

Tamari Attractor

The Tamari Attractor, named for Ben Tamari, is a 3 dimensional [attractor](#) evolving from the dynamic system associated with the theory of a country's economics. This dynamic system is a set of partial differential equations which, by the theory of economics developed by Tamari, control the economics of a country. The main point of this economic theory is that the **relation** between the quantity of money to the country's output is what governs the country's economic situation and outcome.

The Tamari Equations

The Tamari equations are (blue letters are variables and red are parameters):

$$X_{t+1} = (X_t - a Y_t) \cos(Z_t) - b Y_t \sin(Z_t)$$

$$Y_{t+1} = (X_t + c Y_t) \sin(Z_t) + d Y_t \cos(Z_t)$$

$$Z_{t+1} = e + f Z_t + g \arctan \left[\frac{(1 - u)Y_t}{(1 - i)X_t} \right]$$

Where the parameters in these equations are:

a– Inertia

b– Productivity

c– Printing

d– Adaptation

e– Exchange rate

f– Indexation (linking)

g– Elasticity/Expectations= 1

u– Unemployment

i– Interest

(1- *u*) and (1- *i*) are [Gresham](#) coefficients.

X denotes the country's output (gross domestic product, GDP ($\equiv O$), Y is the Money axis (the quantity of money, M1 ($\equiv M$)) and Z is the Pricing axis - consumer price index, CPI ($\equiv P$), so the equations may also be written as:

$$O_{t+1} = (O_t - a M_t) \cos(P_t) - b M_t \sin(P_t)$$

$$M_{t+1} = (O_t + c M_t) \sin(P_t) + d M_t \cos(P_t)$$

$$P_{t+1} = e + f P_t + g \arctan \left[\frac{(1-u)M_t}{(1-i)O_t} \right]$$

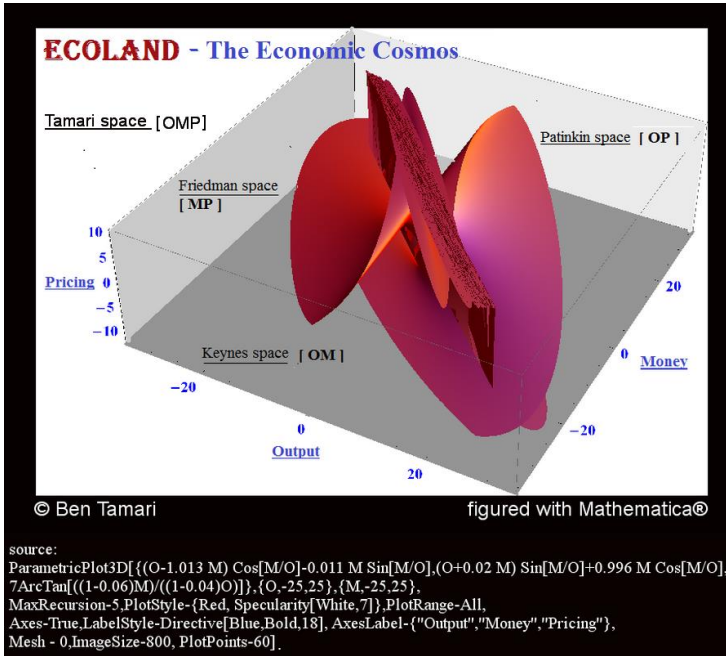
In rates terms: \mathbf{o} ($\equiv dO/dt$) is the **growth**, \mathbf{m} ($\equiv dM/dt$) is the **printing**, and \mathbf{p} ($\equiv dP/dt$) is the **inflation**, $\mathbf{p} = \mathbf{m} - \mathbf{o}$, or as the old saying goes "*Inflation occurs when too much money is chasing too few goods*".

The first 2 equations are in fact **Cremona/conservative** equations, which Tamari had found suitable to depict the economic situation in the output-money space (\equiv **Keynes** space [O, M,]), because of their conservative nature. The third equation is the **Feedback** equation, which Tamari had developed in a manner of trial and error to fit the statistical data of the countries as found in the "International Financial Statistics" YEARBOOK, The parameters of these equations vary from country to country, according to the statistical data.

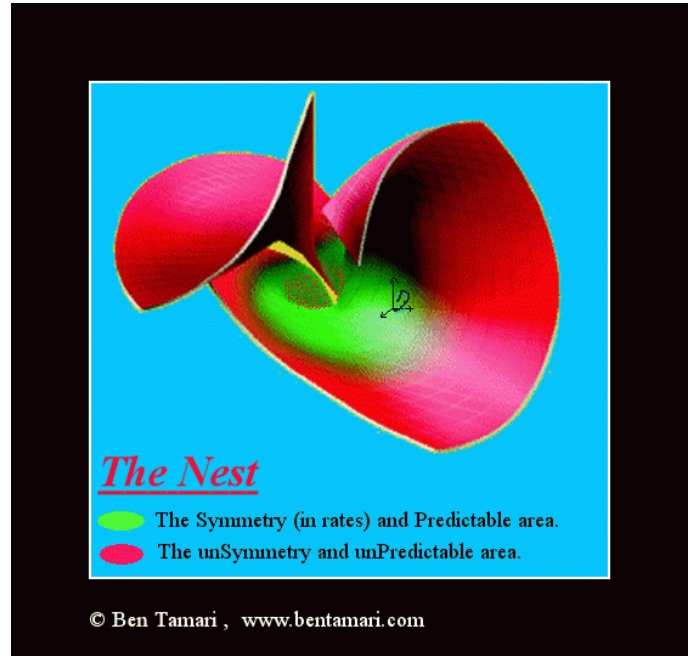
Economic Consequences

Tamari's theory of a country's economic situation says that the situation of the country can be estimated by mapping the country's position on the **nest** (\equiv Tamari space [O, M, P,]) created by the solutions of the above equations (see pictures 1, 2,). When the position (of the country) is within the green boundary of the nest (see picture 2), the situation is stable, and forecasting and planning is possible in the short term. However, if the country's position has moved to the red part (usually after printing too much money due to political chaos, armed conflicts, dictatorships, election campaigns, etc...), the situation is unstable and may lose control.

Picture 1: Ecoland - The Economic cosmos.

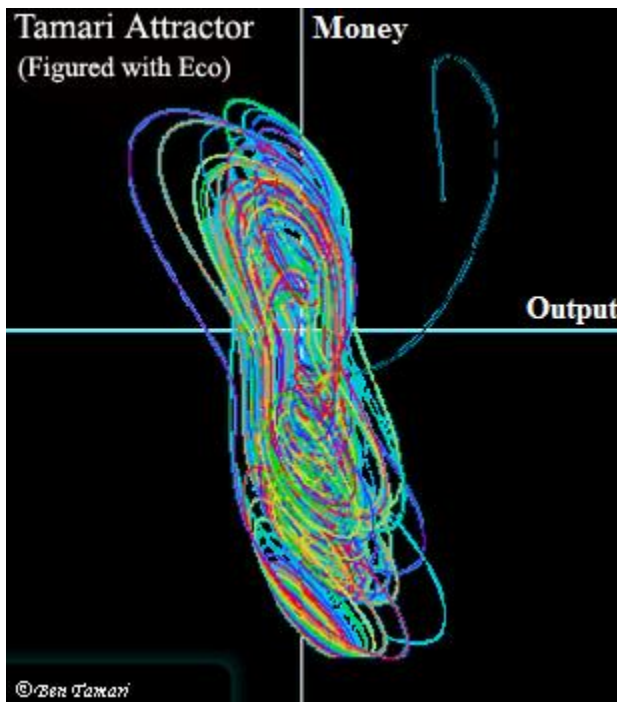


Picture 2: The Nest in which the attractor sail.

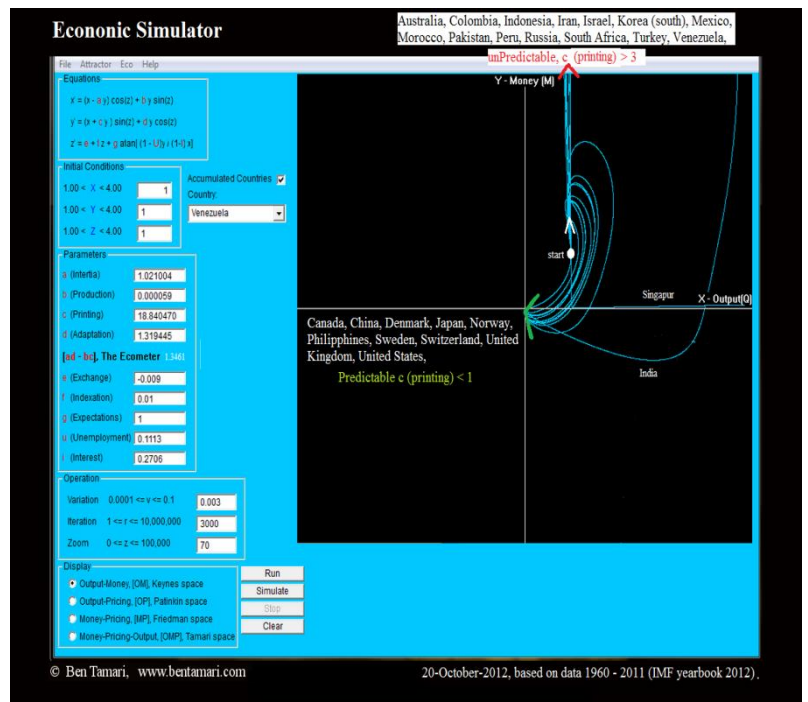


Thus, finding the parameters: *a, b, c, d, e, f, g, u, i*, by statistical methods (from the statistical data of IMF yearbook), the Tamari attractor may serve to understand, control and predict the economic situation of a country. To show how it is worked, Tamari developed the economic simulator “Eco” (see pictures 3, 4).

Picture 3: The attractor



Picture 4: The Simulator



References

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<http://www.bentamari.com>