

INFLUENCE OF CHANGES ON THE DEVELOPMENT OF AGRICULTURAL SECTOR IN UKRAINIAN ECONOMY

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Introduction. Any changes should be aimed at the effective interaction of experience, objective assessment of the current state of affairs, determination of real objectives and the choice of the optimal way to achieve the goal in the future. All changes require the application of particular practical approaches and regulatory instruments. Thus, their use should be aimed at an increase in changes adaptability, the reforms effectiveness and their sound implementation.

An overview of the latest sources of research and publications. Farm structure changes in the EU-10 Member States since European Union accession are investigated to explain the drivers of change, to identify development paths and to outline future policy options for balanced territorial development. Official data were used to illustrate differences in farm structures among the EU-10 and the EU-15 Member States. Recommendations relate to proposals to change the Common Agricultural Policy to enhance the ability of farms to adapt to future economic, environmental and social challenges [1].

This paper estimates the role of agronomic inputs in cereal yield improvements and the consequences for countries' processes of structural change. The results suggest a clear role for fertilizer, modern seeds and water in boosting yields. We then test for respective empirical links between agricultural yields and economic growth, labor share in agriculture and non-agricultural value added per worker [2].

Agricultural innovations are primarily concerned with a need for increasing production (of food, fodder, secondary products) as well as enhancing quality (of produce, production process, growing conditions). This paper reviews current thinking on how improvements and innovations in agriculture arise, what forms they take and what agents are involved [3].

These results follow from using a novel semi-parametric econometric approach to estimating TFP. Recent advances in panel econometrics are used to show the heterogeneity of TFP growth rates across countries [4].

We study the effects of the adoption of new agricultural technologies on structural transformation. To guide empirical work, we present a simple model where the effect of agricultural productivity on industrial development depends on the factor-bias of technical change [5].

According to national accounts data, value added per worker is much higher in the nonagricultural sector than in agriculture in the typical country, particularly in developing countries. Taken at face value, this "agricultural productivity gap" suggests that labor is greatly misallocated across sectors [6].

Cross-country labor productivity differences are larger in agriculture than in non-agriculture. We propose a new explanation for these patterns in which the self-selection of heterogeneous workers determines sector productivity. We formalize our theory in a general equilibrium Roy model in which preferences feature a subsistence food requirement [7].

Unlike economies as a whole, manufacturing industries exhibit strong unconditional convergence in labor productivity. The article documents this at various levels of disaggregation for a large sample covering more than 100 countries over recent decades. The result is highly robust to changes in the sample and specification. The coefficient of unconditional convergence is estimated quite precisely and is large, at between 2-3% in most specifications and 2.9% a year in the baseline specification covering 118 countries [8].

Recent globalization has been characterized by a decline in the costs of cross-border trade in farm and other products. It has been driven primarily by the information and communication technology revolution and in the case of farm products by reductions in governmental distortions to agricultural production, consumption and trade [9].

Agriculture is the single largest source of anthropogenic non-carbon dioxide (non-CO₂) emissions. Reaching the climate target of the Paris Agreement will require significant emission reductions across sectors by 2030 and continued efforts thereafter. Here we show that the economic potential of non-CO₂ emissions reductions from agriculture is up to four times as high as previously estimated. In fact, we find that agriculture could achieve already at carbon price of 25 \$/tCO₂eq non-CO₂ reductions of around 1 GtCO₂eq/year by 2030 mainly through the adoption of technical and structural mitigation options. At 100 \$/tCO₂eq agriculture could even provide non-CO₂ reductions of 2.6 GtCO₂eq/year in 2050 including demand side efforts [10].

Changes in micro and macro climates lead to more extreme events, such as droughts and floods [11].

Climate change might impact crop yields considerably and anticipated transformations of agricultural systems are needed in the coming decades to sustain affordable food provision. However, decision-making on transformational shifts in agricultural systems is plagued by uncertainties concerning the nature and geography of climate change, its impacts, and adequate responses. Locking agricultural systems into inadequate transformations costly to adjust is a significant risk and this acts as an incentive to delay action. It is crucial to gain insight into how much transformation is required from agricultural systems, how robust such strategies are, and how we can defuse the associated challenge for decision-making [12].

This paper analyses the role of agriculture in the political economy of the Middle East and North Africa (MENA). It outlines agriculture's relative contribution to development and employment, shows linkages with food security policies, and discusses possible future scenarios [13].

Agriculture which is the only provider of human's food that should produce from transitional and final inputs with well-known technologies. Thus, it is necessary to take a modern knowledge in agriculture. In spite of being relative advantages in agriculture process, still developing countries are suffering from lack of high importance of food products. Despite a lot of information about individual nanomaterials is available, but toxicity level of many NPs is still indefinable, thus the application of these materials is limited due to the lack of knowledge of risk assessments and effects on human health. Development of comprehensive database and alarm system, as well as international cooperation for regulation and legislation are necessary for exploitation of this technology [14].

Setting objectives. The aim of the research is to study the impact of changes on the development of agricultural sector in Ukrainian economy and to identify the directions of its implementation.

Theoretical and methodological basis of the research is dialectical method of scientific knowledge, systematic approach to the study of economic phenomena, principles of modern economic theory, scientific researches of economists who investigate problematic issues in the development of agricultural sector, recommendations of research institutions.

Main material and results. Analysis of scientific studies has made it possible to highlight the following interrelated concepts: "development", "change", "process", "movement", and "pathway". The notion of "change" has several meanings and is interpreted from different points of view, in particular, as development, movement, pathway, and process(Fig. 1).

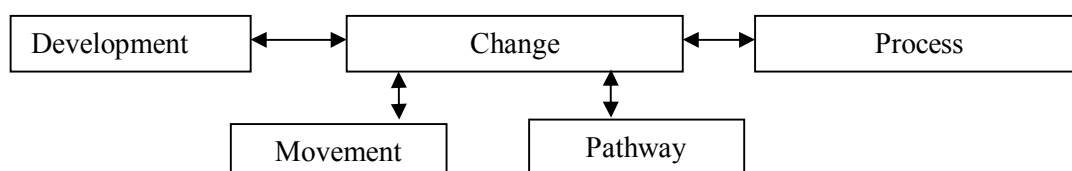


Fig.1. Category "change" as development, movement, pathway, and process

Source: developed by the authors

The word "change" reflects a shift in a person's mind. As for the properties of changes, they are imposed on the system, defining scientific approach and methodology in the study or use of the system itself. Changes in the system form and reflect its properties during the interaction with its surroundings.

Originally, the essence of changes as a separate scientific problem was highlighted in the studies by Aristotle who proposed four main forms of changes: the change of place, quantity, quality and substance [15].

Thus, the following seven features of the changes can be formulated:
 changes in space (surroundings);
 changes in a given direction;
 changes in a certain quantity (volume);
 changes in the required quality;
 changes with a certain speed, rhythm;
 changes in particular time and duration;
 changes with minimal financial costs (investments).

The main features of changes implementation have been outlined on the base of process approach (Fig. 2).

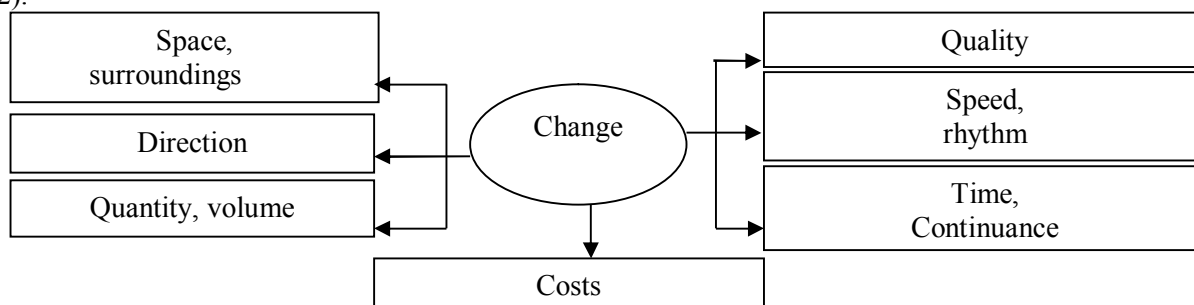


Fig.2. The main features of changes implementation (process approach).

Source: developed by the authors

The effectiveness of changes implementation depends on how much they are studied, and justification for the appropriacy of choosing particular methods and approaches. Changes are characterized by structure (statics) and the functions (dynamics). It is worthwhile to highlight the objects of changes, their parameters and nature as well as the types (Table1).

Table 1

General characteristics of the content of changes

Objects	Parameters (properties)	Nature	Types
Nature, climate, ecology	Hierarchy, interconnections	Predictability (planned (short-term and long-term), situational)	Structural changes
Technique, technology	Control (controlled, uncontrolled)	Consequences (positive, negative)	Institutional changes
Society, education, culture	Quantity, quality	Scale (global and local (partial))	Motivational changes
Economics, finance	Subordination of elements in the system	Transformations (evolutionary (steady), revolutionary (erratical))	Functional changes
Politics, legislation	Manageability (exposed to management, not exposed to management)	Implementation (lineal, graded, spiral, floating, global, random, cyclic)	Process changes

Source: developed by the authors

It is worth noting that an intensive reproduction occurs when there is a substitution of less productive factors with more productive ones, when the amount of resource sis constant or even reduced. The purpose of economic reforms in transition economies is in the transition from extensive to intensive reproduction, primarily due to innovation factors and an improvement in management.

Concepts "development" and "growth" are typically interconnected: a growth in the gross product is accompanied by changes in the technology of production, which is connected with the emergence of new types of products and industries. In other words, the growth causes qualitative changes in the economy, contributing to its development. Positive qualitative changes in property relations, distribution and redistribution of income, and financial stabilization affect economic growth actively.

Sociologists identify different types of social changes: evolutionary and revolutionary; short-term and long-term; planned and spontaneous; involuntary and voluntary; conscious and unconscious; reactive (as a reaction to some events) – projective (planned in advance); progressive – regressive; qualitative – quantitative; as well as individual, group, organizational, institutional, social changes etc.

Three groups of changes may be outlined among many macro sociological theories of social changes: social and cultural (changes in social and cultural sphere);

industrial and technological (social changes as derivatives from changes in production technology); social and economic changes (Table2).

Table 2

Social changes	
Group	Scope of action
Social and cultural	changes in social and cultural sphere
Industrial and technological	social changes as derivatives of changes in production technology
Social and economic	changes in social and economic development (interaction between production and industry)

Source: developed by the authors

Regarding relevant researches, the types of social changes can be classified according to:

scale: marginal, revolutionary changes (changes can cover the entire social system or any particular aspect of the element);

the term of validity: short-term, medium-term, long-term;

the direction of development: they can lead the social system to development or decline;

status: social changes occur in interpersonal relations, at organizational and institutional levels, small and large social groups, at local, regional and global levels;

the nature: functional changes; changes in reforms; revolutionary changes; changes in modernization; transformational changes; crises.

In the nineteenth and twentieth centuries, researchers of various fields (philosophy, psychology, sociology, economics) formulated theoretical aspects of the models of social changes: evolutionary, cyclic, functional, conflict-ridden.

The influence of political changes on the development of agricultural sector is determined in Table 3.

Table 3

Influence of political changes on the development of agricultural sector in Ukraine

Changes and their indicators	Current state of indicators	Trend indicators	Impact of changes on the agricultural sector
Change of power	Centralized power	Democratization of power	Ability to develop small and medium scale business
Change of the constitution	Concentration of power by the President	Balance of legislative, executive and judicial power	Creation of favorable conditions for the development of agricultural sector

Source: developed by the authors

The influence of social changes on the development of agricultural sector is determined in Table 4.

Table 4

The influence of social changes on the development of agricultural sector in Ukraine

Changes and their indicators	Current state of indicators	Trend indicators	Impact of changes on the agricultural sector
Changes in values	Indifferent attitude to bribery, corruption	The transition to European values	Creating conditions for establishing partnerships in agricultural sector
Corruption	Corruption in all governmental institutions	First tries to tackle corruption	Creating conditions for the formation of legal and fair relations in agricultural sector
Rate of wages in agricultural sector	Low wages due to low productivity	Wages increase due to a decrease in costs as a result of modernization of production and sales activities	Creating conditions for social development of workers in agricultural sector
Demographic changes	Fertility rates are decreasing while the number of retired people is increasing	Efforts of the state and society to stimulate fertility growth	Reduction in the number of workers in agricultural sector

Source: developed by the authors

The influence of scientific and technical changes on the development of agricultural sector is determined in Table 5.

Table 5

Influence of scientific and technical changes on the development of agricultural sector in Ukraine

Changes and their indicators	Current state of indicators	Trend indicators	Impact of changes on the agricultural sector
Scientific and technological progress in agricultural sector	Stagnation in the development of science and technology	Improvement trends	Improving the efficiency of agricultural sector
Technological breakthroughs in agricultural sector	Partial implementation of advanced technologies	The spread of advanced technologies	The use of advanced technologies in agricultural sector
Information support for agricultural sector	Workers in agricultural sector are aware of the latest technological changes	The development of internal and external specialized Internet resources in Ukraine	Increase in the rate of expertise of local farmers. Increase the level of self-organization

Source: developed by the authors

The needs of consumers of end products should be taken into account by people involved in agricultural sector. Apart from that, trends and megatrends in environment should also be considered.

Megatrends are characterized by large social, economic, political and technological changes that are developing slowly and have evolved over a long time period (7-10 years and longer), affecting people. It is obvious that one of the megatrends affecting the development of agricultural sector is a long-term global warming both in the world and Ukraine. It already affects crop production and will be affecting it during next decades.

Macro-changes are an integral part of modern management system. They are an instrument that can be used to increase the efficiency and ensure the competitiveness of a country. Moreover, changes constantly occur in any economic system.

In global environment, changes take place in both space and time. Changes become global and virtual in space, and concise and critical in time. Moreover, changes stop being repeated.

It is worth noting that Ukraine tends to change rules for "the game" or renegotiate agreements and contracts. Therefore, it is not necessary to count on reliable cooperation both to Ukraine and its partners. The objects of economic changes and their impact on agricultural sector are determined in Table 6.

Table 6

Objects of economic changes and their impact on agricultural sector

Objects	Trend indicators	Government interventions	Impact of changes on agricultural sector
Inflation	Hyperinflation	Efforts aimed at stabilizing national currency, austerity.	Growth in prices for imported components, reduction in prices for exported products
Tax system	Excessive taxation of small and medium scale agricultural business.	Improvement of the taxation system.	Creation of favorable legal bases for the development of agricultural sector
Process (economic support of business)	Support for large scale businesses through corruption	Improvement in the system of economic support for businesses.	Increase in the efficiency of agricultural sector, particularly, farming
Globalization	Economic space is becoming more open	Increase in transparency of the economy.	Globalization makes strong actors in the agricultural market stronger, and weak ones weaker
Banking system	High loan rates.	Introduction of a floating interest rate.	Accounts payable are paid back timely

Source: developed by the authors

Thus, there is a constant fluctuation in indicators of economic changes in agricultural sector in Ukraine. Sometimes these fluctuations are negative. Therefore, it is necessary to develop and implement a system that will lead agricultural sector to dynamic development. While considering changes, the following directions should be highlighted: radical, reform, modernization, strategic, reactive, inactive, interactive, adaptive, and accumulative.

The impact of macroeconomic changes on the conditions and results of production and commercial activity of agricultural sector is very significant. Current trends in macroeconomic changes in agricultural sector vary both in space and in time.

Macroeconomic changes are economic changes at the macro level, which include changes in the gross national product, gross domestic product, national income and personal income of citizens, as well as their causes within the country. Macro changes are changes at the macro level in mega-environment (in a country or the world) including the following factors: natural conditions; social conditions; demographic situation; economic situation; scientific and technological progress. Macro changes are changes in politics, economy, society, technology, and climatic conditions that affect the development of agricultural sector of an economy [16].

Being the main food producer in a country for both internal and external consumers, agricultural sector interacts with the external environment through the markets of material and technical resources and agricultural products, public authorities, and other institutional factors. There are external pressures on agricultural sector such as changes in the exchange rate that affect prices for resources and products, bifurcation of the social and political situation etc.

Conclusions. All things considered, agricultural goods can be produced and distributed in agricultural sector. Being a complex system, the sector is constantly affected by macroeconomic changes, which determine the vector and dynamics of its development. There is a necessity to develop a system of resource conservation in agricultural sector due to limited amount of resources (energy, spatial, human, technical, etc.) for its development. Apart from that, it is also important to define evaluation criteria to assess economic development in the sector.

The main research results that reflect scientific novelty and reveal the content of the study are as follows:

the basic features of changes implementation have been outlined being based on process approach; changes in space (surroundings); changes in a given direction; changes in a certain quantity (volume); changes in the required quality; changes with a certain speed, rhythm; changes in particular time and duration; changes with minimal financial costs (investments);

the types of social changes can be classified according to: scale: marginal, revolutionary changes (changes can cover the entire social system or any particular aspect of it); the term of validity: short-term, medium-term, long-term; the direction of development: they can lead a social system to development or decline; status: social changes occur in interpersonal relations, at organizational and institutional levels, small and large social groups, at local, regional and global levels; the nature: functional changes; changes in reforms; revolutionary changes; changes in modernization; transformational changes; crises;

the influence of political, social, scientific, technical and economic changes on the development of agricultural sector have been determined.

Research results are aimed at improving the development of agricultural sector and can be used by governmental institutions to improve sector's development strategy.

Further studies may be focused on the impact of external factors on agricultural sector's development.

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технічних ресурсів та агропродовольчої продукції, органи державної влади, інші інституційні чинники. Доведено, що як відкрита система, агропродовольчий сектор відчуває тиск зовнішнього середовища, зокрема через зміну валютного курсу, що впливає на рівень цін ресурсів і продукції, біфуркації соціально-політичної ситуації тощо.

Ключові слова: агропродовольчий сектор, зміна, макрозміни, розвиток, процес, рух, середовище.

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Influence of changes on the development of agricultural sector in ukrainian economy. The article determines objects of economic changes and their impact on agricultural sector. It has been proven that there is a constant fluctuation in indicators of economic changes in agricultural sector in Ukraine. Sometimes these fluctuations are negative. Being the main food producer in a country for both internal and external consumers, agricultural sector interacts with the external environment through the markets of material and technical resources and agricultural products, public authorities, and other institutional factors. There are external pressures on agricultural sector such as changes in the exchange rate that affect prices for resources and products, bifurcation of the social and political situation etc.

Key words: agricultural sector, change, macro changes, development, process, movement, environment.

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Особенности влияния изменений на развитие аграрнопродовольственного сектора в экономике Украины. Статья определяет объекты экономических изменений и их влияние на сельскохозяйственный сектор. Доказано, что наблюдается постоянное колебание показателей экономических изменений в сельскохозяйственном секторе Украины. Иногда эти колебания отрицательные. Являясь основным производителем продуктов питания в стране как для внутренних, так и для внешних потребителей, сельскохозяйственный сектор взаимодействует с внешней средой через рынки материально-технических ресурсов и сельскохозяйственной продукции, государственных органов и других институциональных факторов. Есть внешние нагрузки на сельскохозяйственный сектор, такие как изменения обменного курса, которые влияют на цены на ресурсы и продукты, бифуркацию социальной и политической ситуации и т. д.

Ключевые слова: сельскохозяйственный сектор, изменения, макро изменения, развитие, процесс, движение, окружающая среда.