The main problem for farmers in China is the search for possible ways to maximize income. Especially relevant today is tourism, which has a broad reach and deep connections with many fields of the national economy. Agritourism in China has recently undergone significant development, expansion and renewal. As part of the Belt and Road Initiative, active rural development and other activities are being undertaken to improve a promising investment environment for tourism. The development of tourism products that integrated with the agricultural sector is becoming a promising form of cooperation with the rural population in the future. Eco-agriculture tourism is a new direction for farmers. The development of eco-agriculture not only contributes to the optimization and adaptation of the agricultural structure, increasing in the added value of agricultural products, but also contributes to the development of services, economic and technological cooperation, the exchange and infl ow of funds into the country's economy. It is a new way of strengthening the connection between urban and rural areas, improving the general condition of farmers, developing agricultural infrastructure and creating a harmonious environment between man and nature.

As the development of the Central Plains Economic Zone has become part of a national strategy, the development of tourism in the Central Plains Economic Zone has a great potential. In the Central Plains, where natural conditions are better, the development of a local agro-tourism economy as a starting point can greatly increase farmers' incomes, since the development of agritourism can promote the development of related industries and facilitate the optimization and modernization of industrial structures. This can improve infrastructure, save farmers' production costs, increase farmers' employment. The transfer of surplus agricultural labor may also contribute to the realization of a harmonious sustainable economic and environmental development. Taking as an example the economic zone of the Central Plains, the main task of this article is to study the relationship between the development of eco-agricultural tourism and economic growth which substantiates the new trend of national economic development. This article regards the Central Plains Economic Zone as a research object and uses the econometric method of analyzing and examining the relationship between tourism development and economic growth in the Central Plains Economic Zone. Eco-farming is a new outlet for farmers. The development of eco-agricultural tourism will not only help to optimize and adjust the structure of agriculture, increase the added value of agricultural products, but will also promote the development of services, economic and technological cooperation, attract additional investments, will also promote the development of catering, hospitality, economy tourism products and real estate, thus contributing to the growth of agriculture as a whole. To analyze the source of economic growth, we need to know the main driving force behind economic growth. Neoclassical economic theory argues that economic growth depends on
The biggest growth. The general tourist multiplier is positively tourism development on local regional economic theory of tourism multiplier is to study the effect of Economist Archer also It is pointed out that the total income effect over a certain period of time. the initial tourism consumption to produce a the tourism multiplier is a value that multiplies changes in tourism spending. They believe that in employment and government taxes to initial the ratio of changes between families and different sectors of the local industry. A form of circulation, such as loss of revenue, etc. The method of flow analysis shows more clearly that the internal components of tourism are affected by the economic development of tourism.

**Formulation of the problem.** The biggest problem of farmers in China is how to maximize their income. Tourism is a comprehensive industry with strong relevance and wide coverage, which has a profound connection with many industries of the national economy. Since the construction of the Central Plains Economic Area has become a national strategy, the development of tourism in the Central Plains Economic Area is bound to make a new breakthrough. In the Central Plains, where the natural conditions are better, the development of local economy with agri-tourism as the starting point can effectively increase the income of farmers, because the development of agri-tourism can promote the development of related industries and promote the optimization and upgrading of industrial structure. It can improve infrastructure, save farmers' production costs, increase farmers' employment, the transfer of surplus agricultural labor force can also promote ecological protection and sustainable development of the economy, which is an effective way to realize the harmonious development of economy and ecology. The economic development of the Central Plains Economic Area lags behind that of the eastern coastal areas, and the Farmers' income is relatively low, but the tourism resources of the Central Plains Economic Area are relatively rich, and the development of agri-tourism also has a certain foundation. Therefore, taking the Central Plains Economic Zone as an example, it is typical to study the relationship between eco-agricultural tourism and economic growth, which better explains the new trend of national economic development.

**Analysis of recent research and publications.** In 1982, Massisen and Walr put forward the concept of tourism multiplier, which is a coefficient used to measure the degree of influence of unit tourism consumption on various economic phenomena in tourist reception areas, which refers to output and income. The ratio of changes in employment and government taxes to initial changes in tourism spending. They believe that the tourism multiplier is a value that multiplies the initial tourism consumption to produce a total income effect over a certain period of time. Economist Archer also It is pointed out that the theory of tourism multiplier is to study the effect of tourism development on local regional economic growth. The general tourist multiplier is positively correlated with the tourists' expenses and with the local economic level. The theory of tourism multiplier provides a certain scientific basis for governments to formulate tourism policies and can effectively calculate the contribution of tourism industry to the national economy. We also need to realize that the theory of tourism multiplier is only a macro-economic concept, and any country should have a deep understanding of the details of tourism economic activity. In view of the corresponding deficiency of multiplier, Telfer and Wall put forward the theory of income shifting analysis (ISA). If the tourism destination wants to maximize the economic benefits brought by tourism development, it is necessary to strengthen the development of tourism. For example, more local food is sold in tourist local hotels to stimulate the development of the local agricultural and food processing industries. Kruezwies believes that tourists' spending will generate direct, indirect and induced income between families and different sectors of the local industry. A form of circulation, such as loss of revenue, etc. The method of flow analysis shows more clearly that the internal components of tourism are affected by the economic development of tourism.

**The aim of the study.** China's rural tourism has experienced the initial period, development period, expansion period and upgrade period, from the past small tourism, mid-tourism into the era of big tourism. With the national "Belt and Road" initiative, beautiful rural construction and other measures to promote the future tourism investment environment will continue to improve. The development of rural tourism products integrated with leisure agriculture has become the form of rural cooperation in the future.

Eco-agricultural tourism is a new way out for farmers. The development of eco-agricultural tourism is not only conducive to the optimization and adjustment of the agricultural structure, the increase in the added value of agricultural products, but also conducive to the development of the service industry, the promotion of economic and technological cooperation and exchange, and the introduction of funds. Technical talents drive the development of catering, hotel, transportation, tourism products processing industry and real estate industry, thus promoting the growth of agricultural quantity and the leap of quality. Ecological agriculture tourism is regarded as
a global "sunrise industry". The new measures to promote the sustained, rapid and healthy development of the economy when developing eco-agricultural sightseeing tourism are an important way to promote the promotion of famous and excellent special products, and to build nests. It is a new way to strengthen the communication between urban and rural areas, to improve the overall quality of farmers, to adjust the agricultural industrial structure and to build a harmonious environment between man and nature. Is the construction socialism new countryside, realizes the agricultural modernization the important factor.

General situation of Rural Tourism Development in Central Plains Economic Zone. The Central Plains Economic Zone is dominated by the whole country, including Henan province, southeastern Shanxi, southern Hebei, southwest Shandong and northwest Anhui, with the Central Plains urban agglomeration as its support, its geographical location is obvious, its grain superiority is great, and the market development is full of momentum. The culture is rich. It has a remarkable strategic position in the overall situation of national reform and development and has been formally written into the National Twelfth five-year Plan in order to achieve agricultural modernization, industrialization, urbanization, and informatization to or near the national average level. Comprehensive economic strength is significantly enhanced, urban and rural development is basically balanced, and public service awareness is enhanced.

The idea and layout of the Central Plains Economic Zone is to exclude the rise of the administrative region and change it into a development route of the strategic rise of the Economic Zone, taking the rapid development and transforming development as the fundamental task, taking Zhengzhou Metropolitan area as the core, and the Central Plains urban agglomeration as the support. The economic area covering Henan province extends to the surrounding cities, the geographical position is important, the transportation is developed, the market potential is huge, the culture is deep. Central Plains Economic Zone as a national strategy, clearly positioned, committed to exploring new development paths, deepening reform and opening up, building industrialization, urbanization and agricultural modernization of the coordinated development of the "three regions" demonstration areas, important economic growth plate, Synthesis Transportation hub and logistics center, the goal of the core area of the heritage of Chinese historical civilization.

Material and methods of research. Overview of the advantages of the Central Plains Economic Zone is considered due to the method of comparative advantaged, PEST analysis method. A theoretical analysis of Eco-tourism to rural economic growth conducted with using multiplier theory, income shifting analysis, value-added theory. Empirical Research of relationship between agricultural tourism and economic growth was made with using regression analysis. Analyzing the advantages of the region, we can distinguish the following:

Traffic Advantage. Located in the hinterland of our country, connecting east-west and north-south, it is the intersection area of land bridge passage and Beijing-Guangzhou corridor in the strategic pattern of "two horizontal and three
Chinese civilization, has a long history, and has a large number of valuable historical and cultural heritages. For example, Henan is the main birthplace of the Chinese nation and Chinese civilization. The compass, papermaking and gunpowder techniques of the four great inventions in ancient China were all invented in Henan. In history, there were more than 20 dynasties in which the capital was built or moved to Henan, and there were four in Henan, the eight ancient capitals of China. It is the largest capital in China in the dynasty, the longest in history and the largest in the number of ancient capitals. There are many cultural relics and monuments, and abundant tourist resources. Formed an all-inclusive, flexible and innovative culture of the Central Plains, which is soft and soft.

Tourism Analysis of Central Plains Tourism area based on PEST Analysis. A good macro environment is the premise for the establishment and development of tourism. It is the basic condition for the survival and development of tourism in a country or region. Therefore, we use PEST analysis to analyze the Politics, Economy, Society and Technology in the tourism industry in the Central Plains.

Food Chain Advantage. The agricultural production conditions are superior, our country supply important agricultural product for main production area, the geographical area is large, the terrain is the plain, four normal seasons, rich water resources, there is no dry land, main crops are wheat and corn. The grain output is large, with wheat yield of 54 million tons, close to 50 percent of the country's output; cotton, oil, livestock and poultry production accounted for 18.4 percent, 20.5 percent, 14.8 percent of the country's output, and the proportion of characteristic agricultural and forestry products in the country is large.

Industrial Base. As an important energy and raw material base in the country, mineral resources are rich, coal, aluminum, gold, natural alkali and other resources are abundant, which provide the development of industry in the region. Long-term development constitutes a certain industrial foundation.

Huge Market Potential. The urbanization rate of the region is rather high, reaching 40.6%. Industrialization process accelerates urbanization and provides wide space for investment and consumption demand, and growing market advantages. With the times, the quality of citizens' labor force has been improved, and this region is one of the most abundant areas of labor resources in China. Rapid development of open economy, all-round opening pattern gradually formed.

Profound Cultural Heritage. Central Plains is an important birthplace of the Chinese nation and
At the regional level: the State Council issued the "guidance to support Henan Province in speeding up the Construction of the Central Plains Economic Zone" and incorporated tourism into the planning, providing better policy support for the rapid development of tourism in cities in the Central Plains Economic Zone. At the same time, it also provides a broader platform for the development and expansion of tourism industry and the start-up of tourism activities in the Central Plains Economic Zone.

Economic. The rapid development of the economy is the foundation and pre-requisite for the development of tourism. The GDP in 2018 was 90.0309 trillion Yuan, an increase of 6.6 % over 2017. The net income of rural residents was 14617 Yuan, an increase of 8.8 percent over 2017, while the net income of urban residents was 39251 Yuan, an increase of 7.8 percent over 2017. With the rise of GDP, residents' income will also increase. And when residents' income increases, people's spending on tourism will also increase.

The Central Plains Economic Zone has been developed rapidly with the great development of the national economy. From figure 4, we can see that the GDP level of the Central Plains Economic Zone is constantly rising.

At the same time, the development of the economic zone brings vitality to the development of tourism, and provides a good economic basis for the development of tourism. In figure 5, it can be seen that the tourism income of the economic zone increases year by year from 2015 to 2018.

Figure 6 shows that most of the tourism resources in the Central Plains Economic Zone are concentrated in the central region of the Economic Zone, with relatively few tourism resources around it, while the central part belongs to the interior of Henan Province, and most of the tourism resources in Henan Province are located in Zhengzhou City and Xinxiang City, Luoyang City etc., further explained that Henan Province is rich in tourism resources.

Society. With the acceleration of urbanization, the rapid economic growth and the continuous...
development of tourism have played a great role in promoting. China’s urbanization is in a period of accelerated development. The fast-paced way of life has brought great pressure to people. More and more people will choose to return to natural life and enjoy the fun of nature. The rapid development of science and technology, but also promote the convenient means of travel.

Fig. 4. The 2015-2018 GDP trend of Central Plains Economics Area.

Fig. 5. The 2015-2018 Tourism Income of Central Plains Economics.

Fig. 6. The distribution of Central Plains Economics Area around the city of domestic tourism passenger flow volume spatial in 2018.
Various holidays and holidays in China have also become boosters of tourism development, and the State Council has drawn up a series of holidays, giving people more leisure time. For example: mid-Autumn Festival, Dragon Boat Festival, National Day, Spring Festival, etc.

Technology. Science and technology is a double-edged sword, the development of tourism cannot be separated from the support of science and technology. In the information age, scientific information technology brings more opportunities to the development of tourism. At the same time, the invention and application of more software make it convenient for people to search for tourism information, and inject new vitality into the development of tourism. In terms of education, there are 2000 universities across the country that specializes in tourism management. There are also many universities in the Central Plains Economic Zone, such as Zhengzhou University, Henan normal University, and Henan Agricultural University. Henan University of Science and Technology has set up tourism management college and tourism management specialty, so as to cultivate more tourism.

Empirical Research. To analyze the source of economic growth, we must know the main driving force of economic growth. Neoclassical economic theory argues that economic growth depends on three factors: labor, capital, and technological progress. Because of the limitation of labor, the marginal return of capital is in a decreasing state, which means that the economy is stable, and the stable economic state depends on the exogenous technology. This paper mainly studies the relationship between agricultural tourism and economic growth. The main model of economic growth is Cobb-Douglas production function.

\[ Y = AL^\alpha K^\beta \]

Where Y is total output and K is capital stock (representing the fixed asset investment stock in the economy), L refers to human capital (representing labor input), A as other influencing factors (e.g. technological innovation, industrial restructuring, etc.), \( A > 0 \), \( \alpha \) indicates the share of labor contribution in total production (0 < \( \alpha \) < 1), \( \beta \) indicates the share of capital contribution in total production (0 < \( \beta \) < 1), \( \alpha + \beta = 1 \). Now we add tourism to the production function and we get the following econometric models:

\[ Y = A T L^\alpha K^\beta \]

\( T \) is the tourism income variable and \( \gamma \) contributes to the share of the total assets. Considering the economic significance of the data, the linear model is obtained by taking the logarithm on both sides of the equation at the same time.

\[ \ln Y = \ln A + \ln T^\gamma + \ln L^\alpha + \ln K^\beta \]

\( \gamma \), \( \alpha \) and \( \beta \) respectively represent the contribution rate of each factor to the total assets, and bring in the related variables further. We get the final measurement model as follows:

\[ \ln Y = \beta_0 + \beta_1 \ln T + \beta_2 \ln L + \beta_3 \ln K + \mu \]

\( \ln A = \beta_0 \), \( Y \) residents’ annual total income, \( \beta_0 \) as regression coefficient, \( \mu \) as residual term.

Therefore, this formula can be used to calculate the relationship between eco-tourism and economic growth.

<table>
<thead>
<tr>
<th>Year</th>
<th>Average GDP (Unit: CNY)</th>
<th>TI (Unit: Billion CNY)</th>
<th>L (Unit: CNY)</th>
<th>K (Unit: CNY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>28661.00</td>
<td>2000.00</td>
<td>44130</td>
<td>2399.55</td>
</tr>
<tr>
<td>2012</td>
<td>31499.00</td>
<td>3364.10</td>
<td>47544</td>
<td>2786.17</td>
</tr>
<tr>
<td>2013</td>
<td>34211.49</td>
<td>3875.50</td>
<td>50932</td>
<td>3293.03</td>
</tr>
<tr>
<td>2014</td>
<td>37071.72</td>
<td>4366.20</td>
<td>52476</td>
<td>3917.96</td>
</tr>
<tr>
<td>2015</td>
<td>39122.61</td>
<td>5035.29</td>
<td>56376</td>
<td>5278.89</td>
</tr>
<tr>
<td>2016</td>
<td>42575.00</td>
<td>5764.06</td>
<td>60242</td>
<td>6780.45</td>
</tr>
<tr>
<td>2017</td>
<td>46674.00</td>
<td>6751.00</td>
<td>66037</td>
<td>8855.45</td>
</tr>
<tr>
<td>2018</td>
<td>50127.21</td>
<td>7690.00</td>
<td>68213</td>
<td>9232.23</td>
</tr>
</tbody>
</table>

Source: calculated by authors with using data of Statistical Yearbook of the Chinese Government and the Statistical Yearbook of Henan Province.

Main results of the study. Combined with the above data, we use Stata soft-ware to make an empirical analysis of the model. Considering the collinearity and unit differences among the influence variables, we quote for each variable. Least Squares Regression Estimation, because of the lack of data, we adopt a small sample regression model. Based on the above table, we can obtain the following da-ta model:

\[ \ln Y = -0.8006822 + 0.0715443 \ln T + 0.9645228 \ln L + 0.0255825 \ln K + \mu \]

From the above formula, we can see that when the tourism income increases by 1 unit, the national economic growth is 0.0715443, which means that there is a close relationship between the growth of tourism and economic growth.

Through the fitting curve of three influencing factors: tourism income, labor input, financial investment and economic growth we can see that all three factors show an upward trend with income. Moreover, the growth trend between the development of tourism industry and economic growth is obviously higher than that of other influencing factors, which further demonstrates that there is a close relation-ship between the development of tourism and economic growth.
White's test results showed that the P value of 0.3326 significantly rejected the original hypothesis, so the regression effect of the model was better. 

R-squared =0.9940
Adj R-squared=0.9895
F (3, 4) = 221.42
T-test: look at T1 = 0.87, T2 =1.44, T3 = 0.16, the threshold value of t-bilateral test with freedom of 8-4 =4, at the level of 5 % significance.

Then we know that the coefficient t-test of some explanatory variables is significant and passes the T-test. Therefore, we can conclude that the development of tourism industry can better promote economic growth and increase farmers’ income.

Conclusions and policy recommendations. With the rise of the Central Plains Economic Zone as a national strategy, the Central Plains region has ushered in a new era of development. While the economy is developing rapidly, it has brought good development opportunities to the Central Plains tourism. This paper takes the Central Plains Economic Zone as the research object and uses the econometric method to analyze and study the relationship between tourism development and economic growth in the Central Plains Economic Zone, and draws the following conclusions:

1. From the background of regional tourism development in the Central Plains Economic Zone, the development advantages of the economic zone are summarized, and the strength of economic zone development is expounded. It is concluded that the tourism resources of the Central Plains Economic Zone are rich and high-quality, the tourism industry is developing well, and the regional economic development momentum is strong.

2. Using econometric research methods to analyze the relationship between tourism and economic growth in the Central Plains economic region, there is a significant correlation between regional tourism development and economic growth. Tourism revenue can have a causal relationship with economic growth, so we draw an regional tourism development can effectively promote economic growth of the whole country.

REFERENCES
Також сприятиме розвитку громадського харчування, співробітництву, залученню додаткових інвестицій. Агrotуризм Китаю останнім часом зазнав значного розвитку, поширення і оновлення. В рамках національної ініціативи «Один пояс – один шлях» проводиться активна забудова в сільській місцево- сті та інші заходи для покращення перспективного інве- стиційного середовища в туризм. Розвиток туристичних продуктів, інтегрованих з аграрною сферою, стає пер- спективною формою кооперації з сільським населенням в майбутньому. Еко-сільськогосподарський туризм – новий напрям розвитку для фермерів. Розвиток еко-сільсько- господарського туризму не тільки сприяє оптимізації та адаптації сільськогосподарської структури, збільшенню доданої вартості сільськогосподарської продукції, але й сприяє розвитку сфери послуг, економічному та технологічному прогресу. Основною моделлю еко- номічного зростання є виробничі функції Кобба-Дугласа з додаванням в модель зміною доходу від туризму. Для емпіричного аналізу моделі було використано програмне забезпечення Stata.

Ключові слова: агrotуризм, стійкий розвиток, навколишнє середовище, соціальний розвиток, економічний розвиток, екологічний аналіз.

Економетричний аналіз залежності розвитку агро-туризму в економічному рості КНР

Янг Чен, Лукаш С., Гунь Юнґран

Найголовнішою проблемою фермерів у Китаї є по- шук можливих шляхів максимізації доходу. Особливо актуальною галуззю на сьогодні є галузь, який має широке охоплення та глибокий зв’язок із багатьма галузями національної економіки. Агrotуризм Китаю останнім часом зазнав значного розвитку, поширення і оновлення. В рамках національної ініціативи «Один пояс – один шлях» проводиться активна забудова в сільській місцевості та інші заходи для покращення перспективного інвестиційного середовища в туризм. Розвиток туристичних продуктів, інтегрованих з аграрною сферою, стає перспективною формою кооперації з сільським населенням в майбутньому. Еко-сільськогосподарський туризм – новий напрям розвитку для фермерів. Розвиток еко-сільськогосподарського туризму не тільки сприяє оптимізації та адаптації сільськогосподарської структури, збільшенню доданої вартості сільськогосподарської продукції, але й сприяє розвитку сфери послуг, економічному та технологічному прогресу. Основною моделлю економічного зростання є виробничі функції Кобба-Дугласа з додаванням зміни доходу від туризму. Еко-сільськогосподарський туризм – нове напряму для розвитку аграрного сектору. Розвиток еко-сільськогосподарського туризму не тільки сприяє оптимізації та адаптації сільськогосподарської структури, збільшенню доданої вартості сільськогосподарської продукції, але й сприяє розвитку сфери послуг, економічному та технологічному прогресу. Основною моделлю економічного зростання є виробничі функції Кобба-Дугласа з додаванням зміни доходу від туризму.
экономического роста, что обоснуется новую тенденцию национального экономического развития. Данная статья воспринимает экономическую зону Центральной равнины как объект исследования и использует эконометрический метод анализа и изучения взаимосвязи между развитием туризма и экономическим ростом в экономической зоне Центральных равнин. Эко-сельскохозяйственный туризм – это новый выход для фермеров. Развитие эко-сельскохозяйственного туризма будет способствовать не только оптимизации и настройке структуры сельского хозяйства, увеличению добавленной стоимости сельскохозяйственной продукции, но и развитию сферы услуг, экономическому и технологическому сотрудничеству, привлечению дополнительных инвестиций. Также будет способствовать развитию общественного питания, гостиничного хозяйства, транспорта, перерабатывающей промышленности туристической продукции и отрасли недвижимости, то есть росту сельского хозяйства в целом. Для анализа источника экономического роста необходимо знать главную движущую силу экономического роста. Неоклассическая экономическая теория утверждает, что экономический рост зависит от трех факторов: труда, капитала и технологического прогресса. Основной моделью экономического роста является производственная функция Кобба-Дугласа с добавлением в модель переменной дохода от туризма. Для эмпирического анализа модели было использовано программное обеспечение Stata.

Ключевые слова: агротуризм, устойчивое развитие, окружающая среда, социальное развитие, экономическое развитие, эконометрический анализ.