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ASSESSMENT OF THE INTERACTIONS OF AGRICULTURE WITH OTHER SECTORS IN AZERBAIJAN

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Summary

In this study, the input-output table was used in order to analyze the interaction of Agriculture with other sectors. Input-output tables show the economic interactions of the sectors in an economy with each other in the supply-demand relationship. The latest available 2016 Input-output table for Azerbaijan was used in this study. Based on this table, an input-output model was developed. Using the Input-Output model, it is estimated the amount of output created by a single investment in Agriculture impacting to Agriculture sector, along with the related sectors, including the total output was calculated. The obtained result shows that one unit increase in the final demand in Agriculture increases the output of all sectors by 1.794 units. The high backward linkage of the Agricultural sector indicates that it will demand inputs from other sectors for production and will stimulate the economy and increase revitalization. The study determined that agriculture is an important sector of the economy of Azerbaijan.

Keywords: *agriculture, gross product, intersectoral relations, input-output table, linkages, input-output analysis.*

1. Introduction

The share of oil and gas export in the total export of Azerbaijan is very large, and make up a large part of government revenues. In 1994, after the oil agreement called "Contract of the Century", the volume of oil exports in Azerbaijan increased. As a result, the volume of GDP in the country increased, as well as the standard of living of the population improved. However, despite all this, the long-term perspective of the oil-based economic model is uncertain. In addition, the research results of economists show that the oil sector has a rather limited potential to contribute to economic growth compared to backward and forward production relations.

Oil can be considered the main source of wealth of the "Land of Fires" only in the short and medium term. However, despite all this, oil cannot play a promising role in the Azerbaijani economy in the long term. There are some reasons for this.

Firstly, the fact that oil is a depleting resource is undeniable. The second main reason is the threat of a long-term decrease in the price of oil in countries whose economy is dependent on oil.

Another reason is measures to reduce oil use in order to reduce environmental pollution in the future. These measures may lead to a reduction in oil exports. The above reasons and also, the oil price shocks that occurred in 2014-2015 and 2020 further strengthened the basis of future long-term initiatives related to the diversification of the economy in Azerbaijan.

Beginning in 2014, the sharp decline in oil prices and concurrent decline in Azerbaijan's oil production had a detrimental effect on the nation's economy. In order to compensate for this negative impact, the government of Azerbaijan considered it important to develop several areas. One of these priority areas is the agricultural sector.

In Azerbaijan, agriculture is currently seen as the primary engine of economic growth, providing employment, and poverty reduction.

Although its share in the GDP is still small, in terms of diversifying the economy and improving food supply, the main focus is on the non-oil sector, especially agriculture.

The Agriculture sector plays a strategic role in improving the food supply and ensuring food security (K. Pawlak and M. Kolodziejczak, 2020). Meeting the population's demand for food products is one of the important issues facing the agricultural sector. Providing the population with food products at the required level depends on the high level of development of the agricultural sector and the proper organization of management in this field (E. Akbarov, 2019).

Due to rapid population growth, the agricultural sector is currently very important. The population of the world has grown by more than 200% in the last 60 years. The primary causes of food shortages are thought to be population growth, war and conflict, natural disasters, and climate change (Prosekov, A.Y.; Ivanova, S.A., 2018.). One way to end hunger appears to be to ensure better food provision by boosting agricultural productivity (Smyth, S.J.; Phillips, P.W.B.; Kerr, W.A., 2015). To increase the productivity of agricultural production per unit of land and per agricultural worker, it is necessary to increase investments in agricultural research (Otsuka K., 2013).

Another advantage of agriculture is to contribute to the industrialization of countries and thus to the development process. Agriculture still maintains its strategic importance due to its connections to other sectors and markets, despite the decline in its share of national income during the industrialization process (M. Tokatlioglu, U. Selen, R. Leba, 2018).

The links of agriculture with the market economy: to produce food for the growing population with increasing income, to ensure the flow of savings to industrial investments, It manifests itself in various forms such as expanding the markets of industrial products, earning income from exports in order to purchase imported capital goods, and producing basic agricultural inputs to be processed in the manufacturing industry (Saracoglu, 2004).

Despite having a relatively small percentage of the global economy (6.4%) the agriculture sector plays a significant role in the advancement of human civilization.

Among the sectors of the economy in Azerbaijan, agriculture has a very large share in the level of employment. While the share of agriculture in the GDP of Azerbaijan is 6%, more than 36% of the country's workers work in this sector. Ensuring employment and sustainable economic development is the main economic function of the state. From this point of view, the progress of agriculture ensures the implementation of these economic functions.

In recent years, the amount of investments directed to the development of agriculture by the state has increased. In addition, it is planned to allocate a large number of investments in the next years for the revival of agriculture in the regions liberated from occupation. It is believed that

investments in agriculture and the cultivation of agricultural products in the liberated areas will contribute to the development of other sectors of the economy, especially the processing sector.

There is a need to investigate the impact of reforms in the agricultural sector and the expansion of arable land at the expense of lands liberated from occupation on economic growth, as well as on the total production of other areas and employment. One of the best ways to examine the contribution of the agricultural sector to economic growth and its interaction with other sectors is the Input-Output model.

The main purpose of using input-output analysis is to encompass the interconnections between sectors of the economy during the production process.

The Input-Output model built using the Input-Output table is a very suitable model for evaluating how changes in one or more sectors of the economy will affect the overall economy (Atan and Aslantürk, 2012).

The analysis tool used in the Input-Output model is the interindustry transactions table. The table of inter-industry transactions also referred to as the Input-Output table, is created by using detailed data on inter-industry flows covering the entire economy, information on final demand and total output, and national accounts. It is possible to analyze the relationship between the final demand level and various variables and to analyze the general balance of the economy quantitatively with the help of the Input-Output table, which shows the amount of intermediate input used by each sector in an economy to produce a unit of production from other sectors.

In much literature, input-output tables are considered a mirror of the economy. Input-output tables allow for many analyses. The input-output analysis enables the study of interrelationships between industrial sectors of the economy at the international, national or regional level. Using this method of analysis, economists calculate the required level of production of industries in the economy to fully meet the demand for manufactured goods. The output of any sector can be an input of one or more industries and also itself. That is, the output of each sector depends on the required inputs of other sectors, and at the same time, the output of this sector is used as an input product in the production process of other sectors (Sadik-Zada, 2019)

Developing the non-oil sector of Azerbaijan is one of the most important problems of the current period. It is impossible to evaluate the numerical characteristics of the directions of effective use of oil revenues without conducting an analysis of the interrelationships of the economic sectors.

The input-output model evaluates how investment in agriculture affects the production of other sectors. At the same time, the impact of investments in other sectors on Agriculture is determined by the Input-output model. And finally, using the labor balance model, the issue of how many new jobs are created in Agriculture itself and in other sectors is considered by investments made in Agriculture. After all these calculations, it can be determined that the development of agriculture in Azerbaijan stimulates the development of which sectors, and the development of which sectors increases the demand for agricultural products.

2. Literature review

An overview of the input-output model

Francois Quesenay, a French economist, was the first to develop the fundamental structure for input-output analysis. He published Tableau economique (Economic table) in 1758. In these tables, the relationship between sales and purchases of sectors of the economy is depicted numerically. (Henry William Spiegel, 1983)

Leon Walras almost a century later adapted Quesenay's economic table by formulating a theory. In the late 1930s, Wassily Leontief greatly simplified the theoretical formulation of these tables and developed the first empirical model of intersectoral relations. Estimating the impact of the end of World War I on national employment was one of the first goals of constructing the input-output model. The main purpose of using input-output analysis is to encompass the interconnections between sectors of the economy during the production process.

The first empirical model of interindustry analysis was formulated by Wassily Leontief. This system is known as Input-Output analysis (Chenery and Clark (trans. Cinar), 1965:2). The basis of cross-industry analysis is the Input-Output model, which is based on the Input-Output table. Leontief was the first economist to establish a relationship between national accounts and the microeconomic general balance system with this empirical model he created. Leontief contributed to the planning of the war economy of the USA between 1940-1945 with the Input-Output models he developed (Raa, 2009:4). During the war, there was an intense interest in the planned economies of almost all countries, and after the war, some Western European countries such as England, France and Italy continued to make partial plans. Other countries using Input-Output analyzes after 1957 are: Norway, Denmark, Netherlands, Canada and Japan. In some underdeveloped countries, this technique has been used in important economic decisions (Miller and Blair, 2009:732; Miernyk, 1965:83)

Taking into account the policy of reducing greenhouse gas emissions implemented in the EU, Marie Pechrova estimated the impact of the decrease in agricultural production in the Czech Republic on employment based on the input-output table of 2013. In this study, 3 cases were simulated. 1) Reduction of Agriculture up to 5% 2) Reduction of Agriculture production up to 10% and 3) Reduction of Agriculture production up to 30% in case of possible crisis. The result of the application of the input-output model shows that a possible decrease of 5%, 10% and 30% of agricultural production in the Czech Republic could lead to a decrease of 2894, 5788 and 17358 jobs in the agri-food sector, respectively.

Zeki Bayramoglu and Erdemir Gundogmus used input-output analysis to examine the contribution of the agricultural sector and agriculture-based industry to the Turkish economy. Input-output tables of 1998 were used for input-output analysis (Zeki Bayramoglu, 2008). Sectorial multiplier, forward and backward linkage index and forward and backward linkage coefficients were calculated for the agriculture sector and agro-based industries. For the Turkish economy, grain and other crop production, animal husbandry, textile spinning and weaving industry, leather and leather products industry, paper and paper products industry, manufacturing of cleaning and chemical products, manufacture of other metal goods, service activity related to metal works, restaurant, coffee house, bar and catering services production has been determined as the key sector.

Based on the input-output table of 2018, the main sectors among 35 sectors in Saudi Arabia have been identified. Hirschman/Rasmussen backward and forward linkages were used to determine that the primary industries in Saudi Arabia were the production of basic metals, chemicals and pharmaceuticals, transportation and storage, and other business sector services. (Said K., M. Brika, B. Adli and K. Chergui, 2021).

Topcuoglu, A. and Ayyıldız, F.V. (2020) analyzed key sectors in E7 countries using input-output analysis. For this purpose, the authors used Input-Output tables for China, India, Brazil, Mexico, Indonesia, Russia and Turkey for 2014 taken from the World Input-Output Database.

The study's findings indicate that Turkey's key sectors in 2014 were the manufacturing of basic metals, energy, gas, steam, air conditioners, textiles, clothes, and leather goods. The manufacturing of computers, electrical and optical equipment, chemicals, and other goods is one of China's important industries.

Production of chemicals and chemical products, as well as that of electricity, gas, and refined petroleum products, are Russia's key economic sectors.

The manufacturing of coke, refined petroleum products, chemicals, and chemical products are Brazil's main industries.

Manufacturing of motor cars, petroleum products, machinery, and equipment are Mexico's key industries.

Electrical energy, gas, steam, and air conditioning, as well as the production of paper and paper goods, are the primary industries in Indonesia, whereas the manufacturing of chemicals and chemical products, furniture, and other manufacturing industries have been the main industries in India.

In Azerbaijan, many studies have been conducted on the basis of input-output analysis for the purpose of researching relations between sectors. For the first time in Azerbaijan, studies on Input-Output analysis were carried out by Yadulla Hasanli (Hasanli 2011). Hasanli (2010) built the "Equilibrium prices" model based on the input-output table of 2001 and 2006. Based on input-output analysis, Y. Hasanli and S. Salihova (2017) investigated the relationship between the tourism sector and other sectors of the economy. Y. Hasanli, F. Musayeva and G. Rahimli (2021) studied the impact of investments on employment using the Intersectoral labor balance model.

The sector uses resources (inputs) from other industries in the production process. This reflects the backward linkage of the sector. At the same time, one sector may supply inputs to other industries. This shows the forward linkage of the sector with other industries that provide inputs.

3. Theoretical framework

3.1. Data Description:

The input-output (IS) tables for Azerbaijan are created by the Statistical Committee of Azerbaijan (SCA) using the methodology recommended by the United Nations Statistical Commission in 1993. IOT is usually developed every 5 years. Using the latest input-output table available for Azerbaijan in 2016, we will assess the direct and indirect effects of changes in the agricultural sector, one of the key sectors of the country's economy. For this purpose, the input-output table of 96 areas was first grouped and brought to 18 areas, and multiplier effects were calculated in Excel.

3.2. Research methodology

Methodology: *Input-Output Model*

Input-output table:

Each sector uses the products of other sectors as intermediate inputs in the production process. At the same time, the products of this sector are used as intermediate inputs in the production of other sectors. Examining these interactions between sectors together reflects the essence of input-output

analysis. The input-output table developed for solving the problem of mutual relations is necessary for conducting economic analyzes and making forecasts.

In this regard, the construction of the "Input-Output" model allows for finding solutions to such problems. Using input-output analysis, the effective use of investments, the best ways to create jobs, the assessment of the effects of taxes and subsidies on the development indicators of individual sectors of the economy (the volume of total output, added value, wages, profits) can be estimated. İt is also possible to assess the impact of imports and exports, government spending, consumer spending, investments and other socio-economic indicators on the final product, and then the impact of the final product on the amount of resources necessary for product production can be evaluated.

The input-output table was compiled for the first time in the world in the former USSR. A mathematical model of inter-sectoral interaction was developed by Wassily Leontief.

After Azerbaijan regained its independence, the input-output table was prepared for 2001 for the first time. After that, every 5 years, the State Statistics Committee of Azerbaijan compiles the input-output table. Tables and balances compiled by the State Statistics Committee of Azerbaijan are statistical reports. In the report, only the statistical analysis of the indicators of the inter-sectoral balance of production and distribution of products and services was carried out, but the economic-mathematical model of the inter-sectoral balance was not established and its system of equations was not solved.

The I-O table consists of 3 main quadrants:

- In Quadrant One, each sector appears twice in the table, as both a producer of output and a consumer of input. The rows of the I-O matrix show the intermediate products supplied by the sector to other sectors, including itself. That is, it shows how the product produced in the sector is used. The columns of the I-O table show how much input the sector in that column requires from other sectors to produce. Note that the first section of the I-O table is used calculating GDP by the production method.

- The second quadrant is composed of components of the final product. These components are consumption (C), investment (INV), public expenditure (Gov), and export and import (NX). The 2nd quadrant of the I-O table corresponds to the calculation of GDP using the expenditure method.

- Sectors use factors of production such as labor, capital, natural resources that are not produced by any sector, and intermediate inputs produced by other sectors in their production. Factor payments to key inputs are included in quadrant 3 of the I-O table. Quadrant 3 consists of components of Value Added such as wages, profit, depreciation, social deductions, etc. This part reflects the calculation of GDP by income method (Hasanli, 2011).

Input-Output Model:

Mathematically, relations between sectors are expressed by a system of equations. Intersectoral analysis is performed by solving the system of equations. The rows of the table show the distribution of each type of product release. Each line is characterized as follows:

Output of a given product type (area) = Intermediate product + Final demand

This relationship can be written mathematically as:

$$X_i = (x_{i1} + x_{i2} + \ldots + x_{ij} + \ldots + x_{in}) + Y_i \text{ , i =1, 2, ….k,…n (1.1)}$$

X_i - the output volume of products and services of the i-th area,
x_{ij} - is the amount of inputs sector j purchases from the selling sector i,
Y_i - is the final demand of sector i.

Intermediate demand is a part of total demand, and indicates the purchase (use) of the product in the form of primary materials (resources) in the production process of other products. More precisely, it indicates the use of products as intermediate consumption. Final demand is also a part of aggregate demand and shows purchases of final products (consumption or investment).

Technical coefficient: The first step in constructing an I-O model begins with constructing a matrix of technical coefficients. Technical coefficient or Direct cost coefficient indicates the amount of resource i necessary to produce a unit amount of product j. Technical coefficients are denoted by a_{ij} and were also named input coefficients by Leontief.

$$a_{ij} = \frac{x_{ij}}{X_j} \text{ (1.2)}$$

This means that it takes a_{ij} units of product i to produce one unit of product j.

If we find x_{ij} ($x_{ij}=a_{ij} \cdot X_J$) from (1.2) and consider (1.1), then equation (1.1) will be as follows.

$$X_i = \sum_{i=1}^{n} a_{ij} \cdot X_j + Y_i \text{ , } i = 1,2,\ldots, n \text{ (1.3)}$$

The system of equations (1.3) shows that Total product X is equal to the sum of intermediate demand (used by other sectors in the production process) and final demand (Y). If we write (1.4) in matrix-vector form:

$$X=AX+Y \text{ (1.4)}$$

Here, E is the unit matrix. A is called the matrix of direct costs. It should be noted that the A matrix is also called a technological matrix because it reflects the production technology. The complete set of input coefficients of all sectors of a given economy is called the structural matrix of that economy (Wassily Leontief, 1986).

Leontief Inverse Matrix:

If we find Y from (1.4):

$$Y = (E-A)\ X \quad (1.5)$$

Here (E-A) is called the Leontief matrix.

Then the vector X is found from equation (1.5). The result is as follows

$$X=(E-A)^{-1} \cdot Y \quad (1.6)$$

Applying the I-O model, (1.6) can also be expressed as follows:

$$\Delta X = (E-A)^{-1} \cdot \Delta Y \ , \quad (1.7)$$

Denote $B = (E-A)^{-1}$. B is the so-called Leontief inverse matrix or total requirements matrix.

$$X=BY \quad (1.8)$$

$$(E-A)^{-1} = B = (b_{ij}) \text{ i, j=1,2,.....,n}$$

The inverse Leontief matrix shows how much input is required to produce a one-unit increase in final demand. Thanks to this property of the inverse matrix, the total forward and backward linkage effects of a sector can be found. b_{ij} coefficients summarize all indirect effects.

4. Results and Discussion

4.1. Simulations with input-output model

The direct and indirect effects of investments in individual sectors on the total output of sectors are different. Formula (1.8) is used to calculate these effects. For this, the direct cost matrix should be calculated first, and then the total cost matrix. Then, by applying formula (1.8), we can calculate the direct and indirect effects of investments in Agriculture. For this purpose, we use the "Expenditure-Output" tables compiled by the State Statistics Committee of Azerbaijan for the year 2016.

Now let's look at the effect of changes in final demand in one or more sectors on the total output of sectors. For this purpose, we use the formula (1.9), which constitutes the quantitative solution of the input-output model. According to this formula the increase in final demand in any sector will not only be limited to that sector but may also be reflected in other sectors, leading to indirect production increases. That is, when there is an increase in the final demand of a sector j, sector j will increase its production to meet this increase in demand. However, for this, sector j will demand inputs from other sectors and therefore sectors that demand inputs will increase their production to meet the increase in demand. As can be seen from **Table 1**, final demand consists of household consumption expenditure, government expenditure, investment and net exports. A unit change in final demand means a change in any of these factors. We take a one million increase in investment as a one unit change in final demand.

Now let's look at the impact of investments in agriculture on the total output of the sectors.

Using the equation (1.8), the impact of a 1 million manats investment in agriculture on the total output of Agriculture itself and other sectors was as follows.

Table 1. Impact effects of 1 million manats invested in agriculture

Sector	Change of total output, thousand manats
Agriculture, hunting and forestry	**1158.99**
Fishing	0.019
Petroleum sector	51.072
Processing	197.652
Electricity, gas, water supply, and production	80.924
Construction	40.229
Trade	140.731
Transport services	39.485
Hotels and restaurants	2.582
Communication services	7.391
Financial intermediation, insurance and pension provision services	30.993
Real estate, renting, and business activities	11.261
Profession, science and technical service	22.573
Provision of administrative and support services	6.853
Public administration and defense, compulsory social insurance	0.387
Education	0.061
Health and social services	1.205
Activities in the field of recreation, entertainment and art	0.182
Services in other community	1.457
Total	**1794.058**

Source: *The table was prepared by the author based on the input-output model*

As can be seen from the table, 1 million manats of investment in agriculture creates about 1 million 159 thousand in agriculture itself, about 198 thousand in the processing industry, and a total of 1 million 794 thousand manats in the country.

According to table I-O, the share of intermediate products in the total output in agriculture is 46 percent. And according to the matrix of technical coefficients, Agriculture receives about 29% of intermediate products from Agriculture itself, 22% from the processing sector, 22% from the trade services sector, and 13.5% from the electricity, gas and water sector. These facts show that investments in agriculture will mostly lead to an increase in total output in agriculture itself, in the processing sector, in the trade services sector, in the electricity, gas and water sector, and in the science and technical sector.

Table 2 shows the effect of one million investments in each sector on the total output of Agriculture.

Table 2. Impact of one million manats investments in other sectors on agriculture

One unit change in the sector's final demand (one million investments)	The effect of a one-unit change in each sector's final demand on total Agricultural output
Fishing	29.48
Petroleum sector	2.38
Processing industry	76.95
Electricity, gas, water supply, and production	8.21
Construction	17.39
Trade	8.77
Transport services	20.73
Hotels and restaurants	18.36
Communication services	4.56
Financial intermediation, insurance, and pension provision services	2.07
Real estate, renting, and business activities	6.65
Profession, science and technical service	8.15
Provision of administrative and support services	8.70
Public administration and defense, compulsory social insurance	10.65
Education	4.12
Health and social services	13.75
Activities in the field of recreation, entertainment and art	18.02
Services in other community	10.40

Source: *The table was prepared by the author based on the input-output model*

Simulations conducted with the I-O model show that among other sectors, investments in the Manufacturing (processing) industry, Fishing sector, Transport services, Hotels and restaurants, and Activities in the field of recreation, entertainment, and arts lead to an increase in the total output in Agriculture. Because these sectors use agricultural products more than other sectors.

5. Conclusion

In this study, inter-sector relations in Azerbaijan were analyzed using the Input-Output table. Since the last Input-Output table published for the economy of Azerbaijan belongs to 2016, the data obtained from the tables of 2016 were used in the research. The I-O tables used include 81 sectors. Sectors are grouped into 18 sector levels based on sector classification.

Input-output analysis results show that the growth of production in any sector leads to growth in other sectors related to these sectors. The results of the I-O application show that in the considered period, the investment in Agriculture increases the output of Agriculture itself, the processing industry, the trade service sector, and the electricity, gas, and water sectors more than in other sectors.

Simulations conducted with the I-O model show that among other sectors, investments in the manufacturing industry, transport services, hotels, and activities in the field of recreation, entertainment, and arts lead to an increase in the total output in Agriculture.

Backward linkage for agriculture was calculated to be 1.794. The obtained result shows that one unit increase in final demand in Agriculture increases output by 1.794 units across all sectors.

The high backward linkage of the Agricultural sector indicates that it will demand inputs from other sectors for production and will stimulate the economy and increase revitalization. And the results of the Input-output model show that there is a strong relationship between Agriculture and the processing sector. Thus, investments in agriculture create more products and new jobs in the processing sector compared to other sectors.

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Azərbaycanda kənd təsərrüfatının digər sahələrlə qarşılıqlı əlaqələrinin qiymətləndirilməsi

Xülasə

Məqalədə kənd təsərrüfatının digər sektorlarla qarşılıqlı əlaqəsini təhlil etmək üçün Xərclər-Buraxılış Cədvəlindən istifadə edilmişdir. Xərclər-Buraxılış cədvəlləri bir iqtisadiyyatda sektorların bir-biri ilə iqtisadi qarşılıqlı əlaqəsini tələb-təklif münasibətində göstərir. Bu tədqiqatda Azərbaycan üçün mövcud olan ən son 2016-cı il Xərclər-Buraxılış Cədvəlindən istifadə edilmişdir. Bu cədvəl əsasında xərclər-buraxılış modeli hazırlanmışdır. Xərclər-buraxılış modelindən istifadə etməklə kənd təsərrüfatına bir milyon manat həcmində investisiyanın kənd təsərrüfatının özündə və sahə ilə əlaqəli sektorların buraxılışında nə qədər artım yaratdığı hesablanmışdır. Əldə edilən nəticə göstərir ki, kənd təsərrüfatında son tələbatın bir vahid artımı bütün sahələrin məhsulunu 1.794 vahid artırır. Kənd təsərrüfatı sektorunun yüksək geri əlaqəsi onu göstərir ki, o, istehsal üçün digər sektorlardan vəsait tələb edəcək və iqtisadiyyatı stimullaşdıracaq, canlanmanı artıracaq. Araşdırma nəticəsində müəyyən edilib ki, kənd təsərrüfatı Azərbaycan iqtisadiyyatının mühüm sahəsidir.

Açar sözlər: *kənd təsərrüfatı, ümumi məhsul, sahələrarası əlaqələr, xərclər-buraxılış cədvəli, xərclər-buraxılış təhlili.*

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Оценка взаимодействия сельского хозяйства с другими отраслями в Азербайджане

Резюме

В этом исследовании таблица «затраты-выпуск» использовалась для анализа взаимодействия сельского хозяйства с другими секторами. Таблицы «затраты-выпуск» показывают экономическое взаимодействие секторов экономики друг с другом во взаимоотношениях спроса и предложения. В этом исследовании использовалась последняя доступная для Азербайджана таблица расходов-выпусков за 2016 год. На основе этой таблицы была разработана модель «затраты-выпуск».

С помощью модели «затраты-выпуск» оценивается объем продукции, полученной в результате инвестиций в сельское хозяйство, что влияет на сельскохозяйственный сектор наряду со смежными секторами, включая валовой выпуск. Полученный результат показывает, что увеличение конечного спроса в сельском хозяйстве на одну единицу увеличивает выпуск продукции во всех областях на 1.794 единицы. Высокая обратная связь сельскохозяйственного сектора указывает на то, что для производства потребуются ресурсы из других секторов, что будет стимулировать экономику и способствовать восстановлению. В результате исследования было определено, что сельское хозяйство является важным сектором экономики Азербайджана.

Ключевые слова: *сельское хозяйство, валовой продукт, межотраслевые отношения, таблица «затраты-выпуск», анализ «затраты-выпуск».*