation for the majority of growth models along the two main directions of economic theory: Neokeynesian, focusing on a special role of investment demand in achieving dynamic equilibrium, and neoclassical, introducing operational aspect with labour and capital taken as factors of growth.

The development of the growth theory was along the lines of endogenzing technological progress and saving ratio as the factors of economic dynamics. There was built an optimization version of neoclassical model with endogenized saving ratio. The latter was calculated in the process of maximization by economic agents of discounted utility of consumption.

If before early 60s technological changes were considered as external force which determined economic dynamics, Arrow (1962) developed the model where practically all technological advances measured as gross volume of investments were narrowed down to accumulated experience of employees. The model also accounted for positive influence of educational level. However, a number of empirical studies in those days, for example "Horndale effect[1]," clearly identified it as already employed capital good.

Following neoclassical tradition and enriching it with research on intangible capital, Shell (1967) designed a model on the basis of methodology of a two-sector approach Uzawa (1963) (breakdown into production and innovational sectors) and identified knowledge as a separate specific factor of production, specifying that its accumulation is in direct relation to economic growth rates.

Current international and national approach to studying issues in economic growth is characterized by two main directions: Endogenizing growth factors and in depth analysis of technological progress impact on economic dynamics.

Analysis of the modern international research publications renders possible to identify two dominating economic growth theories: Evolutionary and endogenic. The most well-known evolutionary model is that of Nelson-Winter. The authors used computer modeling to present their understanding of economic evolution and "…what happens at macro level and at more aggregated level" (Nelson and Winter, 2002). The model of Nelson and Winter allowed generating time series of all main parameters: Factors of production, pay rates, gross revenue, labour capital ratio. The proposed model is very important for the theory of economic growth in terms of studying meso-economic processes that take place at industry and structure levels, but it has practical limitations being analytically nontransparent and technically complicated as it uses computer simulation.

The models of technological diffusion also focused on the necessity to account for technical change impact on economic dynamics. The model of Soete and Turner (1984) helps find correlations between technological diffusion at micro-level and the speed of technological progress at macro-level. The model of Metcalfe and Gibbons (1989) reveals the role of innovational competition in ensuring economic growth. It is based on treating technological differences between businesses as determining factors of continuous change in their performance.

Theoretical models of endogenic growth are targeted at identifying behavioral and institutional parameters which ensure sustainability of long-term economic growth. The goals of empirical research in this direction were to determine additionally to standard economic variables (investment, capital, labor, etc.) potentially important political, demographic, social and other variables to be treated as growth determinators. The latter can include a formidable body of parameters, such as educational level, different aspects of state policy, trade policy and others.

One of the most important early endogenic growth studies was the model of Romer (1986) which substantiated the importance of knowledge for economic growth. Romer made conclusions that there can be an increase in knowledge and it can prompt corresponding economic growth without state interference, but in order to reach optimal results there should be introduced a sound fiscal policy. In the further development of endogenic growth studies, which were called "research and development," Romer (1990) showed the dependence of economic growth on technical change based on investment and aimed at profit maximization. There was made an important conclusion that human capital determines economic growth rate.

1 During 15 years there was no investment in steel-works in Horndale (Sweden). Production methods did not change much. However, the productivity calculated as output per employee per hour annually increased by around 2%. In Arrow's opinion it showed improvement of workers' skills due to acquired experience.

The Novel Prize winner Lukas in his seminal article "On the Mechanics of Economic Development" (1988) presents economic growth model in which on the basis of the revealed short comings of neoclassical model of Solow[2], he refuses from exogenous view of technological progress and introduces the complementary parameter of "human capital" as the growth driver for technical change. Lukas (2013) shows the importance of the increase in accumulation of physical and human capital for economic growth, but indicates that "accumulation of physical capital plays considerable, but clearly a subordinate role." The issue of measuring human capital is very complicated and still unsolved. Realizing that it is impossible to measure human capital directly, Lukas introduces externalities or external factors of human capital which include new knowledge dissemination, on-the-job training and exchange of ideas.

In general the described theories of economic growth are focused on identifying the key factors, their features and power in influencing economic dynamics. Among the variety of factors practically all theories to a certain extent in different forms and with different parameters considered natural resources, labour resources and capital as growth factors. Other quantitative and qualitative factors more numerous in number were identified depending on aims and object of research, applied methodology, tools of theoretical and empirical studies. Such factors included technological progress, technologies, investments, innovations, organizational policy, training etc. This group of factors is flexible in terms of their composition and content due to multivariance and speed of change in economic environment. Such characteristics are confirmed by conclusions drawn from the evaluation of evolutionary development of the growth theory.

Economic growth theory incorporates the methodology of describing economic cycles. In this respect the theories of economic growth and economic dynamics are closely connected through methodology, given that growth is the function of economic cycle.

Cyclicality in economic system is a process, caused by a breakdown in its equilibrium which happens periodically and is accompanied either by considerable expansion or by contraction of business activity in most economy sectors. We believe that in developing theoretical concepts of economic growth of industrial complexes the theories of economic cyclicality bear significant relevance as these theories identify the most important conditions which ensure sustainability, balance and irrevocability of progressive changes in the economic system.

The main focus in the system of economic cycle theories is innovational. One of the first to substantiate innovations as a driving force of economic development and identifying long wave fluctuations as one of the forms of economic dynamics when applying the concept of Kondratiev cycles was Schumpeter (1982). According to his theory irregularity in economic growth of economic system is caused by the processes of introducing innovations and the following recovering of equilibrium at a new technical and economic level. This approach but at a global level was applied by Glazyev (1993) when he substantiated the theory of technological modes.

With regard to the differences in understanding the causes of breaking equilibrium in economic system as the methodological basis for economic cycle theories, there can be identified a range of research approaches. Among them there are the following the theory of over accumulation of capital (Forrester, 2006), social concept (Freeman, 1982), price theory (Rostow, 1980), Keysian and Neokeysian theories (Hansen, 1951; Fisher, 1933; Hicks, 1992).

The examined theories of economic cyclicality within the context of the designed concept of industrial complex economic growth give grounds to conclusion that cyclical iterations in economic system are an objective process, but it can be directed.

It should be noted that the economic theory has not been treating one industry or industrial complexes growth issues as a separate direction of economic thought. The issue of economic growth of an industry is a part of industry economy research where the general theories of economic dynamics are applied with account for industry features. However, to better address particular features of an industry when formulating the concept of industrial complex economic growth as a structural part of national economic system where economic agents aim at having economically beneficial relations, production feasibility, social significance and act in keeping with consumer needs, the authors refer to theories of industrial markets. Taking into account the methodological proximity of these theories to microeconomics it is necessary to focus on such important aspects as elements of industrial markets analysis and system of state regulation of an industrial structure, which have direct bearing to offering solutions for ensuring economic growth at industrial complex level.

As a subset of economic knowledge system there exist a range of theories of industrial markets that look into relations between economic agents at meso-level of the economic system. Their methodological and theoretical rationale took off at the onset of market relations and developed conducting studies on market regulation with the aim to ensure their maximum effectiveness. The main provisions of the industry markets theory were laid down by American and European researchers on the basis of historical experience of using market mechanisms and corresponding object of research in the form of industrial markets. In international practice this research direction was named "industrial organization." There have been different methodological approaches to industrial markets analysis. The main ones are those of Harvard and Chicago Schools of Economics. The followers of Harvard's approach considered state intervention necessary as the market itself is not capable to regulate the economic system. Chicago School's paradigm of industrial markets applied microeconomic models basing on price theory and regularities in optimal solutions, but not on objective characteristics of the industries.

2 Lukas thinks, that the model of Solow "per se is not an example of good theory of economic development: It cannot explain the observed differences between countries and categorically though mistakenly forecasts that the practice of international trade will very soon lead to convergence in capital-labour ratio in different countries and in factor values" (translated from 8. p. 60).

To account for industrial features when formulating the concept of industrial complex economic growth the authors believe it necessary to integrate these two approaches for conducting industrial analysis. Combination of systemic and microeconomic approaches to market analysis at the industry level will rend it possible to identify the mechanism which makes productive activity of the economic agents of the industrial complex more fully correspond to demand in goods and service. This will in the end ensure positive economic dynamics for both, economic agents and for the complex at large.

Thus, economic growth of an industrial complex as the process of socio-economic dynamics of the volume and content of the created public good will take place if there exist particular factors and conditions ensuring quantitative, qualitative and reproductive changes in the economic system.

The present study was conducted on the basis of differentiating between notions of factors and conditions for economic growth. Growth factors serve as the primary cause for changes in volume and content of public good and lay the foundation for socio-economic development of an industrial complex as an economic agent. Growth conditions are understood as an environment which determines opportunities for growth factors to function and consequently, affect the features and intrinsic characteristics of economic dynamics of an industrial complex.

3. RESULTS AND DISCUSSION

Taking into account the multitude and variety of factors, their relative importance and in many cases causal interrelations, the results of the conducted study give grounds for conclusion that it is possible to differentiate them into basic and determining growth factors. The basic and essential growth factors are natural resources, labour resources and capital. The determining factors or growth determinators are investment, innovation, technology, entrepreneurship, technological progress, education and training, organizational policy which provide for the reproduction and effectiveness of the basic factors. The more accessible, adequate and efficient the determinators are, the wider will be the opportunities for raising efficiency of growth factors ensuring quantitative, qualitative and reproductive dynamics of the economic system. The efficiency of both groups of growth factors depends on the existing environment or growth conditions, including economic, organizational, institutional, social, legal, cultural ones. Close interaction and causal relations between basic growth factors, determinators and conditions indicate the necessity to specify them in conjunction with the features of a particular industrial complex.

The present research was carried out on the analysis of the RF agro-industrial complex (AIC) for which the causal relationships between the identified parameters of economic growth can be presented in the diagram (Figure 1). The higher the extent of adequacy of the economic conditions to the characteristics, content and combination of the growth determinators, the more substantial will be the impact of the latter on growth factors, which in turn determine quantitative, qualitative and reproductive dynamics of the AIC.

At present the lack of balance between economic growth parameters is the reason for low economic dynamics of the Russian AIC which does not help maintain its core functions as a subsystem of national economy. Having considerable potential in terms of basic growth factors the economic dynamics is negatively affected by inadequate growth determinators not corresponding to the present requirements of agro-industrial production. This misbalance is the result of existing growth conditions which do not allow reaching the appropriate level and correlation between growth factors and determinators for AIC dynamics (Table 1).

The quantitative dynamics is characterized by the positive trend in the indicators which the existing agrarian policy considers the key ones. They include the following: Agricultural output in monetary terms, availability of basic capital funds and grain production being the basis for export constituent of the economic policy. However, the indicators which determine the level of food security and are the basis for achieving it show negative dynamics. It can be seen that the number of employed in the agriculture has considerably lowered, there were reductions in the cattle population, no real positive dynamics in milk production and planted acreage.

The qualitative dynamics shows the existing trends in agriculture. It is evident that there are no conditions for intensive development of agricultural production (reduced power supply capacity, increase in load per machinery), which causes decrease in dynamics or low rate of positive dynamics for indicators of grain yield, productivity and efficiency. The reproductive dynamics clearly shows that the existing approach and economic system cannot provide sustainable economic growth of agro-industrial production. Lack of internal funds, insufficient budgetary funding, high level of liabilities of the agricultural producers cannot ensure required technical and technological level of production, or increase soil productivity, or maintain and develop strategic resources. Increase in investment alone cannot be considered a sufficient condition for reproduction. It should be also noted that most investment funds are used for purchasing foreign machinery and technologies, while practically nothing is being done to create one's own capital base for reproduction.

In general, the assessment of the dynamics of even a limited part of the parameters shows the weakening of the reproductive component of economic growth, if compared to conduct with foreign countries (Table 2) in which the development and support of agrarian sector is considered as a basis of national policy, the need to change the approach to the management of economic growth of AIC of the Russian Federation even more becomes apparent.

To evaluate the rate of change in the parameters of economic growth (Figure 2) the set of statistical indicators of the AIC performance over the period from 2005 to 2014 (Official site of the Federal state statistics service)was divided into three blocks(Anokhina, 2016):

- Indicators of quantitative dynamics;
- Indicators of qualitative dynamics;
- Indicators of reproductive dynamics.

Figure 1: Causal relations between parameters of agro-industrial complex economic growth

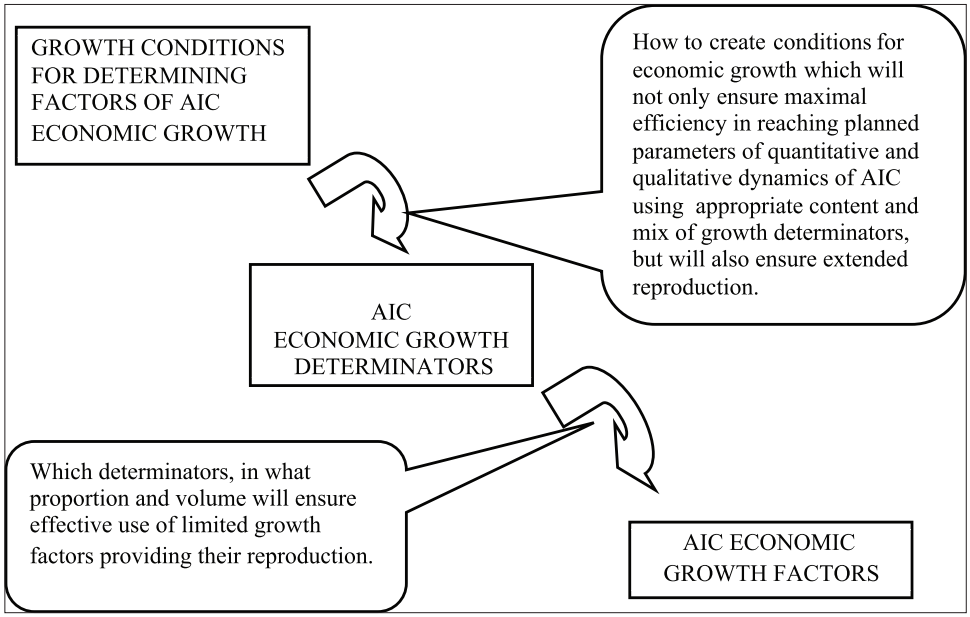
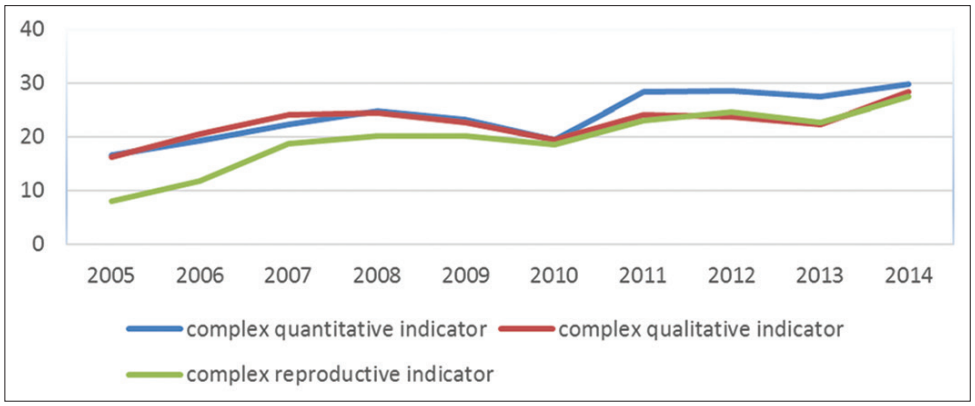


Figure 2: Dynamics of the complex indicators of the RF AIG economic growth



To estimate a complex index for each block there was done a calculation of relative indicators (normalization of data).

$$\delta = \begin{Bmatrix} \frac{F_u}{F_o}, if\_i \in M_1 \\ \frac{F_o}{F_u}, if\_i \in M_2 \end{Bmatrix} \quad (1),$$

Where, F_{u} - value of the indicator included in the corresponding block;

δ - relative value;

F_o - optimal (standard) value of i[ed] indicator.

It should be noted that when standard value cannot be plotted, the received value of the indicator over the studied period is assumed. The optimal value is assumed to equal maximum value if the factor under study is characterized by the positive growth trend (M_1 – stimulating agent). The optimal value is assumed to equal minimum value if for the factor under study the positive growth trend is characterized by decrease (M_2 – de-stimulating agent).

For stimulating agents there was used the following formula:

$$\frac{(x_{ij} - x_j^{\min})}{(x_j^{\max} - x_j^{\min})} \quad (2)$$

For de-stimulating agents there was used the following formula:

$$1 - \frac{(x_{ij} - x_j^{\min})}{(x_j^{\max} - x_j^{\min})} \quad (3)$$

Where,

$$x_j^{\max} = \max x_{ij} (1 \le i \le m);$$

$$x_j^{\min} = \min x_{ij} (1 \le i \le m);$$

The resulting complex indicator is the sum total of normalized values of the indicators included in the corresponding block.

Whilst analysing the received data one should account for the consistent pattern of nonequivalent impact of quantatitive, qualitative and reproductive changes on the overall economic

Table 1: Key indicators of AIC economic dynamics

Indicators	2000	2005	2010	2012	2013	2014	2015
Quantitative dynamics							
Agricultural output in current prices, billion rubles	742.4	1500.9	2855.5	3561.5	3687.1	4319.1	5165.7
Gross yield of grain, million tonnes	65.4	77.8	61	70.9	92.4	105.3	104.8
Milk production, milliontonnes	32.3	31.1	31.8	31.8	30.5	30.8	30.8
Annual average of those employed in agriculture, million people	8.4	6.7	6.1	5.9	5.8	5.6	5.4
Planted acreage, thousand hectares	84,670	75,837	75,188	76,325	78,057	78,525	79,319
Cattle population, million cattle	27.5	21.6	20	20	19.5	19.3	18.9
Change in availability of capital funds (in comparable prices), % to the previous year	97.1	97.9	101.2	101.6	102.2	101.9	101.7
Qualitative dynamics							
Productivity rate (in percentages to the previous year), %	N/A	101.8	88.3	98.2	106.0	102.9	103.8
Profit per one employed in agriculture, in thousand rubles	3.1	8.21	18.08	27.05	22.87	46.85	61.23
Loss per one employed in agriculture, in thousand rubles	2.37	3.36	7.05	4.96	12.37	14.52	9.36
Crop yield of cereal and grain legume crops, in hundred kilograms per hectare	15.6	18.5	18.3	18.3	22.0	24.1	23.7
Milk yield per cow, in kg	2502	3176	3776	3898	3893	4021	4134
Ground load per tractor, in hectare	135	181	236	258	274	289	307
Power capacity per hectare of planted acreage, in horsepower	3.29	2.7	2.27	2.11	2.01	2.01	1.97
Reproductive dynamics							
Volume of budgetary funds per hectare of planted acreage, in thousand rubles	0.14	0.25	1.79	1.8	2.26	2.00	2.8
Liabilities of agricultural organizations per a ruble profit, in rubles	8.78	7.96	13.45	11.89	1557	8.36	7.64
Fixed capital investments (in comparable prices), % to the previous year	104.9	110.6	88.8	101.7	106.6	94.8	90.4
Applied mineral fertilizers per hectare of planted acreage, in kg	19	25	38	38	38	40	42
Ratio of monthly average nominal wages in agriculture to national average, %	40.0	43.0	51.0	53.0	52.2	54.0	57.9
Number of general educational institutions in rural areas, in thousands	45.4	40.7	30.6	27.4	26.4	26.1	26.0
Putting into service motor roads for general use in rural areas, km	5626	1790	1482	1735	1995	1573	2047

Source: Official site of the Federal State statistics service (http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/). AIC: Agro-industrial complex

Table 2: Comparison of parameters of economic dynamics agro-industrial complex of the Russian Federation and foreign countries

Indicators	Russian Federation	Belarus	Germany	France	Netherlands	United States	Canada	Turkey
The area of agricultural land per 100 people, ha	153↓	92	21	45↓	11	129↓	180↓	51↓
Grain yield, c/ha	24.4↑	37.2↑	80.5↑	58.29↓	90.74↑	76.4↑	36.7↑	31.2↑
The number of cattle, million goal	19.6↓	4.4↑	12.6↓	19.1↓	3.9↓	92.7↓	12.2↓	14.1↑
Milk yield per one cow, kg	3851↑	4482↑	7236↑	6674↑	7537↑	9678↑	8699↑	2970↑
Applied fertiliser per hectare, kg	15.2↓	255.7↓	203.5↑	140.6↓	231.1↓	131.9↑	88.3↑	113.5↑
Combine harvesters per 1.000 ha of arable land and land under perennial crops	0.7↓	2.02↓	7.8↓	4.07↓	7.08↑	2.11↓	1.66↓	4.13↑
Agricultural machinery, tractors per 1.000ha of arable land	3.3↓	8.38↓	92.54↓	59.89↓	126.53↓	26.69↑	14.51↑	67.96↑
Agriculture value added per worker (constant 2010 US$)	11593↑	15814↑	43327↑	95420↑	78141↑	78224↑	82512↑	9792↑

Source: FAOSTAT. URL: http://www.fao.org/countryprofiles/ru, World Bank Group. URL: http://data.worldbank.org/indicator/ea.prd.agri.kd, Official site of the Federal state statistics service (http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/). The arrow is a General trend in the changes over the last 5 years

dynamics of the AIG over the period. The quantatitive changes are more dependent on extensive growth factors, whereas qualitative and reproductive changes require more costly intensive activities. The results of the latter can be seen as a rule only with time. Quite explicit is the link between the qualitative and reproductive changes and the social development pathway of the industrial complex, it being anintrinsic component of the balanced and sustainable growth. Overall, over the recent decade the growth of reproductive changes has been more intensive. This positive dynamics stipulated the capability for the AIC to function and to build a foundation for its moderate growth under present conditions. However, during the period from 2010 to 2014 the correlation between complex parameters of AIG economic growth changed with quantitative growth of 53%, qualitativegrowth of 46.7%, reproductive growth of 48.5%. This will definitely not lead to building up thefoundation for AIC development, it already poses a threat for addressing acute agrarian issues in the country. In order to reach tangible results in the agriculture it is necessary to shift the priorities in the agrarian policy and to change from micromanagement to systemic approach in managing AIC economic growth.

In accordance with basic managerial principles the process of managing AIC economic growth must be well structured. The stages of the process should reflect the chosen priorities in the

agrarian policy, overall aims of the national economy and the availability of corresponding resources. With regard to both, the importance of ensuring AIC economic growth for national economy under present conditions and with state commitment to develop industrial complex, there can be identified two stages: The first one–to ensure the reproductive growth; the second one–to reach a new quality level of growth for the agro-industrial production.

At the first stage of ensuring reproductive growth the main objective is to achieve sustainable long-term dynamics of AIC which entails achieving the following goals: To provide the country with food staples, to retain the core rural lifestyle pattern, to minimize disproportions in the structural industrial setup.

The formation of reproductive economic growth of the AIC can be done on the basis of the following strategic initiatives:

1. To design the system of agro-industrial production deployment.
2. To develop the AIC social pathway.
3. To increase the level of agro-industrial production intensification.
4. To increase profitability levels of the agricultural producers.
5. To stimulate the internal market of food distribution channels.
6. To develop the infrastructure of agrarian markets.
7. To develop agrarian education and to reestablish agrarian science.

The management of the AIC economic growth at the stage of reaching its new quality level should be linked to the development of the agriculture as a strategic industry of the national economy, which ensures a considerable agro-export potential of the country-exporter of food products with high added value. This stage involves complete changeover to a new paradigm of production based on the advanced technologies, on cutting-edge informational and communication technologies, on creating attractive image of AIC as an area of economic activity; on the development of educational and scientific model to sustain the demand for knowledge as the key to retain important positions on the world food markets. At the stage of reaching a new quality level of AIC economic growth there should be implemented the following strategic initiatives:

1. To ensure that the rural lifestyle is perceived as the core system of the society which spurs the overall progress in the national economy.
2. To reach a high level of ecological safety for agro-industrial products.
3. To develop sustainable agrarian economy resistant to climatic changes.
4. To develop ecosystems interrelated with agriculture.
5. To transfer to highly technological pattern of agro-industrial production.

Implementation of strategic initiatives at the stage of ensuring reproductive growth of the agro-industrial production creates the foundation for building new quality of the economic growth and on condition of successful realization of the corresponding strategic initiatives leads to reaching such levels of economic dynamics that will make it possible for Russia to become the world supplier of the high-level processed foods. Putting into practice the proposed strategic initiatives requires the dominating role of the state in managing the processes of AIC economic dynamics with the appropriate set of legal and administrative mechanisms.

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