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"Application of the Multi-Functional (MF) Cartesian Space: General Simulation of Monetary, Fiscal, Trade and Employment Policy"

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The MF-Cartesian Space is an alternative analytical tool for observing the economic environment of any country from a general perspective. In the case in point here, the MF-Cartesian Space is applied to simultaneously study the effects of fiscal policy, monetary policy, trade policy, as well as the effects of employment/Inflation. All IS Curve, LM Curve, Trade/Tariff Curve and Phillips Curve is incorporated into the same Cartesian Space.

The MF-Cartesian Space consists of three perimeters. The first perimeter surrounds the area (from y000 to x11, from y000 to x21, from y00 to x31 and from y00 to x41. The second perimeter is represented by the area from y011 to x12; from y021 to x22; from y031 to x32 and from y041 to x42. The third perimeter is formed by the area from y012 to x13; from y022 to x23; from y032 to x33; from y042 to x43.

Additionally, the MF-Cartesian Space comprises four sections that accommodate four analyses sections. Each of these sections is formed by a three-window refraction space[1]. The first analysis section is the study of fiscal policy within the IS Curve. The first window refraction space the relationship between interest rate and investment. The second window refraction space is equal to the relationship savings = (investment, income). Third window refraction space is the final creation of the IS Curve, the IS curve is based on the relationship between interest rate and income.

The second analysis is based on the application of the LM Curve to study the monetary policy. The construction of the LM Curve is based on two windows refraction spaces. The first window refraction space represents the relationship between interest rate and money demand/money supply. The second window refraction space, on the other hand, it is based on the relationship between interest rate and income that LM Curve is constructed. This LM Curve is the second window refraction space.

[1] ***Window Refraction Space*** is a concept based on the joining of different quadrants in the same vector address

The third section of the MF-Cartesian Space is for the analysis of trade policy. The first window refraction space pictures the relationship between interest rate and production (GDP by sum of all production sectors: Agriculture, Manufacturing, Industry and Services). In the second window refraction space, the relationship between tariff rates and imports are shown. In the last window refraction space is formed by the relationship between imports and production. Lastly, the third window refraction space is where the relationship between imports and production is shown.

In the last section of the Cartesian Space, the first window refraction space is a depiction of the correlation between interest rate and inflation. In the last space where the Philip Curve is constructed, the correlation between inflation and unemployment becomes obvious.

In broad terms, the MF-Cartesian Space provides a platform for analyses in four areas in economics through the four different curves that are incorporated in the same Cartesian space: fiscal policy (through its IS Curve), monetary policy (through its LM Curve), trade policy (through its Trade/Tariff Curve) and unemployment through its Phillips Curve. It is assumed that all analyses are operational simultaneously and in the same space, thereby presenting a Computational General Equilibrium (CGE) that showcase a general scenario of the economic environment under study (See graph 1).

Graph 1:
Application of the MF-Cartesian Space in the Fiscal, Monetary, Trade and Employment Policy