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Review Article

Building a Holistic Approach: Uniting Marxist and Smithian Economics for a More Resilient Economic Theory

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Abstract: In this article, we discuss a new proposed concept of economic engineering that seeks to innovate a new model by combining the theories of Karl Marx and Adam Smith, taking into consideration main economic factors to create a sustainable and inclusive economic system that addresses existing challenges and provides a roadmap for future economic growth. Through a brief analysis of the existing gaps between Marxist and Smithian economics, we developed a new economic matrix that leverages the strengths of both theories while also incorporating the latest insights from modern economic research. Our novel approach to economic engineering represents a fresh perspective on the economy and offers practical tool for addressing the most pressing challenges facing society today.

Keywords: Economic Engineering, Economic Matrix, Economic Cycle, Capital's Age, New Model

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1. Introduction

Karl Marx's theory of communism [1] posits that the means of production should be owned and controlled collectively, rather than by individuals. This theory argues that the capitalist system is inherently exploitative, as it allows a small group of owners to control the majority of wealth and resources. Marx believed that a socialist or communist system would better distribute wealth and eliminate exploitation. Adam Smith's theory of capitalism [2], argues that the market system, if left to operate freely and without interference, will result in greater economic efficiency and prosperity for all participants. Smith believed that individuals acting in their own self-interest would drive economic growth and innovation, and that government intervention should be limited.

One of the key gaps between these two theories is their views on the role of government in the economy. Marx believed that government intervention was necessary to correct the imbalances and injustices of capitalism, while Smith believed that government intervention should be limited to protect property rights and enforce contracts. Additionally, Marx's theory places emphasis on the collective good, while Smith's theory prioritizes individual liberty and self-interest. Another gap between the two theories concerns their views on the distribution of wealth and income. Marx believed that capitalism leads to the concentration of wealth in the hands of a few capitalists, while Smith believed that the division of labor and the operation of market forces would lead to a more equitable distribution of wealth. Overall, the theories of Marx and Smith represent fundamentally different visions for the role of government, the distribution of wealth, and the organization of the economy. While each theory has its strengths and weaknesses, the gaps between them continue to shape debates about economic policy and the role of government in the economy.

The economic matrix is a complex system of interrelated factors that influence the economy of a country, region or globe. Despite the many studies and research on the economic matrix, there is still a gap in our understanding of this complex concept. The existing models and theories often focus on either microeconomic or macroeconomic data, and do not fully capture the dynamic and interrelated nature of the economy. To address these limitations, this paper presents a new economic matrix model that takes into account the dynamic and complex nature of the economy.

2. Concept of Economic Engineering, Economic Cycle and Economic Matrix

The Figure 1 presents a new concept in economic engineering, unifying Marxist and Smithian economics by proposing a coordinate system as an economic principle. The economic cycle is represented in this coordinate system, structured from three dimensions - each theory is represented by one dimension. The Marxist theory is represented in the first dimension (Z-axis) as 'H' (Human), the Smithian theory in the second dimension (Y-axis) as 'C' (Capital), and the third dimension (X-axis) is added as 'T' (Time) to complete the whole dimensions of the economy. With this innovative model, we offer a holistic approach to economics, bringing together the strengths of both Marxist and Smithian theories and providing a more resilient and complete theory of the economy. The coordinate system serves as a powerful tool for understanding the interactions between these dimensions and the economic cycle, leading to a more sustainable and inclusive economic theory.

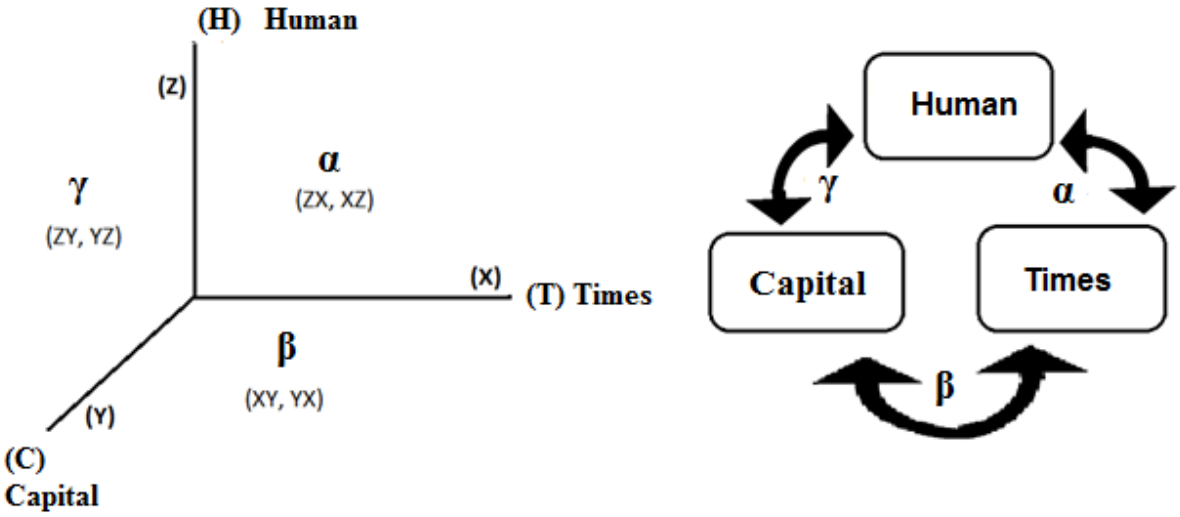

Figure 1. The economic cycle and its representation on the coordinate system as an economic engineering principle according to our theory [3].

According to our theory (just change the geography by capital in the Social coordinate system [4]); the economic impact has been summarized in an economic cycle (Figure 1) which consists of three basic components, Human (H), Times (T) and Capital (C), that they are related to each other by three main index properties, Consumption index (α), Inflation-Recession index (β) and Value Added index (γ).

If we take all the previous data and since we proposed that indexes and components are linearly dependent by needs ratio (e; which varied from 0 to 1 or from 0 to 100 %) (Equation 1, 2, 3, 4, 5, 6 and 7), we can easily obtain an economic matrix, which clearly illustrates that three basic components are the diagonal and the other three main index properties compose the rest of the matrix;

$$\begin{pmatrix} XX & XY & XZ \\ YX & YY & YZ \\ ZX & ZY & ZZ \end{pmatrix} = \begin{pmatrix} T & \beta & \alpha \\ \beta & C & \gamma \\ \alpha & \gamma & H \end{pmatrix} \quad \text{Economic Matrix}$$

Consumption index (α) is related to the Need ratio (e), and production is related to the saturation (s= 1-e), can be define by the following equation;

$$\alpha = f(e) \tag{1}$$

$$\alpha = \alpha.e + \alpha(1 - e) \tag{2}$$

If we draw the equation (Equation 1) we can obtain the economic graph of Supply-Demand (Figure 2).

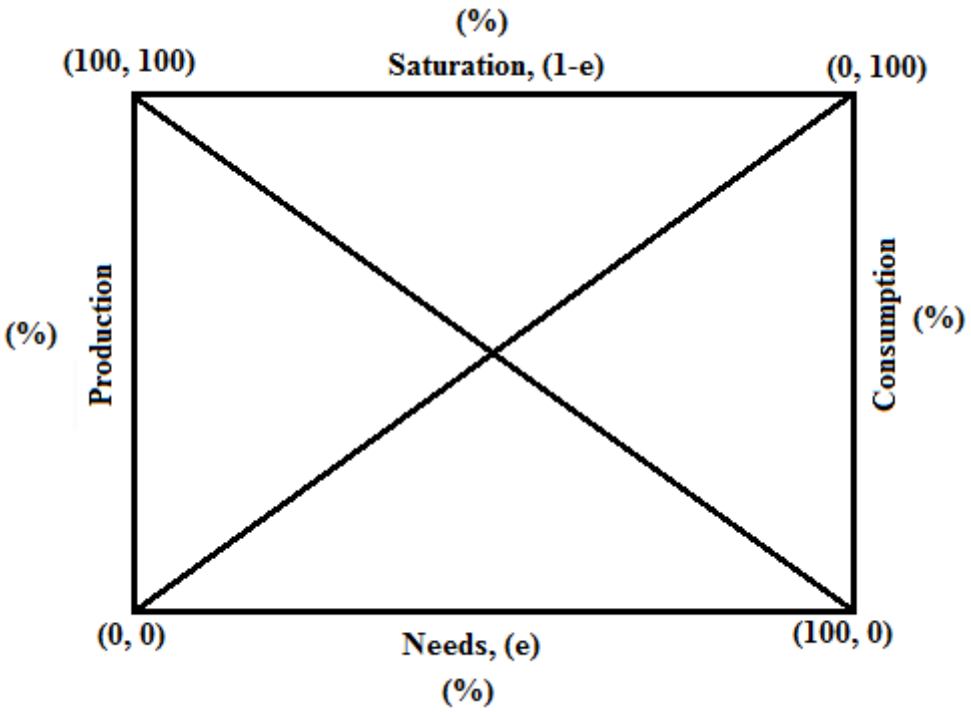

Figure 2. The economic graph of Supply-Demand (%) according to our theory [3].

Inflation, most notably the increase in demand, Depression is defined as a severe recession in production, so we can define Inflation-Recession index (β) by the following equation;

$$\beta = f(e) \tag{3}$$

$$\beta = \frac{\alpha.e}{\alpha(1-e)} \tag{4}$$

If;

β> 1; it implies inflation,
β< 1; it implies recession,
β= 1; it implies steady (stability).

Our theory introduced the following factors as the main causes of capital growth according to economic cycle (Equation 5): Consumption index (α), capital (C), and phase (φ) (or time evolution (t)) which depends the Inflation-Recession index (β) as a function of

time (t) and Value Added index (γ) as a function of geography (Y). The most determining factor for the credibility of economic cycle is its ability to contain all the characteristics and indices contributing to this phenomenon as illustrates (Equation 5);

$$C = \alpha . e^{i\varphi} = e^{i(\beta . t + \gamma . Y)} \quad (5)$$

In order to carry more than one value and indices to represent the economic cycle, we used the complex number to explain the characteristics of capital growth. It means that that the change in the value (C) involves by time evolution (t). So here we can conclude that the capital has a certain age, which we named the "capital's age/ age of capital";

$$\varphi(Y,\ t) = [0 \sim 2\pi] \quad (6)$$

We can simply conclude that the final state equals the initial state multiply by the value added (γ) (Equation 7);

$$\varphi(Y1,\ t1) = \varphi(Y0,\ t0) . \gamma \quad (7)$$

In the result; the article proposes a new concept in economic engineering by unifying Marxist and Smithian economics through a coordinate system. The economic cycle is represented by three dimensions: 'H' for Marxist theory, 'C' for Smithian theory, and 'T' for time. The coordinate system provides a comprehensive understanding of the interactions between the dimensions and the economic cycle, leading to a more sustainable and inclusive theory. The article introduces a consumption index, inflation-recession index, and value added index, which are linearly dependent on the needs ratio. The theory defines the capital growth through these indexes and time evolution, represented by a complex number that shows the capital's age. The article concludes that a holistic approach to economics is achieved by bringing together the strengths of Marxist and Smithian theories.

3. Conclusion

The new concept of economic engineering discussed in this article provides a new approach to economic theory that seeks to reconcile Marxist and Smithian economics. Our innovative economic matrix model takes into account the main factors that drive the economy. This new model represents a significant contribution to the field of economics and offers a fresh perspective on how to create a sustainable and inclusive economic system. Our findings demonstrate that by combining the strengths of Marxist and Smithian economics, it is possible to address the current economic challenges and provide a roadmap for future economic growth. We hope that our research will inspire further exploration and development of economic engineering as a discipline and contribute to the advancement of economic knowledge.

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