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Economics of Block Chain and the Money Market Equilibrium

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Abstract

The overwhelming public response towards the crypto currencies like Bitcoin, Ethorium has gained serious attention among the researchers and policy makers around the various countries. The rationale behind the claim of dis-intermediary of financial system and the low transaction cost effective nature coupled with the absence of the agency problems in the financial market creates an illusion among public to take part and attempt to speculate in it.

The reviews of literature on the themes of the economics of the block chain technology used in the cryptos shows that there are high degree of uncertainties of the nature and the impact it create due to the absence regulations both partial and absolute terms on the one hand, the absence of theoretical, empirical, conceptual an methodological clarity from the economic theories on the other hand calls for an enquiry into the crypto's usefulness at the gross root levels for which this present attempt is made.

Using a set of realistic assumptions a conceptual framework is prepared and the future of the money market equilibrium is predicted. In the lights of the changes in the money market equilibrium with response to the changes in the crypto currencies it is found that in the long run there will be negative impact on the economy certainly which leads to the collapse the global economics if it is unnoticed to implement necessary policy adjustments at the national and global levels collectively.

Keywords: Block chain economics, Crypto Currency, Money Market Equilibrium

JEL Classifications: G15, G28, G32, E42, E51, E58, F30 and L51

Department of Humanities and Social Sciences- Policy Brief -No.5 /Nov-2021**1. Introduction and Rationale**

A crypto currency is a collection of data which is designed in a way to work as a medium of exchange using the block chain technology. Individual share of coin and their ownership records are stored in a decentralized ledger, which is a computerized database using strong cryptography to secure transaction records, to control the creation of additional coins, and to verify the transfer of coin and ownership over the period on real time basis. Crypto currencies are generally fiat currencies, as they are not backed by or convertible into a commodity and or the currencies of any kind but can be traded like the shares. These crypto currencies have been gaining the attention of public and the government worldwide.

The rationale behind the claim of dis-intermediary of financial system and the low transaction cost effective nature coupled with the absence of the agency problems in the financial market creates an illusion among public to take part and attempt to speculate in it.

The reviews of literature on the themes of the economics of the block chain technology used in the cryptos shows that there are high degree of uncertainties of the nature and the impact it create due to the absence regulations both partial and absolute terms on the one hand, the absence of theoretical, empirical, conceptual an methodological clarity from the economic theories on the other hand calls for an enquiry into the crypto's usefulness at the gross root levels for which this present attempt is made.

Consolidated Reviews

The reason for the proving a consolidated review will help to understand the framework of the present study which classifies the crypto currencies technology into three types on the basis of the regulatory aspect as classified by Joseph Abadi Markus Brunnermeier (2018).

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First a free block chain, which use a single centralized entity with a complete control over what is written on the ledger with a only one record-keeper and no need for identity management with a private block chain, since only one entity is permitted to write on the ledger. Therefore no computational costs.

Second a permission block chain in which the ledgers write privilege is granted not to one entity, but to a consortium of entities. These entities govern the policies of the block chain and are the only ones permitted to propagate and verify transactions. The third is a public block chain in which, both the read and write privileges are completely unrestricted and anyone can take in part of the transactions in the crypto currencies.

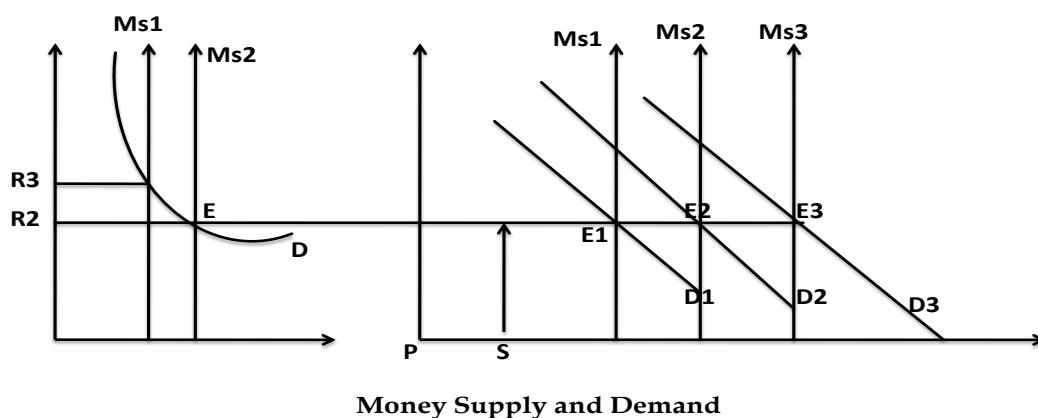
Similarly various scholars have shed light on the various aspect of the block chain technology. For example the the impact of the disintermediation of the financial policies (Christian Catalini Joshua S. Gans 2019 and Kaili, E., & Psarrakis, D. 2021), the smart contract and decentralized applications of the crypto currencies (Lantz, L., & Cawrey, D. 2020), the integrated analysis of mathematics, economnics and technology (Lipton, A., & Treccani, 2021), the predictions of the possibilities of the international monopoly in the block chain (McFarland, E. (2021), the analysis of the future of blaockchain and the end of the bit coin Mehta, N., Agashe, A., & Detroja, P. 2019), the way through which the network is created by the bit coin and the markets influence , the impact on technology and business (Swan, M., Potts, J., & Takagi, S. 2019), the cahklanges that created by the crypos for the global economics orders (Vigna, P., & Casey, M. J. 2016), the way in which economics, technology and the businesses are going to be related with each other due to the presence of the block chain technology Warburg, B., Serres, T., & Wagner, B. 2019) and how long it will take to completely occupy the entire world (Marco Iansiti and karim R Lakhani 2017) are the notable few literature which are attempted with greater impact. But these research works are attempted with little or no weightings to prove future of the world economy either using the numerical data or by using any other mode of acceptance. Hence this paper is attempted to highlight the impact of the block chain in the money market equilibrium in the short and in the long run. For this the following conceptual frame work is used with realistic assumptions.

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Assumptions and Conceptual Framework

1. Complete laissez faire policy in the financial markets of the country
2. The value of money is measured through the interest rate
3. Perfect market characteristic of the crypto currency
4. In the short run banks may be permitted to function with the tiny transactions with minimum rate of interest for the subsistence
5. State has the complete knowledge of supply of money and the demand for it and ignorance about the proportion of money spent on cryptos
6. The money market equilibrium is determined not only by the demand and supply of the money with the interest rate but also by the ratio of crypto currencies in circulation
7. Rate of interest cannot be changed along with supply or the demand of money
8. Government alters the money supply irrespective of the existence of the crypto currencies in circulation
9. Whatever the money is speculated in the form of crypto currency that will be converted back into the fiat by the public. With this realistic assumption the money market equilibrium can be explained through the following diagram.

Block Chain with Money Market Equilibrium & Disequilibrium



General Equilibrium of Money Market

To explain the present and future of block chain on the economy we have classified the analysis using the dual diagram in which the left depicts the general equilibrium of the money market at the intersection of the demand curve D with the money supply curve MS_2 at the rate of interest R_2 in the economy. If the money supply reduces from the MS_2 to MS_1 because of the shortage of money the without changing the demand of it the rate of interest will go up and the new equilibrium of will be installed in the intersection of the demand curve and the new money supply curve MS_1 .

Similarly the money market equilibrium can be established when there is an increase in the money supply beyond the amount of MS_2 and in the same way changes in the demand for money also will shift the money market equilibrium to left when decreases and to the right when it is increases. This is the usual case when we have a central monetary authority to control over the money supply with respect to the demand of the money in the absence of the block chain practices among the public. What will happen to the money market equilibrium when the block chain crypto's enters? Such a situation is depicted in the next diagram.

In the second diagram the same money market equilibrium is depicted with three different time period. For example initially the money market is in equilibrium at E_1 where the supply of money MS_1 and the demand for the money D_1 intersect each other. In the absence of blockchain crypto currency used by the people this equilibrium would be a stable and can change only when the rate of interest changes. Assume that a portion of the public involve in the transaction of crypto currency which cannot be converted into the fiat money as it is not permitted by the government.

For example at the rate of PS amount the money supplied is diverted by the public towards the purchase of Bitcoin and Ethereum or any other forms as the speculator basis which locks the money within the crypto for some time up to which it is recovered back to the cash forms. This becomes a reduction in the legal money supplied for the circulation as a result the demand and supply imbalances will arise. Here in this case the total money supplied by the government is MS_1 which is less than the demand of it D_1 .

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So the available money supply for the circulation is S to $M1$ while PS is spent on the speculative motive for cryptocurrency. This shortage of money will shift the demand for the money artificially into the right to $D2$ and the government will now increase the supply of money equals to the PS which can shift the supply curve to $MS2$ and reach the new equilibrium at D and reduce the rate of interest corresponding to D which is less than the previous interest rate $R2$ may be taken as $R1$ when there is no actual shift in demand and equilibrium will shift to $E2$ if there the demand really shifts and keeps the rate of interest at the same level.

So there are only two possibilities that rate of interest can keep constant or can go down.

This is the case in the short period of time. If more and more people are involved in spending their money on speculation basis successively the demand for money also will keep shifting to the right thereby shifting the new equilibrium to the right when supply increases or shifting on the same demand curve by reducing the rate of interest.

This will continue up to the time where the rate of interest reaches the point of zero after which no formal transactions in the form of central banking can be entertained and the whole monetary and financial system will go beyond the control of the government.

So even if it is the very minimum amount of the participation in the cryptocurrency allowed that would end the entire financial system in the country if it is not observed consciously. The time for the experiencing of the **devastating** effect of the cryptocurrencies will depend upon the quantity or the proportions of the money spent on it and the policy regarding the money supply to counter against it.

Department of Humanities and Social Sciences- Policy Brief -No.5 /Nov-2021**What will happen when the crypto currency converted back into fiat money?**

Suppose that about PS amount of money is used for the transaction of crypto currencies by a tiny proportion of people which can make interlocks the PS amount of money out of circulation. As a result an artificial quasi demand for money will arise and the government also has increased the money supply to compensate the shortage of money required for circulation which is equals to PS.

If the money comes back immediately followed or after the increase of the money supply by the government will take to the situation of supply of money greater than demand when the there is no changes in the actual demand D_1 which reduce the rate of interest to less than R_2 say may be at R_1 or the supply of money would be equals to demand which keeps the same rate of interest at R_2 .

So again there are only two possibilities either interest can keep constant or may go down.

This also can be possible only in short run. If the appreciation of the value of crypto currency goes up successively more and more people will try to make it converted into the fiat money and get profit out of the speculation and the new people also will start entre into the crypto market which leads to the end of the impossibility of be controlling the monetary and the financial system and end in the state failure across the economies which ultimately leaves the global economy into the hands of crypto currency monopolist or to reach the global depression caused by the failure of monetary policies of the central banks round the world.

Conclusion

So what is the solution? First among the three types of block chain the public block chain is theoretically proved as the harmful one to the economy at the global level as it has complete absence of regulatory mechanisms. Governments across the world should prepare combined regulatory mechanisms that can stop the public bock chain activities. The free and permission block chain also has to be allowed only after installing the appropriate monitoring (not regulatory) mechanism on a national specific perspective.

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The impact of block chain technology is very wide and it needs the indepth enquiry into every possible aspect which can provide a road map for the appropriate policies. For example how the block chains creates impacts on the product market and determine the equilibrium, how to achieve simultaneous equilibrium in the products and the money market, how the labor market will change and what levels of impacts it create in various disciplines are also should be studied in indebt manner so that the positive befit of the bock chain can be archived.

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