DYNAMIC SYSTEM MODELS TO GLOBAL ECONOMIC AND FINANCIAL SYSTEM

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Abstract: Economic and financial systems impact to society and family throughout the world and causing new consequences and crisis to many different new areas. In the new era, technology and communication link world close together, we find the instabilities and crisis continue happened.

This paper propose a system view and create new dimensions of thinking and models to learn more on global financial market and economic system interactions with a holistic system view. New global economic system takes in global multicultural, value systems in competing for the global markets now. We need to search global economic system and global sustainable development and to foster better future and finding true value and meaning from global perspective.

Key words: Large Scale System Simulation, Economic System Analysis, Global Sustainable Development

INTRODUCTION

New global economic and capital system are under stress and stiff competition for chasing profit around the world, most manufacturing and supply chain system shifting to developing and Asian countries like China, India and Taiwan and Korea…etc. Developed countries tend to have more people in service system such as, financial system create investment products, mutual fund products, various types of insurance products. They are flourished in past few year. Many developing counties are selling such products oversea and make profit back to developed countries. As recent global financial crisis broke out, world economic, financial market, banking system, manufacturing system, housing market, unemployment rate hikes, all faces great difficulties and challenges. (2) (3)

In an economic system composed production and service systems. In production system and manufacturing sectors it takes high capital intensive investment, requires time and inventory to complete sells. And service system such as: banking and insurance companies not capital intensive, they produce profit through complete selling contracts. Financial service and products is low capital investment and high selling skill with no inventory and can create big market if they can convince customers that they are working for them and helping them make money for their money. Once a customer is convinced and their sell is completed. They can create great value by people accepting it. The value of a stock could range from $200 per share to $ 2 per share in a very short time. Stock index could drop 1000 points a day, or up $500 the next days. The fluctuation of the world stock markets it does making a great impact to the wealth and buying power of general public. In general economic theory seldom dealing with such a problem to the world economic and possible crisis to the shifts and imbalance of the value creating process under these two systems (product vs. service).

Manufacturing industries makes products which meet our daily needs and/or luxury demand. It takes time, material, labor and equipment and technology to accomplish the task and under a great competition which could drop out the business. On the other hand, financial service industries make money through financial products such as stocks, options, futures, insurance contracts, papers to make the sells. With very volatile in stock markets, wealth and buying power can change over night or in a very short period time either gaining or bankrupt. Psychological behavior plays a very important part of a decision and its outcome especially in financial markets. In the new era, we new to rethink many philosophy of business in the past, that primary goal of business is making profit, and competition is only way of making progress. As we are facing the new global financial crisis and understanding global future sustainable development, new researches are called for more holistic view to the future.

ROLE OF DEMAND, SUPPLY, PRICE, AND QUANTITIE IN ECONOMIC THEORY

The capital fund system can transfer funds in the blink of an eye halfway around the world and cause multiple impacts to global financial market and shaking global economic system as well. One the other hand the demand and supply system need more time to meet price and quantities changes and create stress and imbalance adjustment through reduce production and lay off employees . The natural of economic event can be seen in Figure 1, where value realization is through supply and demand conditions to improve the quality of human life. Factors such as input value and profit margin in corporate sector and private sector of consume value -needs, utility and capability are all very important to flow smoothly into carry out this economic event. Pricing factor and other exchange rate also have major impact globally as we looking at a global system

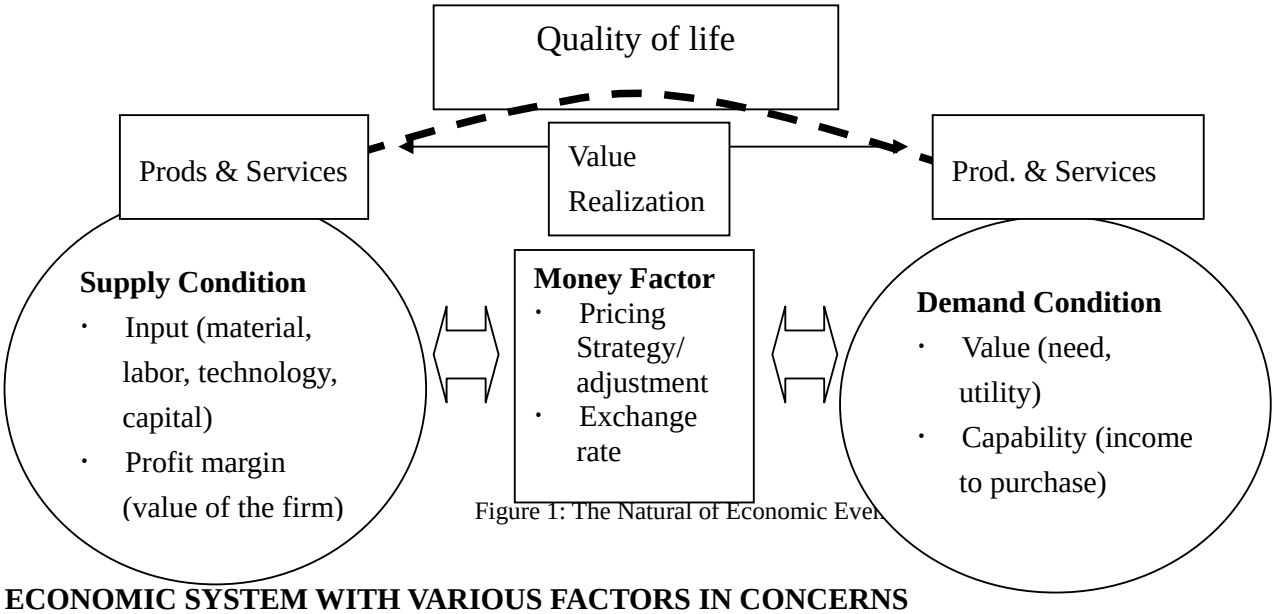
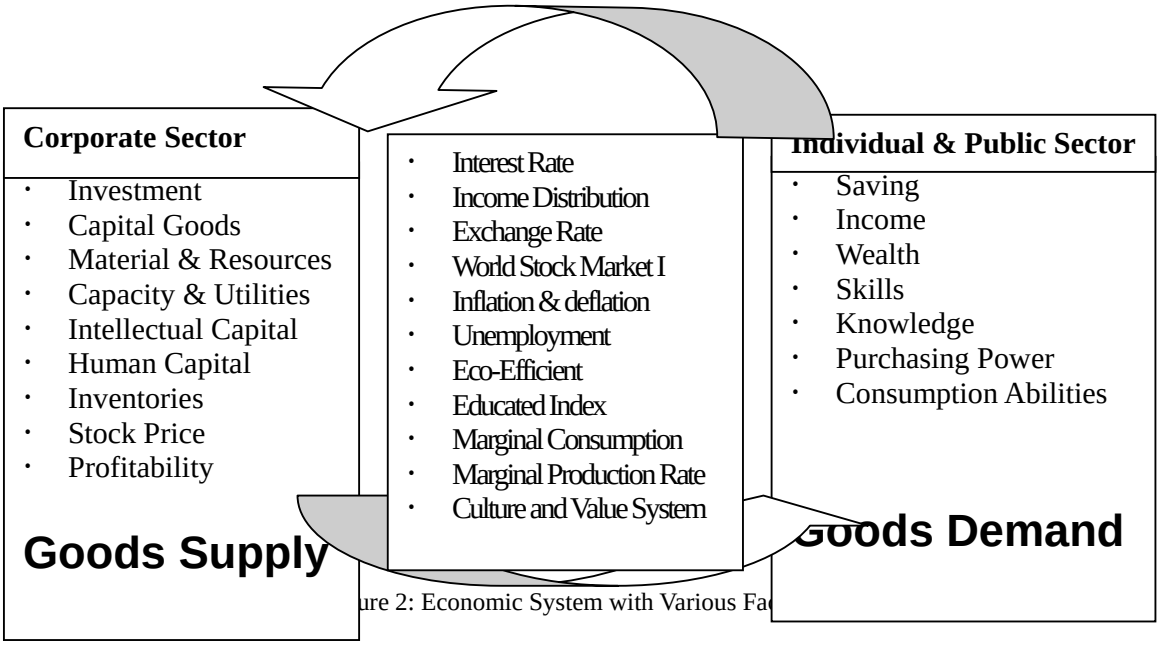


Figure 1: The Natural of Economic Even

ECONOMIC SYSTEM WITH VARIOUS FACTORS IN CONCERNS

In an economic system composed corporate sector and private sectors, corporate sector is the supply side and private sector is the demand side. The linkage between two sectors has public policies, international affairs, society value system and motive, intrinsic value and extrinsic value…etc. as shown in Figure 2.



ure 2: Economic System with Various Fa

MARGINAL CONSUMPTION AND SUPPLY ANALYSIS DIAGRAM

Marginal productivity can continue increase with the technology improvement. Companies have experienced over supply and eventually build up the problem in the past decade. Firm manufacturing strategy has changed from push system to pull system to avoid excess inventory build up. Income, utility and demand become the major factors to determine the production output.

In economic system, which serves as supply and demand, and exchange functions are constrain by the income and utilities from the consumers. If we look at the marginal consumption function per capita, we find that there has narrow range of consumption per capita per unit of time.

For example, consumption for food per person per day is limited to very narrow finite range. And the marginal utilities of consumption food have stippled decade function. As Figure 3 showed, marginal consumption utilities reduce at the A point where price, utility and efficiency determining the value. As the utilities drop to B point, marginal supply efficiency creates the zero value.

Therefore, it is important in economic system which is serve the supply side by producing products to the people, on the demand side at the right price they can afford from their income and maximize utilities.

Currently, marginal consumption rate and marginal production capability are extreme different from past, one can see (technology, communication, computer capability and network shows significant pattern changes on supply, demand, production and consumption behavior. Consumption per person per unit of time has concave function and not changes much, which has a very limit range. World businesses competitiveness makes supply side saturate very quickly. Downsizing or idle capacities, cut down work force, unemployment, business failure, creates cyclical effect and reduce demand and consumptions. See Figure 3 for detail as time zone move to the future which creates economic stress and corporate crisis.

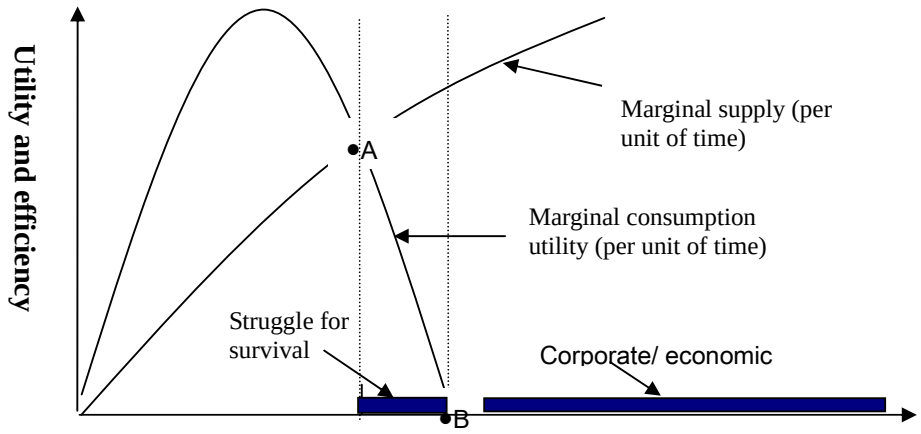


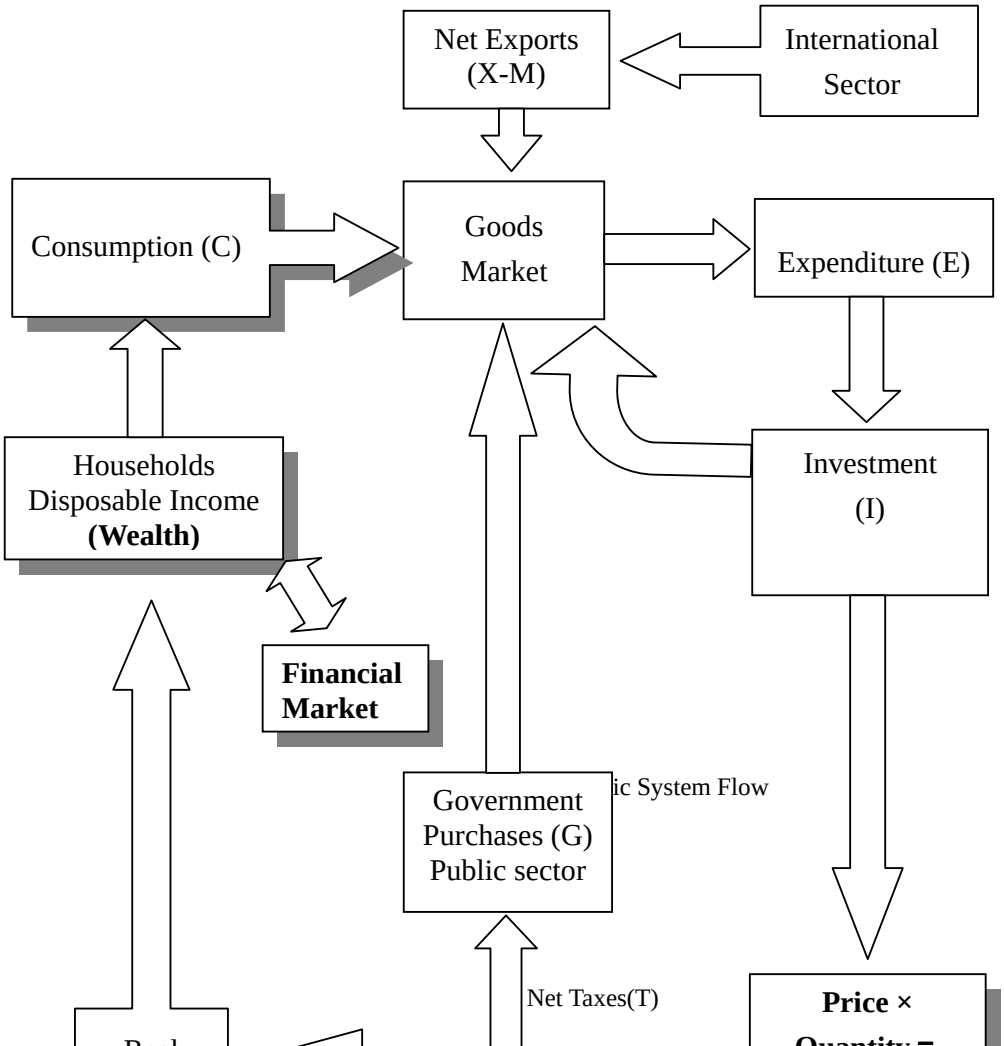
Figure 5: Value- Price and Utilities

Figure 3 Value- Price and Utilities (5)

DYNAMIC ECONOMIC SYSTEM FLOW

A general economic system flow includes many factors: goods services, input costs, profit or loss, international trade (import and export) industrial productivity, output quantities, pricing level, employment rate, households' disposable income, capital expenditure and financial market (stock market index), wealth, expectation, consumption pattern etc.

Our model composes of corporate sectors and public sectors which linking by financial market to make fund flow from public to business. (Figure 4, Dynamic Economic System Flow).



We could search into detail factors which embedded in global economic system, such as natural resources consumption in the production process, and global competition and effect of global financial markets index role to demand, supply, and production and consumption impact. On the other side, financial products and global investment industries and fund managers impact to financial market instabilities and volatility. Technological and computer capability, communication, have made the world information and financial exchange in the spilt of second and value of a stock or money market fund could change billions of dollars in a matter of few second or couple of days throughout the world financial industries, it could cause tremendously disturbance to the global economic system. These are little study to this area before, in order to understand how global financial crisis happen.

We have many critical issues unsolved in today's world. There are several major dimensions found imbalance such as technology, ecology and wealth (see Figure 5).

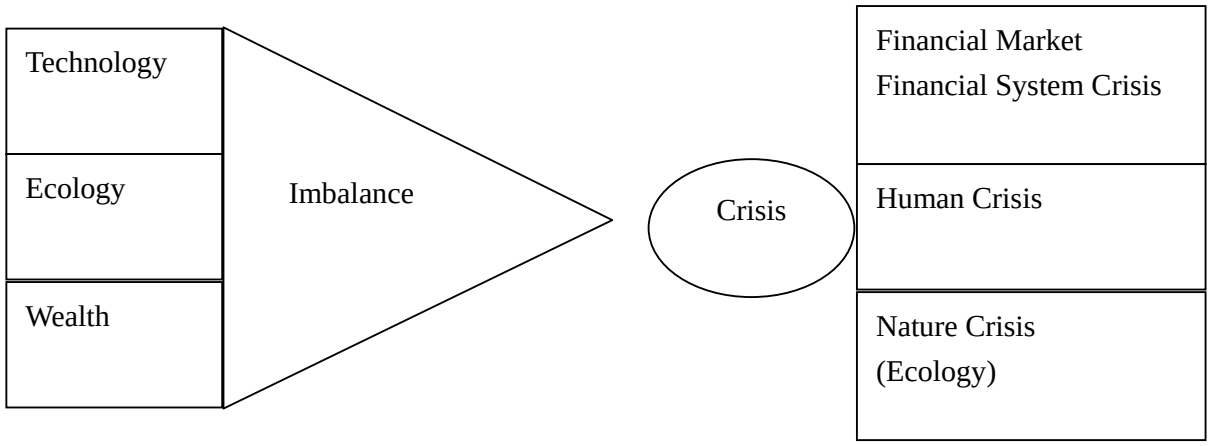


Figure 5: The Relationship between Imbalance and Crisis

MODELS PROPOSED

As the country more developed the majority of people will shift to service sector such as banking and selling, create financial innovated products to public…etc. So far we seldom calculate the effect of stock market index changes throughout the world and its impact to the economic system especially those innovated financial products.

1. To build the fundamental economic system from its parts to whole system in order to see the dynamic economic system function and will be able to use simulation method to see how system behave under different condition or inputs and can be used as monitor system for policy making and understanding the status, state, consequence to on going development (1)(4).

2. Examine how its parts relate to the system performance and outcome. Mathematic model will be use to describe the system relationship among each parts. Statistical goodness of fit to capture subsystem behavior in the past and parameters impacts to system shocks. Understanding system parameter and model building could help achieved global sustainable development continue retrace back down how economic system behavior response to each state (Production side vs. Service side) (Demand vs. Supply) ….etc. at different state.

3. Understanding financial market role in economic system before it breaks down in new era where global is link closely together. Using Closed System from global market to see the entire financial product and financial market how they actually effect global monetary system. With some suggestion of Queuing Network may be able to see global economic system performance behavior and closely control monetary flow policy.

4. Examine the monetary flow through the economic system; we can use the control theory or perturbation analysis to see the system outcome with respect to monetary flow quantity and required buffers through each parts and stations in the global financial economic system. International Monetary Fund serves global financial system well in the past, but, with recent globalization and innovated financial products and more global participants or individuals, it drastic changes the traditional patterns.

CONCLUSIONS

In this rapidly changing world technology, ecology, and value system and wealth distribution creates many shocks in global economic and financial market systems and world economy facing great challenges as we experienced in recent months.

Global transitions carry new issues in concern in global economy and global financial market and business sustainable development. In this rapidly changing world technology, ecology, and value system and wealth distribution creates many shocks in financial market and world economy recently. A new dimension of thinking and modeling are calling for finding new ways for global financial market and economic system, to revive business communities, government public policy for welfare of the general public and private citizen.(5) (6).

Environmental impact and global warming are also new issues that business needs to deal with how effectively they use the resource to produce the product. Environmental foot print will capture new attention for further development in business.

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