'Binary' Entrepreneurs, 'Digital' Macroeconomics and the 'Virtual World'

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Abstract
This paper examines fundamental concepts of entrepreneurship and macroeconomics in the age the virtual world as digital socio-economics takes center stage. A model is developed and advanced. It argues that the virtual world system equilibrium will require certain physical and virtual conditions to obtain the ideal socio-economic system parameters. Furthermore, it alludes that e-resources, human capital, e-material and e-financial resources gained by prudence, is the exact extent to which the entire ecosystem can will expand without crisis, disruptions and breakdowns. This virtual world in which humans will soon populate will be predesigned with built-in macroeconomic shock-absorbing sub-systems to ensure prosperity.
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1. Introduction

Traditionally, the specific objective of global macroeconomics and microeconomics (GM^2) as described by the Keynes (1936); Luzzetti and Ohanian (2010); and Eke (2020) as the body of knowledge devoted to continuous study of global income, gross domestic product (GDP), global inflation, global unemployment, savings, and investments on the global economy so as to achieve pro-poor growth based on certain assumptions or conditions: (i) Scarcity, (ii) limited, nonrenewable or finite resources, and (iii) globally rational human behavior. These conditions led to views of GM^2 either as "chaotic" or pockets of rationality that can self-adjust, (Ohanian 2009, and Magaji & Eke 2015). Subsequently, it was realized that the GM^2, much as a chaotic system, is simply an agglomeration of human decisions and consequences within a pre-defined and dynamic socio-economic construct, who in interacting within their ecosystems lead to sometimes reversible and other times irreversible consequences that come with huge human capital cost, (Cole & Ohanian, 2004 and Gordon 2009). Millions of researchers and publications through the centuries have led to series of important concepts in global micro and macroeconomics with regards to four interdependent sectors: household, government, firm, and demand-supply. The idea that the GM^2 self-adjusts with minimal government involvement is irrefutable. Eke (2018) observed that the GM^2 could lift 70% of the world's population out of poverty with optimally packaged and well implemented system of policies without frictions occasioned by lobby groups. John Maynard Keynes and the army of post and or neo-Keynesians to the alternative view of living and organic economies with pockets of rationality that can help self-adjust with minimal government involvement and be used to power mass pro-poor empowerment programs. This particular theory of GM^2 was shaped after the publication of *The General Theory of Employment, Interest and Money* published in 1936 and since then it has permeated, for 86 years. Some policy designs are packaged such as economic incentives (EIs) and or with government interventions (GIs), which were identified as primary growth boosters for GM^2s.

Entrepreneurs are catalysts in a typical economy, they energize it by offering innovations, and thus creating jobs, which implies that their economic vitality, over time, provides proof that they utilize the various EIs and GIs to generate employment, (Barrdear & Kumhof 2016). The relationship between entrepreneurs and GM^2s is a direct proportionality, spurred on by mass adoption of innovations, (Fegatelli 2022). However, Göpel (2016), Teece (2017), CEPAL (2002) opined that since the theoretical formulation of 'digital' macroeconomics and the reinforcement of human rationality, every effort to find a specific theoretical mechanism able to efficiently align globally acceptable macroeconomic principles with virtual world, VW, realities as with the physical world, PW, realities vinified by the implausibility of their actual realization in 2-dimensional theory framework of macroeconomics. An example is the scarcity process, deep rooted in economic theory as a core pillar was shown by the authors to physically not be compatible with the realities of the VW as known today on the ground of traditional macroeconomic considerations. Indeed, a new system of macroeconomics and microeconomics that is consistent with the framework of the digital world is needed.

We are proposing a GM^2 that is compatible with infinite resource quotient (in the VW-GM^2 domain) by simple creation of algorithmic constructs that defines these VWs, which efficiently adapts the Schumpeterian cyclical economic trends inherent in the Keynesian system of macroeconomics via a novel adoption of limitless expansion process occurring in a typical VW economy. We will recommend an entrepreneur-model based on a 'binary-driven' VW (BdVW) scenario, which proportioned us to argue that for such a socio-economic mechanism to have a Keynesian framework, fully controlled algorithm, guaranteeing a level playing field, it can be shown that the same mechanism, duly extrapolated to the PW's GM^2, works as well in a system where mass adoption of innovation can be a copious source of very high economic growth rates. We submit in this paper some ideas as regards VW's 'binary' entrepreneurs and innovations and how it paves the way to a still novel view of VWs as forever expanding e-resource-rich ecosystems that support life and a virile economy as in the PW.

2. Economics of the 'Binary-driven' entrepreneurs, BdEs

Let us start by briefly adapting Kieron (2021), Boutillier (2021) and Munasinghe (2019)'s idea of an economics of the 'BdE' as content creators, ecosystem managers and socio-economic designers as engineers, psychologists and economists. The 'BdE' system proposes the entrepreneur with binary features infused in the VW macroeconomic algorithm design. The seeming collapse of the traditional economic principles makes way for the creation of an epicenter and expels the inefficiencies of the traditional system. We have called these new breed entrepreneurs BdE type I (BdE I) equipped with the knowledge of software engineering, politics, psychology and economics. A macroeconomic construct simulation in 1, 2 or 3-dimensional economic scenarios can be performed and will confirm the existence of the above succession of physical events, (Earl 2003, Becker & Knudsen 2003 and Blind 2017)

Since BdE-I keeps innovating in spite of the positive or negative direction of the economy's growth, it naturally creates a digital socio-economic ecosystem for more 'binary' entrepreneurs (Zulvia & Adrian, 2018). But not all 'BdE' entrepreneurs may perform optimally, (The Entrepreneur, 1993 & 2016). In fact, 'binary' entrepreneurs with larger pools of funds within the constraints of algorithms design or e-policy, may outperformance others in terms of deployment of enterprise input however may fail in their conversation rate[1] The natural outcome is a typical BdE type II which is another class of entrepreneurs further creating and releasing phases of innovative products and services (Reuter, 2020) thus leading to a proliferation of 'binary driven' entrepreneurs. Even lesser funded BdEs may encourage more - we call them BdE III. The hypothetical understanding of BdEs I, II and III has allowed us to distinguish their relevant physical processes in the observational data for long **BdEs[2].** The traditional creation of the entrepreneurial class **as** observed by Joseph Schumpeter in Schumpeter (2005) and Kuznet (1953), is characterized by an increasing and or decreasing intensity referred to as a business cycle theory, originates from the inefficiencies occasioned by traditional socio-economic construct, (CEPAL, 1949 and World Trade Report, 2021). This analysis of business cycles, as characterized is also well fitted into mainstream economic analysis of this physical world but may be deeply flawed or inapplicable in the virtual world designed by default to operate within the algorithmic confines as specified by the reality construct of the team of software psycho-engineer-entrepreneurs - PEE. The VW economic construct induces a near perfect - full employment economic system – a scenario that a typical market economy fails to attain. UN (2021), Schwab (2016) and OECD (2012) stressed that an effective demand created is directly proportional to the size the virtual world economy by default. For instance, the number of 'binary driven' entrepreneurs, economically active members of society that can be increased is set by the algorithmic construct. The maximum possible number of 'binary' entrepreneurs per time is set by default.

Unlike the real world, RW, where this is restricted purely by policy, in VW, it is restricted purely by design. Therefore, the e-natural 'BdE' and VW growth rate will evolve in a sequence of "elementary processes", each maximizing the well-defined, precise socio-economic space. As an example, we note that for a typically designed socio-economic ecosystem to support a well specified population with its predetermined e-natural growth rate, with algorithmically determined human capital, e-financial and e-material resources required per time, each can be scaled up to allow the macroeconomic system achieve equilibrium (Eke, 2020; Vymetal, Hunka, Hucka, & Kasik, 2010; and ERIC, 1969). Indeed, in a typical timescale only a small fraction of this set target may be achievable. Therefore, this process must occur over and over all the way to the resolvable macroeconomic limits or constraints. In fact, a VW macroeconomic system should not spin off crisis if the algorithms constraints are not stretched. The extent to which this e-resources, human capital, e-material and e-financial resources is gained by prudence, is the exact extent to which the entire ecosystem can will expand without crisis, disruptions and breakdowns. Based on the socio-economic system construct, the optimization of

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[1] This is the rate at which binary entrepreneurs convert inputs to output to final sales
[2] Detailed per time analysis of the BdE trend curves can reveal the separate their roles, creation space, and of the new-breed BdEs class of entrepreneurs.

this newly created spaces will directly be related to the algorithm design. For instance, in the case of VW supporting 100 million active economic agents with their predetermined dependents, e-resource pool generated can be investigated so as to automatic provide a typical socio-economic matrix construct with its specifications to support additional market or pool binary driven entrepreneurs. Inferring that VW system equilibrium will require certain physical and virtual conditions to obtain the ideal VW socio-economic system parameters (D'Odorico, Dalin, Dell'Angelo, & Konar, 2019; Kurz, & Salvadori, 2018 and Eke 2016). Some conditions are as follows: (1) the resources statistics; (2) the system is transparent to all economic agents; (3) the e-resource consumption rate and replenishment timescale explains the observed e-natural growth rate timescale.

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