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AN ALTERNATIVE METHOD OF ECONOMIC ANALYSIS

by

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Most textbooks in Principles of Economics attempt to provide basic economic concepts in the first few chapters. For this purpose, subjects such as “production possibility curves” and “demand and supply curves” are discussed in the first few chapters.¹ However, little effort has ever been made in economics texts to provide a systematic method of learning economics. Furthermore, subjects in economics are traditionally presented in an abstract manner, which makes economics one of the hardest subjects to learn. The objective of this paper is to develop a model under which the method and purpose of analysis in economics can be identified in a systematic and nonabstract manner.²

I. A MODEL

An identification of each subject in economics in relationship to the total framework of economics is essential to enhance learning in economics. One of the objectives of this paper is to build the above framework of economics under which each subject can be analyzed systematically. For this purpose, I will classify subjects in economics into two categories as illustrated in Model 1.

Studies of economics can be classified either as (A) finding an unknown variable or (B) constructing or interpreting what I call functional information. For example, the discussion of demand and supply curves is classified in category B, while the examination of equilibrium price of a market based on demand and supply curves is classified in category A. The discussion of consumption function (curve) is classified in category B, while the determination of equilibrium national income based on consumption function (and investment function) is classified in category A.

¹ See examples, *Macroeconomics*, William J. Baumol & Alan S. Blinder, 12th edition. South-Western Cengage Learning.

² For this reason, the above model can be used to develop individualized instruction materials.

I will provide a rule in Section II by which an unknown variable can be identified in a step-by-step approach. Then I will explain how functional information is constructed in economic theories in Section III.

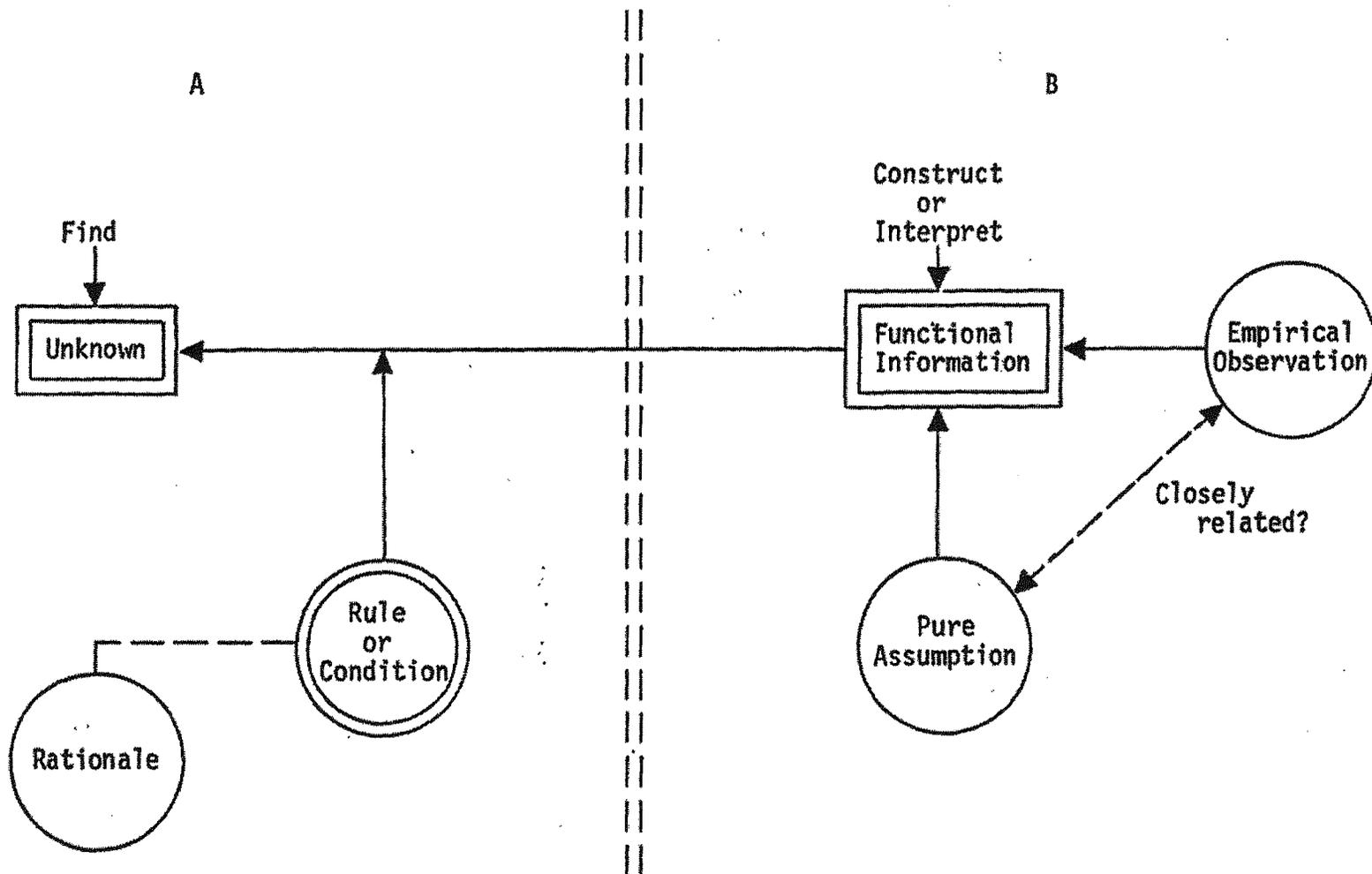
II. FINDING AN UNKNOWN VARIABLE³

Finding an unknown variable represents a typical method of analysis in economics. It is a process through which a value is selected among alternatives based on given information (functional information). Thus, a key for finding an unknown variable is to establish a condition under which a particular value can be selected from given information (functional information). In other words, it is the above condition which screens a particular value from other given information. Thus, what is needed to find an unknown variable is to know the above condition and learn how to use or apply the above condition in order to single out a variable from given information. It might be worthwhile to state the fact that the information (functional information) must be given in category A, and all we need in category A is to learn how to use the above information, not needing to question the validity of the information in category A.⁴

Identification of an unknown is the key problem in category A. However, it is not the only concern in category A. Category A includes also the discussion about the validity of the condition under which an unknown is identified. In this discussion, we provide behavioral characteristics of economic units. In general, a good portion of economic texts is devoted to discussing the validity or rationale of the above condition under which an unknown is identified.

³ A very important topic which should be included in category A is the investigation of change in the value of an unknown variable when a parameter changes (for example, the investigation of a change in market price resulting from a change in consumers' income). However, the topic is not discussed in this paper so as to present a model in simple form.

⁴ Questioning the validity of the functional information will be done in category B.



MODEL 1

1. Example from Demand and Supply Functions

The information (functional information) which must be given in order to find the equilibrium price of a market (unknown variable) is the demand and the supply functions (curves). The condition under which the equilibrium price of the market is identified is that quantity demanded (Q_d) in demand function (curve) is equal to quantity supplied (Q_s) in supply function (curve), or $Q_d = Q_s$. Thus, all we have to do to find the equilibrium price is to investigate Q_d and Q_s at each price and find a particular price at which $Q_d = Q_s$, which is called the equilibrium price. An example of the demand and the supply schedules is given in Table 1. At the price of \$5, $Q_d = 20$ and $Q_s = 60$. At the price of \$4, $Q_d = 30$ and $Q_s = 50$. At the price of \$3, $Q_d = 40$ and $Q_s = 40$. At the price of \$2, $Q_d = 60$ and $Q_s = 25$. At the price of \$1, $Q_d = 80$ and $Q_s = 5$. There is only one price at which $Q_d = Q_s$. This condition ($Q_d = Q_s$) is realized at the price of \$3. Thus, \$3 is the equilibrium price according to our definition. This is also demonstrated graphically in Figure 1. The only price where $Q_d = Q_s$ is found at the point where the demand curve and the supply curve intersect, or at the price of \$3.

The rationale of the above condition under which the equilibrium price is identified can be easily demonstrated. If the price becomes \$5, at which $Q_d = 20$ and $Q_s = 60$, a surplus of goods will be realized, where surplus is defined as $Q_s - Q_d (= 40 \text{ units})$. Suppliers will attempt to lower the price caused by the frustration in order to eliminate surplus (unsold) goods. This will lower the market price. On the other hand, if the price became \$2, at which $Q_d = 60$ and $Q_s = 25$, a shortage of goods will be developed, the shortage is defined as $Q_d - Q_s (= 35 \text{ units})$. This time it is consumers who will be frustrated and attempt to bid up the price. This action will raise the market price. Therefore, the market price will be settled at \$3, the equilibrium price.

Demand Schedule (Function)

P	\$5	4	3	2	1
Q _d	20	30	40	60	80

Supply Schedule (Function)

P	\$5	4	3	2	1
Q _s	60	50	40	25	5

Table 1

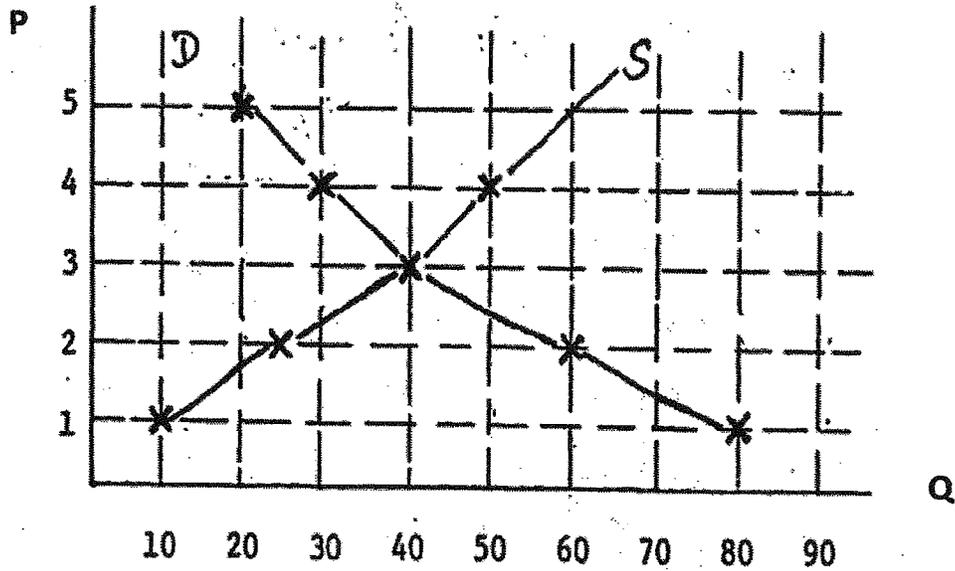


Figure 1

2. Example from National Income Determination

The information (functional information) which must be given to find the equilibrium level of national income is the consumption function (curve) and the investment function (curve). The condition under which the equilibrium level of national income can be established is that the expenditure is equal to national income (Y). Thus, in order to investigate the equilibrium national income, we have to seek for a level of national income at which total expenditure is equal to national income. An example of national income (Y) and its corresponding expenditures is shown in Table 2 under the assumption that the expenditure consists of consumption expenditure (C) and investment expenditure (I).⁵

Y	100	200	300	400	500
C	125	200	275	350	425
I	50	50	50	50	50
$C+I$	175	250	325	400	475

NOTE:

Y = National Income

C = Consumption Expenditure

I = Investment Expenditure

Table 2

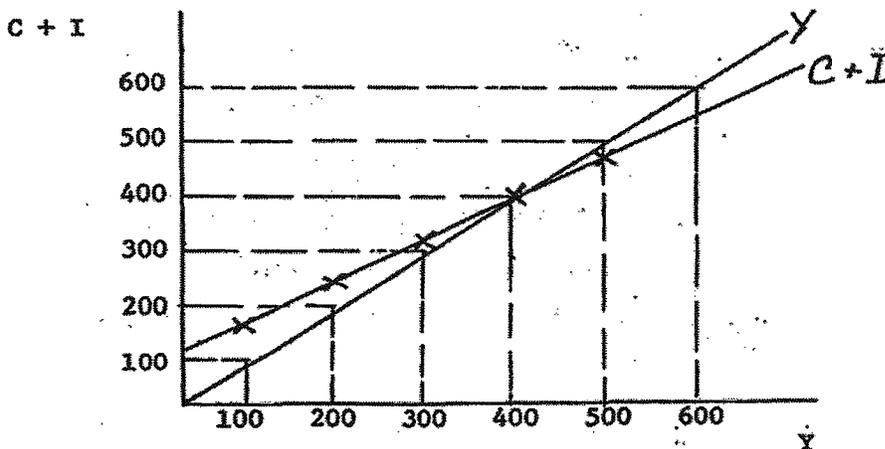


Figure 2

⁵ Furthermore, it is assumed that consumption is a function of (depends on) national income, while investment is autonomous or does not depend on national income.

When $Y = 100$, $C + I = 175$ and $Y = 100$. When $Y = 200$, $C + I = 250$ and $Y = 200$.

When $Y = 300$, $C + I = 375$ and $Y = 300$. When $Y = 400$, $C + I = 400$ and $Y = 400$.

When $Y = 500$, $C + I = 475$ and $Y = 500$.

The above investigation shows that there is only one level of national income where $C + I = Y$. The condition ($C + I = Y$) is realized when $Y = 400$. Thus, 400 is the equilibrium level of national income. This conclusion is also demonstrated graphically in Figure 2. The national income at which $C + I = Y$ is realized is found at the point where the $C + I$ curves intersects with the Y line (45° line).

The rationale of using the above condition ($C + I = Y$) to identify the equilibrium level of national income can be explained in terms of the level of inventory which firms maintain. When $Y = 500$, $C + I = 475$ and $Y = 500$. This will result in a rise in the level of inventory. The rise in the level of inventory is a warning signal for entrepreneurs to decrease their production and employment. Consequently, the national income will decline toward the 400 level. On the other hand, when $Y = 200$, $C + I = 250$ and $Y = 200$, the result is a decline in the level of inventory. Therefore, entrepreneurs will increase their production and employment. Consequently, national income will increase toward the 400 level. Thus, national income will be settled at 400 or equilibrium level of national income is 400.

III. FUNCTIONAL INFORMATION

Information (functional information) was given in order to find an unknown variable in category A as is discussed in Section II. However, we have not yet defined the functional information. The objective of this section is to define functional information and explain how it is derived and interpreted.

Functional information in category B is defined as economic information, which shows a functional relation or a stable relation between variables. Information that does not show any predictable or stable relation among variables is excluded from my definition of functional information. The consumption function of Table 2 is a good example of functional information. It shows a stable or a predictable relationship between the level of consumption and the level of disposable (spendable) income. The demand function (curve) of Figure 1 shows an inverse or negative relationship between the price of goods and the quantity of goods demanded. So does the supply function (curve) of Figure 1, which shows a positive relationship between the price of goods and quantity of goods supplied.

The interpretation of functional information implies that one has to show the value of a variable when another variable is arbitrarily given, since their relationship is specified in a functional form such as a graph or an equation. For example, in order to interpret the demand function (curve), one has to identify the quantity demanded for an arbitrarily given price, or one has to identify the price of goods which a consumer is willing to pay for a given amount of quantity of goods demanded. However, economists have gone further to formalize or theorize functional information. In other words, a relationship expressed in functional information is often interpreted in a simple or theoretical form. For example, a relationship expressed by a demand function can be stated in terms of elasticity of demand function. Or a relationship expressed by a consumption function can be explained in terms of marginal propensity to consume.

It is worthwhile to note here that a conclusion reached in category A (finding an unknown variable) depends on the kind of information (functional information) given. In other words, it is a kind of information (functional information) given which determines the unknown variable in category A. For example, it is the value of marginal propensity to consume which determines the equilibrium level of national income. A change in the value of marginal propensity to consume will change the value of equilibrium level of national income.

Functional information is constructed based on pure assumptions and/or empirical observations. Much functional information developed in economic theory, especially in microeconomic theory, is constructed based purely on hypothetical assumptions, although attempts have been made to test the validity of the hypothesis in terms of empirical observations. Thus, many conclusions derived in category A are based on hypothetical assumptions upon which functional information is constructed.⁶

In other words, assumptions we make play a crucial role in economic theories. It is a change in these assumptions which creates a new economic theory. In other words, one has to come up with an alternative set of assumptions to create a new economic theory. Thus, questioning the validity of assumptions upon which an economic theory is built is the source of creating a new economic theory. Unfortunately, the opportunity and encouragement to question the validity of the assumptions are not given fully in today's economic education.⁷

⁶ These could be some of the reasons which create problems in learning economic theories, especially for those students whose empirical observations conflict with assumptions upon which an economic theory is built.

⁷ Instead, it has been encouraged to accept the assumptions and concentrate on learning how to use assumptions and information to find an unknown variable as discussed in Section II.