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Analysis of the Global Universal Digital Currency Issuance Model

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ABSTRACT. *Digital currencies have grown rapidly in recent years, but there is still a lack of a universal digital currency that can be used globally. This paper constructs a digital currency issuance model and analyze this topic from multiple aspects, include individual perspective, national and global perspective. In this paper, supply and demand model, regression model are adopted. Finally, relevant conclusions are put forward.*

KEYWORDS: *Digital currency issuance model; Aupply and demand model; Regression model.*

1. Background

In recent years, the digital currency industry has experienced explosive growth. Digital currency can be used to purchase goods like traditional currency, except that it is represented by numbers, not physical objects. Digital currency users can trade at any time without restrictions from national borders. The cryptocurrency is a form of digital currency that is characterized by privacy, dispersion, security, and encryption. In addition to digital currency and cryptocurrency, there are new digital methods of financial transactions like the p2p payment system. Because this monetary system is not affected by social factors such as banking policies, national boundaries, and citizenship, the speed of digital currency transactions has gradually surpassed cash and check transactions. The digital currency circulation in the world have brought about some benefits and also brought about some problems. A safe and effective digital currency system can eliminate barriers to capital flow, improve market efficiency, and provide a more convenient and efficient form of financial transactions for the world. However, some citizens and economic people believe that their security is difficult to guarantee, and they are prone to bad behavior such as illegal transactions. Therefore, it is very important to study a reasonable and effective digital currency financial system model.

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2. Analysis the digital currency issuance model

2.1 Individual perspective

Studying the Digital Currency Issuance Model from a personal perspective.Think of the digital currency as a commodity, discuss what factors have led to the growth of the number of digital currencies, and introduce a supply demand model in economics.

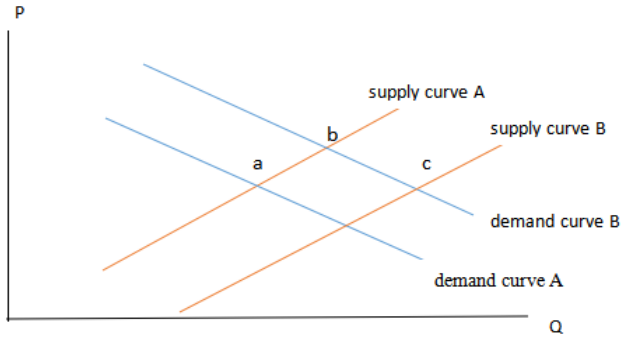

Figure.1 Supply demand curve

When the digital currency first appeared, the demand for digital currency was relatively small due to the small number of contacts and the lack of popularization. The equilibrium point at this time is the point a in the figure. which is the intersection of the demand curve a and the supply curve A. With the further popularity of digital currency, more and more groups are beginning to contact and use digital currency, the demand curve is moved from the demand curve A in the figure to the demand curve B, and the intersection of the demand curve and the supply curve is the point b in the figure. The price of digital currency has risen. In order to maintain the stability of digital currency prices, it is necessary to increase the supply of digital currency. Therefore, the supply demand is shifted from the supply curve A in the figure to the supply curve B, and the equilibrium point at this time is the point c in the figure, c point relative to point a, the number of digital currencies has increased. This is also in line with the theory of demand creation supply that the Keynesian school believes. So it is concluded that the main factor affecting the growth of digital currency in the personal group is the individual's demand for digital currency.

2.2 National and Global perspective

Considering factors affecting digital currency growth within the framework of the model from a national and global perspective.

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Digital currency adopts peer-to-peer trading, which has the characteristics of decentralization, anonymity, deflation, world currency, security, etc., and is sought after by people. Its issuance does not depend on the central bank, there is no central server and regulators, its operation is based on all participants, can significantly increase the level of capital flows in the underdeveloped areas of the financial industry, and promote economic development. Anonymity helps protect privacy. Based on numerous advantages, countries around the world are increasingly aware of the potential and bright future of digital currency.

Due to the gap between economic development level and science and technology, countries' attitudes toward digital currency, especially bitcoin, are very different. We selected several comparatively representative countries for research and analysis, which are the United States, Japan, Germany, India, and Canada. By collecting and collating data from recent decades, we have analyzed the number of digital currencies in different countries in recent years and obtained the following rules:

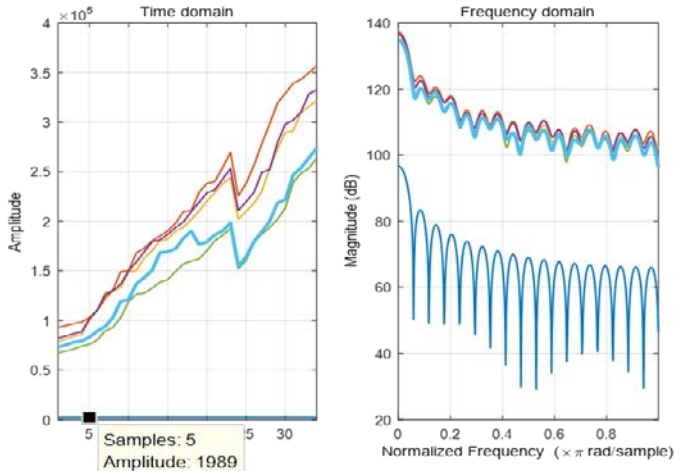

Figure.2 Changes in the number of digital currencies representing countries

From the graph on the left side of the above figure, we can see that with the progress and changes of the times, countries are very optimistic about the digital currency, and the volume of digital currency transactions in various countries has gradually increased. The sharp drop in the middle was due to the global financial crisis of 2008, which was caused by the global financial crisis caused by the US subprime mortgage crisis. The global economic index is rapidly deteriorating and the society is generally depressed, so the digital currency also fluctuates wildly. After the economy slowly improved, the digital currency ushered in the spring.

It can be seen from the graph on the right side of the above figure that the entire digital currency financial system is marginally decreasing. Over time, the growth rate and frequency of digital currencies are constantly decreasing. With the driving of people's pursuit of psychology, digital currency, especially bitcoin, has occupied a

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place in the economic market and platform.

The United States has always been the global economic hegemon, and the technology economy is among the best in the world. US GDP has always been the first in the world. Sound social welfare facilities and excellent humanistic environment make this country more attractive to immigrants and drive the development of the United States. Americans are better at accepting new things and challenges, and are looking forward to and yearning for digital currencies. The following table is drawn from data analysis:

Table1 Data description on behalf of the country

countries	The minimum value	The maximum value	Partial degrees		kurtosis	
	statistical	statistical	statistical	Standard error	statistical	Standard error
US	92819	356890	.182	.403	-1.020	.788
Japan	78291	321837	.062	.403	-.830	.788
Germany	82039	332818	.043	.403	-.853	.788
India	67281	263784	.195	.403	-.706	.788
Canada	73021	273891	.036	.403	-.695	.788

It can be seen from the above table that maximum and minimum value of the United States is the highest, and the development of digital currency in Japan and Germany is relatively prosperous, while the status of digital currency in India and Canada needs to be further emphasized and strengthened.It can be seen from the table that the statistical kurtosis and skewness of each country are less than 0.8, and the clustering inter-group connection and Pearson correlation test are strictly passed, which proves the correctness of the data of the representative country we selected.

The following is a more in-depth study of the digital currency situation in the United States, using software to understand the situation below.

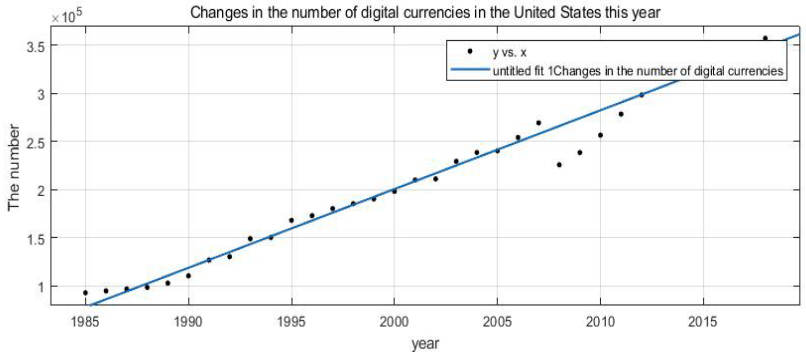

Figure.3 The U.S. digital currency has changed in recent years

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The data regression fits the records of the United States in recent decades is a linear increase,and the relationship between the variables is calculated by matlab: $Y = f(t) = p_1 \times t + p_2$, p_1=8171, $p_2 = -1.614e+07$

The entire data processing process has a confidence interval of 98%, which indicates that the sample statistic has completely coincided with the overall parameter estimation interval, and also reflects the rigor and scientificity of our argument.

From the above analysis, we can conclude that the main factors affecting the growth of global digital currency is the development of the economy. A major factor affecting the growth of digital currencies in the country is the economic and social situation of the country.

2.3 Results and Analysis of the Result

Through the establishment of the above model, we conclude that the main factor affecting the growth of digital currency at the individual level is the level of personal demand for digital currency. The main factors affecting the growth of digital currency at the national level are the economic and social conditions of the country. The main factor affecting the growth of digital currencies at the global level is the global economic situation.

In this digital currency issuance model, we collected the data of digital currency in the United States and some countries in recent years, after analyzing the data, and constructed a mathematical model of digital currency growth over time to analyze a change in the growth of digital currency at the national and global levels. At the same time, using the model of supply demand and the idea of Keynesian demand create supply, the paper analyzes the impact of major factors at the individual, national and global levels on the growth of digital currency. The results were tested and the model was constructed with rigorous science.

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