



## IQTISODIYOT & TARAQQIYOT

*Ijtimoiy, iqtisodiy, texnologik, ilmiy, ommabop jurnal*

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# ECONOMETRIC MODELING OF THE DYNAMICS OF RETAIL TRADE TURNOVER UNDER THE INFLUENCE OF REAL HOUSEHOLD INCOME USING A LOGARITHMIC FUNCTION



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**Abstract:** This study examines the impact of real household income on the dynamics of retail trade turnover using a logarithmic econometric modeling approach. Retail trade turnover is considered one of the key indicators reflecting consumer demand, purchasing power, and the overall level of economic development. Logarithmic econometric models are employed to capture the nonlinear nature of economic relationships and to evaluate the elasticity of retail trade turnover with respect to changes in income. In addition, the study discusses the theoretical significance of differential equations and logistic growth models in analyzing dynamic economic processes.

**Keywords:** retail trade turnover, real household income, econometric modeling, logarithmic model, consumer demand, purchasing power, elasticity analysis, differential equations, logistic growth model, economic dynamics, forecasting, economic policy.

**Annotatsiya:** Ushbu tadqiqotda aholi real daromadlarining chakana savdo aylanmasi dinamikasiga ta'siri logarifmik ekonometrik modellashtirish yondashuvi asosida o'rganilgan. Chakana savdo aylanmasi iste'mol talabi, xarid qobiliyati va iqtisodiy rivojlanish darajasini aks ettiruvchi muhim ko'rsatkichlardan biri sifatida qaraladi. Tadqiqotda iqtisodiy ko'rsatkichlar o'rtasidagi noxiziq bog'liqliklarni aniqlash hamda daromadlar o'zgarishiga nisbatan chakana savdo aylanmasining elastikligini baholash maqsadida logarifmik ekonometrik modellardan foydalanilgan. Shuningdek, dinamik iqtisodiy jarayonlarni tahlil qilishda differensial tenglamalar va logistik o'sish modellarining nazariy ahamiyati ham yoritilgan.

**Kalit so'zlar:** chakana savdo aylanmasi, aholi real daromatlari, ekonometrik modellashtirish, logarifmik model, iste'mol talabi, xarid qobiliyati, elastiklik tahlili, differensial tenglamalar, logistik o'sish modeli, iqtisodiy dinamika, prognozlash, iqtisodiy siyosat.

**Аннотация:** В данном исследовании рассматривается влияние реальных доходов населения на динамику розничного товарооборота с использованием логарифмического эконометрического моделирования. Розничный товарооборот рассматривается как один из ключевых показателей, отражающих потребительский спрос, покупательную способность населения и общий уровень экономического развития. Логарифмические эконометрические модели используются для выявления нелинейного характера экономических взаимосвязей и оценки эластичности розничного товарооборота по отношению к изменениям доходов населения. Кроме того, в исследовании рассматривается теоретическое значение дифференциальных уравнений и логистических моделей роста при анализе динамических экономических процессов.

**Ключевые слова:** розничный товарооборот, реальные доходы населения, эконометрическое моделирование, логарифмическая модель, потребительский спрос, покупательная способность, анализ эластичности, дифференциальные уравнения, логистическая модель роста, экономическая динамика, прогнозирование, экономическая политика.



## INTRODUCTION

Retail trade turnover is one of the most important macroeconomic indicators of a country's economy, as it is shaped by the population's standard of living, income levels, consumer needs, and changes in the economic environment. This indicator reflects not only the state of development of the consumer market but also the level of public welfare and economic activity. The growth of retail trade turnover serves as a significant indicator of expanding domestic demand, increasing consumer purchasing power, and the sustainable development of the economic system. Therefore, identifying the factors affecting retail trade turnover and assessing the degree of their impact constitute one of the most relevant areas of economic research [1].

Real household income is one of the key economic factors determining consumer demand and directly influences the growth of retail trade turnover. Since real income represents the amount of financial resources available to the population after adjusting for inflation, it is considered one of the most important indicators for evaluating consumer purchasing capacity. As household income increases, consumers' purchasing power expands, demand for goods and services rises, and the volume of retail trade turnover grows accordingly. Moreover, income growth leads to qualitative changes in consumption patterns, increasing demand for higher-quality and more expensive products. As a result, favorable economic conditions emerge for the development and structural improvement of the retail trade sector.

In this regard, analyzing the dynamics of retail trade turnover in relation to real household income, identifying the functional and statistical relationships between these variables, and quantitatively assessing the impact of influencing factors are issues of considerable scientific and practical importance. Such analyses provide opportunities to evaluate the effectiveness of economic policies, identify trends in consumer market development, and forecast future economic processes.

Currently, mathematical and econometric modeling methods are widely employed to analyze economic processes and identify their development patterns. Modern econometric approaches make it possible to determine complex relationships among economic indicators, assess the strength of influencing factors, and forecast future development trends. In particular, logarithmic econometric models are considered effective tools for studying the relationships between economic variables. These models enable researchers to determine relative changes in explanatory factors, estimate elasticity coefficients, and analyze the characteristics of intensive economic growth [2].

One of the major advantages of the logarithmic model is its ability to capture nonlinear relationships frequently observed in economic processes. In practice, the relationship between income and consumption is often non-proportional; as income increases, consumption also rises, but its growth rate gradually declines. Logarithmic models accurately reflect such economic regularities. From this perspective, examining the dynamics of retail trade turnover under the influence of real household income using a logarithmic econometric model is both scientifically justified and practically effective. Such an approach not only helps identify the relationships between variables but also provides opportunities to forecast future trends in retail trade turnover.

## REVIEW OF LITERATURE ON THE SUBJECT

The relationship between household income and consumer expenditure has long been one of the central topics in economic theory and empirical research. Classical and neoclassical economists emphasized the importance of income as a key determinant of consumption behavior and market demand. Theoretical foundations of this relationship were significantly developed by Keynes [3], who argued that consumption expenditures increase with income, although not proportionally. This concept became the basis for numerous studies examining the impact of income growth on retail trade development.

Subsequent research expanded the analysis of consumer behavior through the application of econometric methods. Gujarati and Porter [4] highlighted the importance of regression and logarithmic models in evaluating the relationships between economic variables, emphasizing their usefulness in measuring elasticity and nonlinear effects. Similarly, Wooldridge [5] demonstrated that logarithmic econometric specifications provide more reliable estimates when economic variables exhibit diminishing marginal effects and nonlinear relationships.

Theoretical and methodological aspects of mathematical modeling in economics were extensively explored by Chiang and Wainwright [6]. Their work explains how differential equations can be used to analyze dynamic economic systems, including growth processes, market expansion, and changes in consumer demand. Differential modeling enables researchers to investigate not only the level of economic indicators but also their rates of change over time.

Research on economic growth and dynamic systems has also widely employed logistic models. According to Verhulst's logistic growth theory, economic processes often experience rapid growth in the initial stages,



followed by a gradual slowdown as they approach capacity constraints. This approach has been successfully applied to market development, population growth, and consumption dynamics. The logistic framework provides valuable insights into the long-term evolution of retail markets and consumer demand patterns.

In the field of consumer economics, Varian [7] emphasized that household income remains one of the most influential determinants of purchasing power and consumption decisions. Rising real income increases demand for goods and services, thereby stimulating retail trade turnover. However, the relationship is not always linear, which justifies the use of logarithmic econometric models for empirical analysis.

## RESEARCH METHODOLOGY

The primary objective of this study is to evaluate the impact of real household income on the dynamics of retail trade turnover using a logarithmic econometric model, determine the degree of interdependence between these variables, and identify the main development trends of this process on a scientific basis. The findings of the study are expected to contribute to the development of the retail market, the expansion of consumer opportunities, the stimulation of domestic demand, and the improvement of economic policy through scientifically grounded recommendations.

Differential equations also play a significant role in modeling economic processes. They are commonly used to describe the dynamics of continuously changing economic phenomena over time. Differential equations make it possible to mathematically represent numerous economic processes, including production growth, market development, changes in household income, investment flows, capital accumulation, and other dynamic economic activities. They serve as important theoretical and practical tools for determining the direction and rate of changes occurring within economic systems.

In particular, the logistic differential model is among the most widely applied models for describing economic growth processes. This model reflects the initial acceleration phase of economic development and the subsequent slowdown in growth rates resulting from resource constraints or market saturation. The logistic model differs from other modeling approaches by its ability to capture the natural patterns of economic development.

Analyzing the theoretical foundations, mathematical formulation, and economic interpretation of the logistic differential model enables a deeper understanding of the mechanisms underlying economic development. This model provides a scientific explanation of the rapid growth observed during the initial stages of development and the gradual deceleration that occurs as the system approaches a certain limiting value. Furthermore, it facilitates the assessment of equilibrium formation and long-term development trends within economic systems. Overall, differential equations and logistic models serve as important methodological tools for analyzing economic processes, identifying their developmental patterns, and producing scientifically grounded forecasts.

This study employs econometric and statistical methods to analyze the impact of real household income on retail trade turnover. Annual data on real household income and retail trade turnover were collected from official statistical sources. The relationship between the variables was examined using a logarithmic regression model. The logarithmic specification was chosen because it effectively captures nonlinear relationships and allows for elasticity analysis. The parameters of the model were estimated using the Ordinary Least Squares (OLS) method. Correlation analysis was conducted to determine the strength and direction of the relationship between the variables. The goodness-of-fit of the model was evaluated using the coefficient of determination ( $R^2$ ). Statistical significance was assessed through t-tests and the F-test. In addition, theoretical aspects of differential equations and logistic growth models were used to interpret the dynamics of economic processes. The obtained results provide a basis for evaluating the influence of real household income on retail trade turnover and forecasting future development trends.

## ANALYSIS AND RESULTS

In this study, the analysis was not limited solely to retail trade turnover indicators; instead, an extended model incorporating the factor of household income was developed. This model was constructed based on the assumption that household income is one of the key determinants influencing the formation and growth of retail trade turnover. The mathematical specification of the model is expressed as follows:

$$\frac{d\ln K(t)}{dt} = \alpha + \beta \frac{d\ln X(t)}{dt} + \varepsilon_t$$

where  $K(t)$  denotes retail trade turnover,  $X(t)$  represents real household income,  $\alpha$  is the intercept term,  $\beta$  is the elasticity coefficient reflecting the impact of income changes on retail trade turnover, and  $\epsilon_t$  is the random error term.

As a result of the calculations performed, the following estimates were obtained. The statistical significance of the model parameters, including their corresponding test statistics and significance levels, is presented in the table below (Table 1).

Table 1. Results of the econometric model of retail trade turnover growth rates as a function of real household income growth<sup>1</sup>

Indicator	Value	Interpretation
$\alpha$ (Constant)	0.127268	Even if the growth rate of real household income remains unchanged, retail trade turnover may still exhibit an average logarithmic growth rate of approximately 12.7%. This can be explained by factors such as the development of trade infrastructure, the expansion of the credit system, and demographic changes.
$\beta$	0.478250	A 1% increase in the growth rate of real household income leads to an average increase of approximately 0.48% in the growth rate of retail trade turnover. This indicates a positive relationship between household income and consumer spending.
t-statistic (Constant)	4.288	Since the t-statistic exceeds the critical value, the $\alpha$ parameter is statistically significant.
t-statistic ( $\beta$ )	24.31	This very high value indicates that real household income has a strong and statistically significant effect on retail trade turnover growth.
p-value	7.54e-13	Since $p < 0.01$ , the model parameters are statistically significant at the 1% significance level.
Coefficient of Determination ( $R^2$ )	0.976851	Approximately 97.7% of the variation in retail trade turnover growth is explained by changes in real household income growth, indicating an excellent model fit.
Adjusted $R^2$	0.975198	Even after adjusting for the number of explanatory variables, the model retains a very high explanatory power.
F-statistic	590.7839	This result indicates that the model is statistically significant as a whole.
Standard Error of the Model	0.111357	The forecasting errors are relatively small, suggesting that the model provides reliable estimates.

Based on the empirical analysis, the general mathematical specification of the model can be expressed as follows:

$$\frac{d\ln K(t)}{dt} = 0,1273 + 0,4783 \frac{d\ln X(t)}{dt} + \epsilon_t$$

The estimation results reveal that the intercept coefficient of the econometric model is equal to 0.1273. This value suggests that retail trade turnover is capable of maintaining a positive growth trajectory even when the growth rate of real household income remains unchanged. In practical terms, the model indicates that retail trade turnover may increase by approximately 12.7 percent on average due to the influence of factors beyond household income. Such factors may include the continuous expansion of retail infrastructure, the increasing number and accessibility of commercial outlets, improvements in financial intermediation and consumer lending mechanisms, technological innovations in trade and distribution systems, as well as demographic developments that contribute to higher consumer demand. Therefore, the estimated intercept reflects the cumulative impact of various structural and institutional factors supporting retail market growth.

Particular attention should be paid to the regression coefficient associated with real household income growth. The estimated coefficient,  $\beta = 0.4783$ , demonstrates a positive and economically meaningful relationship between income dynamics and retail trade performance. More specifically, the results indicate that a one-percent increase in the growth rate of real household income is associated with an average increase of approximately 0.48 percent in the growth rate of retail trade turnover. This finding provides empirical evidence that household income serves as one of the fundamental determinants of consumer expenditure and retail market expansion. As real income rises, consumers gain greater purchasing power, enabling them to increase expenditures on

<sup>1</sup> Source: compiled by the author.



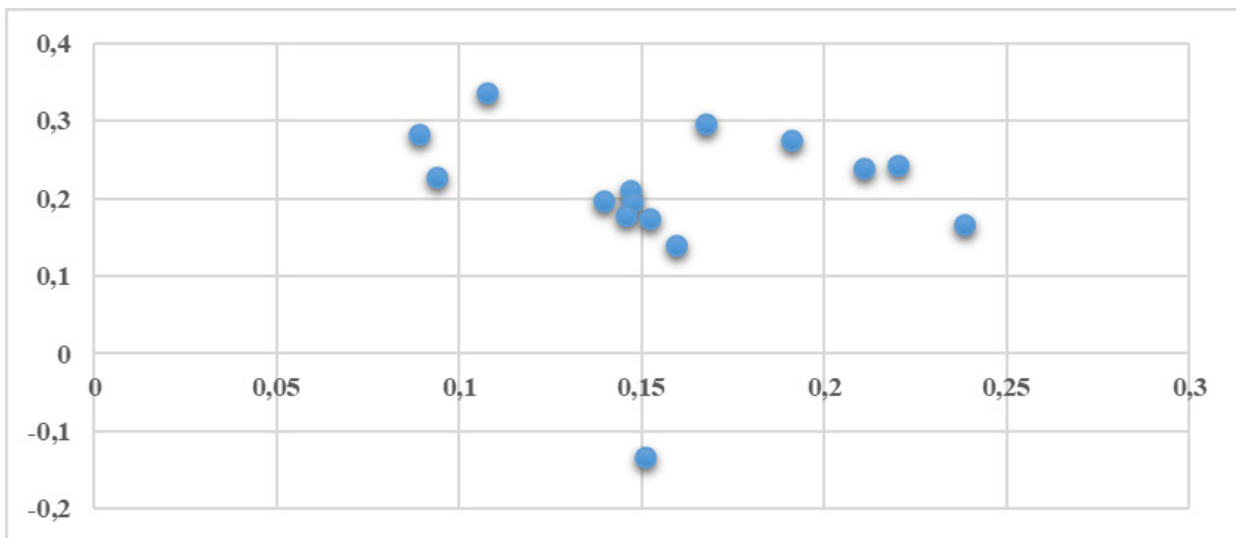
goods and services. Consequently, higher income levels stimulate aggregate demand and contribute to the growth of retail trade activity. The estimated elasticity coefficient confirms that changes in household income are transmitted to the retail sector through consumption behavior, thereby reinforcing the close linkage between income growth and market development.

The statistical indicators used to evaluate model adequacy further confirm the robustness of the estimated relationship. The coefficient of determination,  $R^2 = 0.9768$ , indicates that approximately 97.7 percent of the variation observed in retail trade turnover growth can be explained by variations in the growth rate of real household income. Such a high value of  $R^2$  demonstrates the strong explanatory capacity of the model and suggests that the selected explanatory variable successfully captures the dominant share of fluctuations in retail trade dynamics. From an econometric perspective, this level of explanatory power reflects an excellent model fit and indicates that the estimated equation accurately represents the underlying economic relationship between the variables under investigation.

Additional evidence regarding the reliability of the model is provided by the F-statistic. The estimated F-value of 590.78 is exceptionally large, while the associated probability level is below 0.01. These results confirm that the regression model is statistically significant as a whole and that the explanatory variable contributes meaningfully to explaining changes in retail trade turnover growth. In other words, the probability that the observed relationship has emerged by random chance is extremely low. Therefore, the overall model satisfies the key statistical requirements necessary for reliable economic interpretation and forecasting purposes.

The significance of the individual regression parameters is also supported by the t-statistical analysis. In particular, the coefficient representing the growth rate of real household income is associated with a t-statistic value of 24.31. This value substantially exceeds conventional critical thresholds used in econometric analysis, indicating a very high degree of statistical significance. Such a result confirms that real household income growth exerts a powerful and systematic influence on retail trade turnover growth. The magnitude of the t-statistic demonstrates that the estimated coefficient is highly reliable and unlikely to be the result of sampling variability.

Overall, the empirical findings strongly support the hypothesis that increases in real household income represent one of the primary driving forces behind retail trade development. The results indicate that improvements in household economic well-being stimulate consumer spending, expand market demand, and contribute directly to the growth of retail trade turnover. Consequently, policies aimed at increasing real household income may have a substantial positive effect on the development of the retail sector and on broader economic growth processes. The high explanatory power and statistical significance of the model suggest that real household income should be regarded as a key determinant in analyses of retail market dynamics and in the formulation of economic development strategies (Figure 1).



**Figure 1. The effect of real household income growth on retail trade turnover growth in the Jizzakh Region (2010–2025)<sup>2</sup>**

The results of the analysis indicate the existence of a stable positive relationship between the growth rate of real household income and the growth rate of retail trade turnover. The close distribution of the observed data

<sup>2</sup> Source: compiled by the author.



points around the regression line confirms the adequacy and statistical reliability of the estimated econometric model. This finding suggests that increases in household income contribute to the expansion of consumer demand, which in turn stimulates the growth of retail trade turnover. At the same time, deviations observed in certain periods may be attributed to external economic factors. In particular, fluctuations in inflation rates, restrictions associated with the pandemic, and structural changes in the consumer market may have caused some observations to deviate from the regression line.

The developed econometric model reflects the functional relationship between real household income growth and retail trade turnover dynamics, capturing important characteristics of the underlying economic processes. According to the estimation results, the intercept term of the model was found to be 0.1273. This implies that even in the absence of growth in real household income, retail trade turnover may still maintain an average logarithmic growth rate of approximately 12.7 percent. Such growth can be explained by factors including the expansion of the consumer market, improvements in retail infrastructure, an increase in the number of commercial outlets, and the development of consumer lending mechanisms.

The estimated regression coefficient,  $\beta = 0.4783$ , represents the key parameter of the model. This result indicates that a one-percent increase in the growth rate of real household income is associated with an average increase of approximately 0.48 percent in the growth rate of retail trade turnover. The finding is consistent with the fundamental principles of consumer demand theory, according to which higher income levels lead to increased consumption expenditures and greater demand for goods and services.

The empirical results demonstrate that real household income is one of the principal determinants of consumer market development. Growth in purchasing power contributes to the expansion of retail networks, increases the volume of trade activities, and enhances overall economic performance. Furthermore, the model results provide additional evidence of the strong linkage between income dynamics and retail market development. Consequently, economic policies aimed at increasing household income can not only improve living standards but also promote the sustainable and long-term development of the retail trade sector.

## CONCLUSIONS AND SUGGESTIONS

The results of the study confirm that real household income is one of the key factors influencing the growth of retail trade turnover. The estimated logarithmic econometric model revealed a strong positive relationship between the growth rate of real household income and the growth rate of retail trade turnover. The high value of the coefficient of determination ( $R^2 = 0.9768$ ) indicates that changes in household income explain a substantial share of the variation in retail trade dynamics.

The findings suggest that increases in real household income contribute to higher consumer demand, greater purchasing power, and the expansion of retail market activity. Therefore, policies aimed at improving household income levels can have a significant positive impact on the sustainable development of the retail sector.

Based on the obtained results, it is recommended to support income growth through employment promotion, wage increases, and the development of entrepreneurship. In addition, improving retail infrastructure, expanding access to consumer credit, and encouraging digital trade technologies may further stimulate retail trade turnover. Future research may incorporate additional explanatory variables, such as inflation, population growth, and investment activity, to improve the explanatory and predictive power of the model.

## REFERENCES:

1. Intermediate Microeconomics: A Modern Approach – Varian, H. R. (2019).
2. Wooldridge, J. M. (2020). Introductory Econometrics: A Modern Approach (7th ed.). Boston: Cengage Learning.
3. The General Theory of Employment, Interest and Money – Keynes, J. M. (1936).
4. Basic Econometrics – Gujarati, D. N., & Porter, D. C. (2021).
5. Introductory Econometrics: A Modern Approach – Wooldridge, J. M. (2020).
6. Fundamental Methods of Mathematical Economics – Chiang, A. C., & Wainwright, K. (2005).
7. Intermediate Microeconomics: A Modern Approach – Varian, H. R. (2019).



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