

"EQUILIBRIA"¹

(A Macroeconomic Computer Game)

GENERAL OVERVIEW

The purpose of this game is to illustrate some of the problems inherent in the use of fiscal and monetary policy to pursue the goals of economic stability and growth.

The computer simulates a mythical macro-economy², called "Equilibria". You will control the money supply, government expenditures and the marginal tax rate. You can also "freeze" prices and incomes.

You will receive details regarding the present state of the economy of Equilibria on a computer console through which you interact with the computer. After reviewing this information, you might wish to alter some or all of the variables under your control. Each iteration, or "year," the computer will update the information concerning the economy of Equilibria and present you with this new information. This economy moves directly to its new equilibrium level of national income each "year". Hence its name.

Your Information - The National Accounts

Each "year" the computer console will print out the equilibrium values of a list of macroeconomic variables. This information will be presented as shown in the following list. The variables are defined in this same list:

Q $\equiv$ Potential Net National Product	(\$ billion)
Y $\equiv$ Net National Product	(\$ billion)
C $\equiv$ Consumption Expenditures	(\$ billion)
I $\equiv$ Net Private Investment	(\$ billion)
G* $\equiv$ Government Expenditures	(\$ billion)
MT* $\equiv$ Marginal Tax Rate	(%)

¹The draft of these instructions was written by Peter Elias.

²The economic structure of "Equilibria" is a slight modification of a game developed at Stanford (MCROS).

M* $\equiv$ Money Supply	(\$ billion)
TR $\equiv$ Tax Receipts	(\$ billion)
D $\equiv$ Disposable Personal Income	(\$ billion)
E $\equiv$ Retained Earnings	(\$ billion)
P $\equiv$ Index of Price Level	
R $\equiv$ Interest Rate	(%)
AF $\equiv$ Inflation Rate	(%)
U $\equiv$ Unemployment Rate	(%)
A $\equiv$ Inventory Disinvestment	(\$ billion)

(*This is a variable under your control.)

If you called for a price freeze, then you will also receive a reminder saying:

"PRICE FREEZE IN EFFECT"

The Nature of Equilibria's Economy

Some philosophers say that, in order to make wise decisions, it is necessary to attempt to predict in advance the consequences of your actions. In order to do this, you need to know something about the economy of Equilibria. Although you do not know the size of the multipliers, or the specification of the various demand functions in this economy, you have managed to gather together the following information from the many seers in Equilibria:

Potential Net National Product (Q)

This variable represents the ability of Equilibria to produce net national product. The labor force of Equilibria is growing at a steady rate. This potential labor force, when combined with the actual capital stock in Equilibria, has a certain potential output. The actual level of net national product (Y) will be below potential if you have part of the potential labor force unemployed.

Net National Product (Y)

You can control the value of net national product by manipulating some or all of the variables under your control (G, M, MT). Each year the level of Y is established at its equilibrium level (the Y level corresponding to the intersection of the IS and LM curves).

The Control Variables(i) Money Supply (M)

By changing the money supply, you will affect the position of the LM curve. The money market contains the usual transactions and speculative demand functions. The money market interacts with the product market through the rate of interest.

(ii) Government Expenditures (G)

Changes in (G) affect the position of the IS curve, which, via the multiplier, affects the level of (Y).

(iii) Marginal Tax Rate (MT)

The marginal tax rate specifies the rate at which (Y) will be taxed. The initial value of this variable is 30%. By changing the marginal tax rate, you will affect the level of disposable income, thus shifting the IS curve via the consumption function.

C, I, T, D, E, R

Once the equilibrium level of (Y) has been determined in a particular year, it will be broken down into its various components which, together with the interest rate, will be presented to you in the national accounts.

Inflation Rate (AF)

You will notice that as you "tighten" the economy (i.e., as (Y) approaches (Q)), the rate of inflation will increase.

Price Level (P)

The inflation rate is applied to last year's price level to produce this year's price level. Remember that as (P) increases, the real value of the money supply will change.

Unemployment Rate (U)

Unemployment cannot be reduced below a certain low level no matter how tight you make the economy. This low level represents a residual frictional unemployment.

Inventory Disinvestment (A)

It is possible that, in your efforts to stimulate the economy, you produce a level of (Y) which exceeds potential net national product (Q) in a particular year. If this occurs, firms will have to meet the excess demand from inventories, and "inventory disinvestment" will take place. Next year a part of (I) will be diverted to replace run-down inventories.

Wages and Prices Freeze

To give you a little more flexibility in the area of macroeconomic management, the people of Equilibria have vested you with the power to control prices and all incomes (not just wages). Whenever you want, you can impose a total "freeze" on incomes. In times of stress, do not forget that you have this radical policy alternative.

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