GALAXY INTERNATIONAL INTERDISCIPLINARY RESEARCH JOURNAL (GIIRJ)
ISSN (E): 2347-6915
Vol. 12, Issue 5 May (2024)

ROLE OF MATHEMATICS IN ECONOMICS

Akbar Adizovich Adizov
Candidate of Physics and Mathematics, Associate Professor Department of Higher and Applied Mathematics Tashkent State Economic University
Tel: +998-97-343-06-03.
a-adizov@mail.ru

ABSTRACT

The article examines the role of mathematics in economics. The mathematical model of accounting and the formation of financial statements is considered. The main directions of application of mathematics in economics are determined.

Key words: accounting, commodity-money relations, accuracy, logic and harmony of accounting calculations, mathematical modeling.

РОЛЬ МАТЕМАТИКИ В ЭКОНОМИКЕ

Акбар Адизович Адизов
Кандидат физика-математических наук, доцент.
Кафедра «Высшая и прикладная математика»
Ташкентский государственный экономический университет,
Тел:+998-97-343-06-03.
a-adizov@mail.ru

АННОТАЦИЯ

Статья посвящена рассмотрению роль математики в экономике. Рассмотрена математическая модель бухгалтерского учёта и формирование финансовой отчётности. Определены основные направления применения математики в экономике.

Ключевые слова: бухгалтерское дело, товарно-денежных отношений, точность, логичность и стройность бухгалтерского расчета, математическое моделирование.

INTRODUCTION

Mathematics plays a huge role in all professions. It was and remains one of the most important disciplines. The fact that the ability to acquire mathematical knowledge is an indicator of the ability to learn has long been recognized throughout the world. If a person can learn mathematics, then he can learn everything.

When suddenly asked what professions require mathematics, the first thing that comes to mind is, of course, the profession of an accountant. Here, as they say, accountants need to be good mathematicians. In some cases, the fate of even companies and firms depends on their mathematical abilities. What does it cost an accountant to make a mistake when calculating tax deductions or calculating employee salaries? In the first case, these are penalties from tax authorities, and in the second, there is a scandal and loss of the organization's reputation.

Accounting is very necessary and important. If you do not keep records of income and expenses, then there will be no order in the organization's work! In addition, without accounting, the state would not be able to control the operation of the enterprise.

From mathematics, accounting borrowed one of its main qualities - accuracy.

The mathematical model of accounting is understandable and accepted by specialists in any country in the world, because The language of mathematics has the necessary uniformity in understanding. The global mathematical model of accounting and the preparation of financial statements is the key to mutual understanding between accountants. Accounting and mathematics are essentially inseparable. There can be no accounting without knowledge of mathematics.

Economics studies patterns in the flow of goods and money. Well, since these flows need to be analyzed, they must first be counted and classified. Then you need to think "why are they going this way," that is, come up with some kind of theory, and then test it with real numbers. If you do such an analysis without numbers (that is, without mathematics), then you will not get any real answer. Therefore, of course, economists need mathematics very much, especially when they have to analyze a huge number of goods, consumers and producers. You simply cannot do without mathematics here.

This is how mathematics helps economists make forecasts on economic growth, output, prices, wage levels, etc. And, of course, pursue economic policy. An economist uses applied mathematics in his calculations, which is impossible without knowledge of its fundamental principles.

A good economist must be able to carry out complex calculations in order to manage processes; he cannot do without this knowledge when drawing up plans (including without the use of advanced methods: probability theory and mathematical statistics, game theory, fuzzy sets, etc.)

Mathematics - this subject is important for any economist, because this profession is directly related to numbers, graphs, formulas and statistics.

Mathematics is the cornerstone on which the entire body of human knowledge rests. Accounting is impossible and unrealizable without the use of mathematics.

Modern society, having a highly developed system of commodity-money relations, is experiencing an ever-increasing need for specialists performing accounting work. A person in this profession is not just an employee in the financial department of an enterprise or organization; it is one of the most important elements that make it possible to control the stability and correctness of the business mechanism.

The modern economy is an extremely complex, continuously developing system of gigantic scale, consisting of many links that perform various functions. Managing the entire economy and its individual parts is becoming increasingly difficult due to the enormous variety of possible production decisions made at various levels. In this regard, issues of scientifically based search for optimal solutions in various economic situations—solutions that increase the efficiency of the national economy and ensure maximum output of necessary products—acquire particular importance. This is all determined using mathematical methods.

It must be said that economic problems have many possible solutions: certain products can be obtained in different ways, choosing different raw materials, equipment used, technology and

organization of the production process. It would seem that if there are several possible solutions, you just need to consider them all and choose the best one.

Is it possible to imagine a modern financial analyst without using various mathematical methods? Take, for example, the analysis of stock markets, because fluctuations in stock prices and currency exchange rates are subject to certain mathematical laws. And if a person is sufficiently familiar with mathematics, he can make correct predictions. And accordingly, various econometric models that now play an important role are built on mathematical parameters. If a person knows how to competently analyze the situation that exists on the market today, he can calculate, for example, the amount of profit of his enterprise and much more. The solution to the main problems is based on mathematical methods.

As a result, knowledge and application of various branches of mathematics allows an economist to analyze economic phenomena more deeply and make informed decisions. The basic principles of mathematics, such as precision, logic, and harmoniousness, help the economist in conducting research, building models, and developing development strategies. Therefore, of course, mathematics is an integral part of economic science and the profession of economist.

Thus, we can list the main areas of application of mathematics in economics.

The first significant application of mathematics in economics is in modeling economic processes. Mathematical models make it possible to describe complex economic systems and predict their behavior under various conditions.

The second important application of mathematics is statistical data analysis. Mathematical methods of statistics allow economists to analyze markets, evaluate the parameters of economic models, and make informed decisions based on available data.

The third application of mathematics in economics is the optimization of decisions. Mathematical optimization methods allow you to find optimal solutions under conditions of limited resources and given goals. Economists use these methods to make decisions in various fields such as production, investment, finance, etc.

Thus, mathematics is a necessary tool for analyzing and forecasting economic processes, as well as for making informed decisions in conditions of uncertainty and limited resources.

REFERENCES

1. Kantorovich A.V. Optimal solutions in economics / A.V. Kantorovich, A.B. Goretko – M.: Nauka 2009. – 379 p.
2. Krass M.S. Mathematics for economists / Krass M.S., Chuprynov B.P. – St. Petersburg: Peter, 2011. – 469 p.
3. Livandovskaya A.D. Economics and mathematics: their interaction // Vestnik TSEU. 2008. No. 4.
4. Kolesnikov A.N. A short course in mathematics for economists. – M.: Higher. school, 1999. – 208 p.