Analysis on Problems in "The Principles of Economics"

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ABSTRACT

"The principles of economics" is a compulsory course for college students majoring in business. The purpose of this course is to allow students to use the basic principles of economics to explain economic phenomena, guide economic practice and solve practical problems. In the teaching, it is found that the explanation of some problems in the western economics course is not clear enough and even misleading. From the perspectives of theory, common sense and real life, this paper studies and explores three questions, such as why the utility value of the unit currency itself in the cardinal utility theory is unchanged, the consumer equilibrium condition in the ordinal utility theory, the early interest rate determination theory and the later interest rate determination theory. Also, this paper makes certain corrections and supplementary explanations to teaching material, hoping to get advice from other scholars.

Keywords: principles of economics, interest rate determination, consumer equilibrium, analysis

I. INTRODUCTION

"Microeconomics" and "Macroeconomics" are compulsory courses for economic management majors in colleges and universities in China. The purpose of curriculum is to enable students to understand and master the basic knowledge and main principles of economics, use the basic principles of economics to explain economic phenomena, guide economic practice and solve practical problems. Therefore, the concepts, assumptions, logical systems and model expressions in western economics courses should not only be rigorous and logical, but also be consistent with people's economic behaviors and economic phenomena as far as possible. And then, they can be applied in daily life and economic practice, and people can apply what they have learned and know the facts clearly. Otherwise, they will lose practical value and significance, and may mislead students' cognition at the same time. Based on the determinants of the utility value of unit currency in the cardinal utility theory, the explanation of consumer equilibrium condition in the ordinal utility theory, and the dispute between the early interest rate determination theory and the later interest rate determination theory, this paper discusses how to combine common sense to better understand the explanation of some problems or the practical application and enlightenment that can be deeply explored in the course of economics, so as to give references with a view of getting opinions better in return.

II. REASONS WHY THE UTILITY VALUE OF UNIT CURRENCY IS UNCHANGED IN THE SHORT TERM

The utility of goods and the law of diminishing marginal utility are important basic concepts and laws in economics. In short, utility refers to consumers' satisfaction in the process of consuming goods. The law of diminishing marginal utility of goods refers to that in a certain period, with the increasing number of the same kind of goods, the degree of satisfaction brought by this kind of goods to consumers will decline, and the monetary income is also among them. With the increase of people's income, the degree of satisfaction brought by the last unit of monetary income to people is also decreasing.

When analyzing consumer behavior, it is required to pay attention to the utility of unit currency itself, and cardinal utility theorists usually assume that the utility of currency itself is constant. According to the explanation of cardinal utility theorists [1] [2], "in general, the unit price of most commodities only accounts for a small part of the total monetary income of consumers. When there are small changes in consumer's purchase of a certain commodity, there is small change in marginal utility of the currency spent, and this small change in the marginal utility of currency can be omitted. Therefore, the marginal utility of currency itself is a constant." There are following problems in the explanation. First, it is inconsistent with reality. In farmers' markets, clothing stores, grocery stores and other trading places, some buyers will walk

away because the stall owner does not give up a dime, and it is true for some small daily necessities and clothes. This phenomenon is very common. Obviously, the proportion of a dime or a few dollars in the price of the purchased goods is insignificant, but it determines the success or failure of the transaction. Therefore, the explanation in the textbook is inconsistent with the reality. Secondly, from the process and conclusion of consumer equilibrium change of cardinal utility theory, this explanation can also be overturned.

The hypothetic sequence of marginal utility that a certain two kinds of goods can bring to consumer A is shown in "Table I". In "Table I", the number in the first row represents the number of goods, and the numbers in the second row and third row represent the marginal utility of each corresponding commodity. If the hypothetic price of commodity X is $P_X=4$ and the hypothetic price of commodity Y is $P_Y = 2$, the budget expenditure of A is M=24 yuan.

TABLE I. MARGINAL UTILITY OF A FOR X AND Y

Q	1	2	3	4	5	6	7	8	9	10
MU_X	16	14	12	10	8	6	4	2	1	0
MU_Y	11	10	9	8	7	6	5	4	3	2

According to the equilibrium analysis of cardinal utility theory (excluding the process) and the purchase order of marginal utility/price ratio, A's final optimal purchase is the combination of 3 units of X and 6 units of Y, and the maximum utility is 93. At this time, the marginal utility of the last one yuan spent by A from the two kinds of goods is equal to the utility of the one yuan A hold. The utility of unit currency is $\lambda=3$, that is, the equilibrium condition is as follows: $MU_Y/P_Y=MU_X/P_X=3$ (i.e. $6/2 = 12/4 = 3$). And then, the equilibrium is achieved.

If the price of commodity X is 8 yuan and the other conditions are unchanged, A still purchases according to the order of marginal utility/price ratio, the final optimal purchase combination should be 1 unit of X and 8 units of Y, and the maximum utility is reduced to 76. At this time, the utility of unit currency is reduced from 3 to 2. The equilibrium condition is as follows: $\lambda=MU_Y/P_Y=MU_X/P_X=2$

If A's budget increases from M=24 yuan to M=48 yuan and the prices of both goods remain unchanged, A still purchases according to the order of marginal utility / price ratio, the final optimal purchase combination should be 7 units of X and 10 units of Y, and the maximum utility is 135. At this time, the utility of unit currency is reduced to 1, that is, the equilibrium condition is as follows: $\lambda=MU_Y/P_Y=MU_X/P_X=1$.

From the above comparative analysis, it can be seen that the reason why the utility of unit currency itself remains unchanged is not that there is small change in commodity purchase volume and the change of expenditure can be ignored, but that the purchasing power of currency itself remains unchanged under the premise of relatively stable prices and people's income in a certain period. When prices rise faster, inflation is more serious, or people's income level generally increases by a large margin, the currency itself depreciates, and the utility of natural unit currency will decline (as the above proofs reveal). This is a simple common sense. For example, decades ago, China's

price level was low and people's income level was lower. Although one yuan was "valuable" at that time, people's material living standard was not high. Now, although the price level is high and one yuan is "worthless", people's income is higher, society is richer and people's material living standard is higher.

Therefore, the following conclusions can be obtained. First, it is the price level and people's income level that really determine the utility value of unit currency. Second, the utility of unit currency itself is actually the purchasing power of one yuan in a certain period, that is, the value or status of one yuan in people's minds. Third, it is consistent with the relationship between nominal income and real income in macroeconomics. When people's nominal income remains unchanged and the price level rises too fast, it leads to currency devaluation, that is, the decline of currency utility and the decline of people's real living standard (the total utility in the example is reduced from 93 to 76). When people's nominal income rises and the price level basically remains unchanged, currency devaluation also leads to the decline of currency utility, but people's real living standard is significantly improved, that is, the total utility has increased from 93 to 135, which is completely consistent with real life.

III. THE CONNOTATION OF CONSUMER EQUILIBRIUM CONDITION IN ORDINAL UTILITY THEORY

Ordinal utility theory uses indifference curve and budget line to analyze consumer equilibrium. According to the common explanation, consumer equilibrium E is the tangent point of indifference curve and budget line, so the slope of indifference curve and budget line at E point is equal. The absolute value of the slope of the indifference curve is the marginal substitution rate MRS_{12} of the two commodities, and the absolute value of the slope of the budget line can be expressed by the price ratio P_1/P_2 of the two

commodities. Therefore, at the equilibrium point E, the following equation is satisfied: $MRS_{12} = P_1/P_2$. Usually, according to the explanation in the textbooks, consumers get the maximum utility with the given expenditure at this time; or they spend the least under the given utility level. (see "Fig. 1") AB represents the given expenditure level, and the maximum satisfaction that consumers can achieve is the utility level represented by the indifference curve U_2 [1] [2]. In the teaching process, teachers have made in-depth exploration and inspiration for this problem, and students can understand thoroughly and deeply.
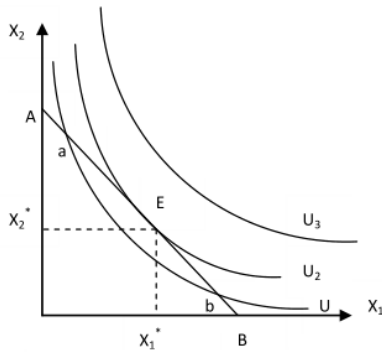

Fig. 1. Consumer's equilibrium.

In essence, whether the slope of the indifference curve or the slope of the budget line is the mutual substitution of two kinds of commodities, but one is subjective substitution and the other is objective substitution in the market. As shown in "Fig. 2" and "Fig. 3":
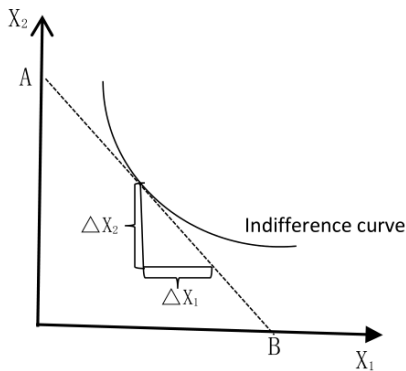

Fig. 2. The indifference curve.

In "Fig. 2", the tangent slope of the indifference curve has the economic meaning that the utility increased by increasing commodity X_1 is equal to the utility decreased by decreasing commodity X_2, so it is called marginal utility substitution rate (MRS_{12}). From the mathematical expression of tangent slope, its slope value is equal to $\Delta X_2/\Delta X_1$, that is, the subjective substitution of two kinds of goods in consumer

psychology. In other words, it refers to consumers' subjective evaluation of the two kinds of goods.
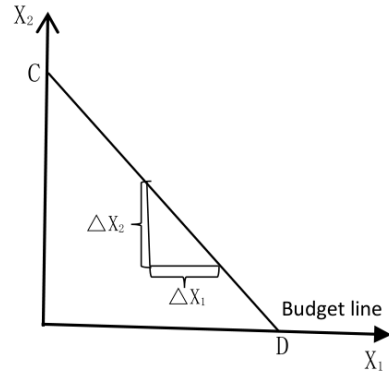

Fig. 3. The budget line.

In "Fig. 3", the consumer's budget line equation is $M=P_{X1}X_1+P_{X2}X_2$, and the absolute value of the slope is P_{X1}/P_{X2}. From the mathematical expression of the slope of the budget line, the slope value is also equal to $\Delta X_2/\Delta X_1$, that is, the substitution of two kinds of goods in the market. In other words, it refers to the objective substitution of the two kinds of goods. Therefore, the equilibrium state of consumers means that under the limited expenditure budget, consumers' psychological desire to match two kinds of goods can be perfectly realized in the market, that is, subjective evaluation is equal to objective evaluation. In this way, the students would have a feeling of enlightenment. The key here is to point out that the slope of the budget line is also equal to $\Delta X_2/\Delta X_1$, which is the finishing point. Although this knowledge point has been learned in the mathematics in the middle school, most students can't use it. Therefore, the consumer equilibrium condition can be expressed as the follows. Only when the marginal substitution rate of two kinds of goods (the subjective substitution rate is determined by the consumer's subjective preference) and the price ratio of two kinds of goods in the market (the objective substitution rate is determined by the market price) are equal, the consumer can have the equilibrium state of utility maximization. As long as the two are not equal, consumers can only adjust their subjective psychological wishes under the constraints of established market price and budget, that is, under the constraints of objective conditions. In this way, students can understand it. It is not only easy, but also close to common sense.

The above explanation of the principle of consumer equilibrium can be widely used in daily life. For example, when people do anything, get along with anyone, or have problems, there are objective facts that people cannot change, such as the price of goods, others, the environment or the things. At this time, it is required to adjust and change people's wishes, that is, to

change the cognition subjectively, adjust the expectations, face problems, adapt to the environment, tolerate others, and constantly improve income and ability. And then, equilibrium state can be achieved. For new college graduates, how to make choices and balance in the face of personal development, salary, life pressure, working environment, etc., is also a subjective and objective process of realizing equilibrium. It can be seen that teachers and students should make in-depth exploration on whether the principles of economics can explain the economic and social phenomena and be applied to daily life. And then, students can combine theory and practice and apply what they have learned.

IV. EARLY EQUILIBRIUM INTEREST RATE DETERMINATION THEORY AND LATER EQUILIBRIUM INTEREST RATE DETERMINATION THEORY

According to the early economics [3] [4], the interest rate was determined by the investment and savings in the loanable capital market. Investment is the demand of loanable funds, and savings is the supply of loanable funds. Investment is a decreasing function of interest rate. That is to say, when other conditions remain unchanged, the lower the interest rate, people are willing to increase investment; vice versa. Saving is an increasing function of interest rate. Under the given conditions, the higher the interest rate, the more people are willing to save, and vice versa. Finally, when the supply and demand of loanable funds are equal, that is, investment is equal to saving, the equilibrium interest rate r_e is determined. (as shown in "Fig. 4")
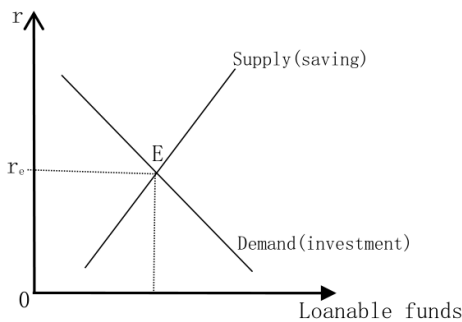

Fig. 4. The early interest rate determine.

Keynes's theory denies the early interest rate determination [3]. It is believed that saving is not only determined by the level of interest rate, but more importantly by the level of income. Income is the source of consumption and saving. Only when income increases, consumption and saving increase. If income does not increase, savings cannot increase even if interest rates rise. Without knowing the income, the functional relationship between interest rate and savings

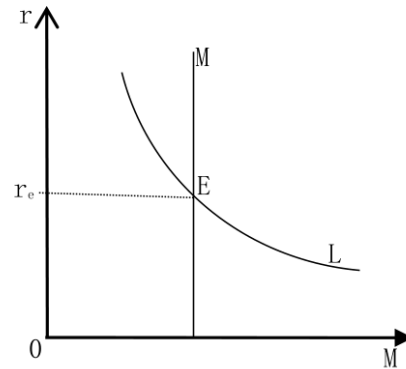can't be determined, and the level of interest rate can't be determined.

Fig. 5. The later interest rate determine.

Later interest rate determination theory holds that interest rate is not determined by savings and investment, but by currency supply M and money demand L, that is, interest rate is determined by the equilibrium of monetary market. As shown in "Fig. 5", the current economics textbooks adopt later interest rate determination theory. When the currency supply in the monetary market is equal to the money demand, the equilibrium interest rate is determined. The currency supply is determined by the Central Bank of a country, which is a stock concept. The money demand is composed of transaction demand and speculative demand.

Interestingly, Hansen also questioned Keynes' theory of interest rate determination [5], which is the same as Keynes' negative logic of early interest rate determination theory. According to Hansen, on the one hand, Keynes wants to use the speculative money quantity and liquidity preference function to determine the interest rate, but the speculative money quantity depends on the national income level; on the other hand, the national income level depends on the investment level, and the investment level depends on the interest rate. This is the so-called circular argument in interest rate determination theory by Keynes.

Do these two interest rate determination theories have to be mutually exclusive? Do human beings have to choose one or the other? Actually, that is not the case. In fact, no matter in theory or in economic practice, these two interest rate determination theories have merits, and the dispute may lie in the different understanding of savings function and speculative money demand function. The discussion is as follows.

Theoretically speaking, any economic function is composed of exogenous variables and endogenous variables. In short, exogenous variables are the established preconditions, and endogenous variables are the independent variables in the function. In this way,

both the interest rate determination theory of the early loanable capital market and the interest rate determination theory of the later monetary market should regard national income as the exogenous variable of savings and speculative money demand. In other words, with the increase of people's income, savings will naturally increase. Similarly, in modern society, with the increase of income, people's speculative money used to buy securities will naturally increase. In fact, the so-called savings and speculative money demand in economics are idle money. If people put the idle money on the loanable capital market, it is called savings, which will be the capital source of loanable capital market. Similarly, if people put the idle money on the securities market, it is called speculative money demand, which will be the demand side of monetary market. In this way, if the interest rate in the loanable capital market is high, people will put more idle money (from income) into the loanable capital market and lend it to investors to earn more interest income. On the contrary, if there are advantages in the securities market (the speculative market), people will use more idle money for speculation (the money needed for speculation still comes from income), that is, the purchase of securities.

It can be seen that the supply of funds in the loanable capital market is still an increasing function of interest rate, but if it is also expressed as "savings" at this time, it will crash with Keynes's saving function. Keynes's saving function is an increasing function of income, and has nothing to do with interest rate. Strictly speaking, people can regard the investment and savings in the loanable capital market as the supply and demand of loanable capital. Similarly, how much speculative money people will hold depends on the securities market and people's expectations, which are negatively related to interest rates. Therefore, the amount of speculative money people hold is still a decreasing function of interest rates.

Secondly, in real life, two kinds of market behaviors and two market interest rates exist. Take China as an example, since the reform and opening up, with the increase of income and the vigorous development of the stock market, "shareholders" have sprung up. Theoretically speaking, this is the monetary market. The current market interest rate refers to the interest rate of the monetary market. At the same time, private lending has always existed, and it has been very active since the reform and opening up. Whether in rural or urban areas, some private enterprises rely on private lending to develop their business and expand their scale. Some individuals and small businesses rely on private lending for production, living, and tuition payment and so on. This is the loan market, and of course there is borrowing rate. It can be seen that the two have their own advantages and go hand in hand. As economists say, there's only one right. How can we explain the

behavior of private lending and its interest rate in reality? In fact, due to the constraints of speculative knowledge and technology, private lending is more common and has a longer history. What's more, the Supreme People's Court has clearly stipulated that the maximum interest rate of private lending shall not exceed four times the one-year Loan Prime Rate (LPR) [6], that is, the current private lending interest rate shall not exceed 15.4%. It can be seen that these two markets and their interest rates have been brought into a higher level of management in reality.

V. CONCLUSION

Generally speaking, economics is the study of resource allocation and utilization under the condition of market economy. It is a discipline to explain people's daily economic behavior and economic phenomenon. It comes from people's economic practice and common sense, but it is also a high degree of theoretical generalization. Some contents are inevitably more or less inconsistent with the reality. In the teaching and research, when teaching and explaining the basic concepts, principles and logical systems, teachers and students should start from the reality and common sense, actively play their subjective initiative, think and differentiate more about the viewpoints, knowledge system and conclusions, and try to give consideration to the consistency of common sense and theory, instead of being fundamentalist. In order to improve students' interest in learning and research, and cultivate their ability to analyze problems, it is necessary to guide students to have discussion when there is a serious contradiction between experience and practice. At the same time, the students should integrate the theory into real life, return to common sense, and apply what they have learned.

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