A Kind of Neither Keynesian Nor Neoclassical Model (9): Equilibrium Between Quantity and Quality of Resources Utilization

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Abstract

Inflation has the dual role of reflecting changes in the amount of resources utilization and predicting currency depreciation. Deflation is a typical manifestation of insufficient resources utilization. Compared with monetary policy alone, fiscal policy is more conducive to improving the level of economic resources utilization in quantity before the quantity and quality of resources utilization are not balanced. A money supply method that is conducive to economic operation to get rid of the liquidity trap state is to clarify the newly added currency of the central bank as a coinage tax and hand it over to Treasury for use. It can manage the insufficient quantity of resource utilization caused by excessive loose monetary policy without affecting the market allocation of resource utilization. This way of integrating monetary policy into fiscal policy or integrating fiscal policy into monetary policy, although there is a risk of triggering "currency inflation", it can be controlled within the level of people's willingness to accept under the scientific control mechanism. This paper envisages the specific operation of this "monetary fiscal policy" or "fiscal monetary policy".

Keywords

Quantity of Resource Utilization, Quality of Resource Utilization, Inflation, Fiscal Policy, Monetary Policy

1. Introduction

Since the widespread use of Keynes theory in the 1960s caused the economic stagnation in the 1970s, governments have begun to be cautious about fiscal policy. Under the constraints of the fiscal deficit rate, EU member states are now almost unable to use their active fiscal policies to stimulate their economies. If the quantitatively loose euro policy has not been effective for a long time, member states may pin their last hopes on their own fiscal policies. However, it can be seen from the equilibrium equation $AS = AD = Y = (C_a + I + G)/(1 - c)$ derived from the demand equation $AD = C + G + I$ of Keynes theory and the consumption function $C = C_a + cY$ [1]. The reason for the multiplier effect of government expenditure in fiscal policy is that government expenditure is equivalent to investment I rather than consumption C. The problem is, the same car, why does the government purchase a multiplier effect, and residents do not have it? In addition, if the investment in $Y = (C_a + I + G)/(1 - c)$ has a multiple income effect higher than consumption, then less consumption and more investment is a shortcut to improve output levels, but this will cause the multiplier $1/(1 - c)$ in the equilibrium output $Y = (C_a + I + G)/(1 - c)$ to become smaller ($c = 0$, $1/(1 - c) = 1$). Therefore, the so-called multiplier of $1/(1 - c)$ as government expenditure G is logically contradictory.

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2. Decisions on Investment and Consumption

In the US statistics, the C/Y ratio of household consumption C in GDP has been increasing since 1970, while the trend of total investment-output ratio I_g/Y is decreasing. It can also be seen from Figure 1 that in most cases, the short term fluctuation of the consumption-output ratio C/Y is in the same direction as that of the government expenditure-output ratio G/Y, while the investment-output ratio I_g/Y is in the opposite direction.

Moreover, in the nearly 40 years from 1970 to 2017, the consumption-output ratio of C/Y increases with the increase of output Y, instead of decreasing in the growth of output Y as predicted by Keynes theory. The downward trend of total Investment-Output ratio I_g/Y after 2000 shows that investment decreases with the decrease of interest rate, which is not what the traditional theory says: the lower the interest rate, the greater the investment. If depreciation D/Y is

excluded from total investment, the trend of net investment-output ratio I/Y and interest rate r is almost identical, as shown in Figure 2.

We have inferred from the basic equation $\Delta Y = rY$: "The marginal state of capital determines output growth, and output growth determines investment, and at the same time determines the distribution of investment and consumption in total output" [2]. Since the macro interest rate r is a reflection of the marginal return of capital, the net investment-output ratio I/Y is closely related to the interest rate r, but not the smaller the r, the larger the I/Y. The net investment-output ratio I/Y is determined by the investment equation $I/Y = r(1-r)$ [2]. If depreciation D/Y is added, the total investment-output ratio is $I_g/Y = r(1-r) + D/Y$. This parabolic function shows that when the interest rate r is small ($r < 0.5$), I_g/Y and r are in the same direction. This speculation can be demonstrated using statistical data, as shown in Figure 3.
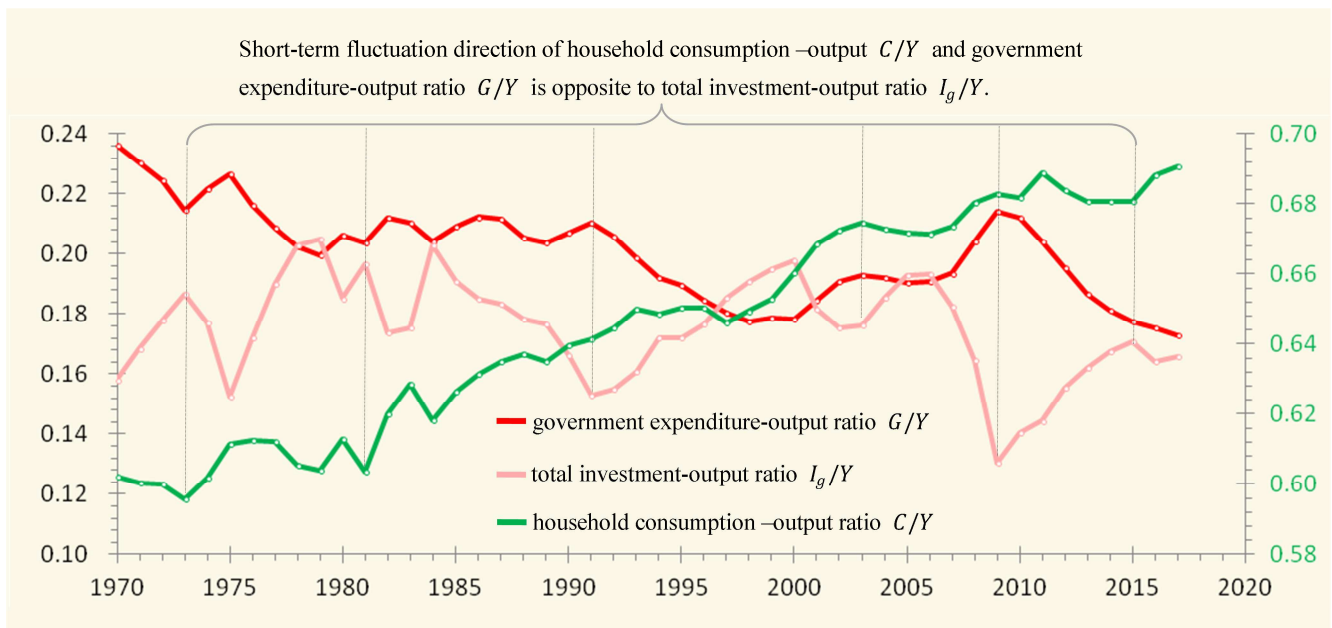

Figure 1. Trends and short-term fluctuations of G/Y, I_g/Y and C/Y. Sources: $Y = \mathrm{GDP} = C + G + I_g + (X - M) \approx C + G + I_g$. C, The data of G and I_g are from http://www.bea.gov.//: Gross Domestic Product (Last Revised on: June 28, 2018).

The interest rate r is the core variable in our series of papers. It not only determines the net investment-output ratio I/Y, but also determines the total consumption-output ratio $(C + G)/Y$ of the household consumption-output ratio C/Y and the government consumption-output ratio G/Y, is also the reason for the cyclical changes in price levels and employment rates [3] [4]. Since the balance between the fictitious earnings ratios (Y/K and $\alpha Y/K$) and the substantial earnings ratios (Y/K and $\alpha Y/K$) is also determined by the interest rate r, we can observe various kinds in Figure 4 and Figure 5, respectively.

The relationship between various earnings ratios and consumption-output ratio C/Y or total consumption-output ratio $(C + G)/Y$.

In Figure 4 we further identify the difference in path during the rise and fall of the nominal interest rate r. The reason for the difference is caused by a change in the output allocation parameter α. Comparing Figures 4a and 4b, the virtual marginal rate of return $\alpha Y/K$ in Figure 4b is equal to the interest rate r, so there is no difference in the path between $\alpha Y/K$ and r. The fictitious average earnings ratios $Y/K =$

r/α in Figures 4a is elated to the distribution parameter α in the Cobb-Douglas function $Y = AK^\alpha L^\beta$, where the change trend of α is the total output Y The increase in the increase [5]. In the trend, although the output growth rate $\dot{Y}$ decreases as the interest rate r decreases, the total output Y increases. Therefore, corresponding to the same interest rate r, the

fictitious average earnings ratios Y/K during the decline is smaller than the fictitious average earnings ratios Y/K during the ascent. Later, we will see that the path difference between the rise and fall of inflation $\dot{P}$ will be further widened by the change of interest rate r.
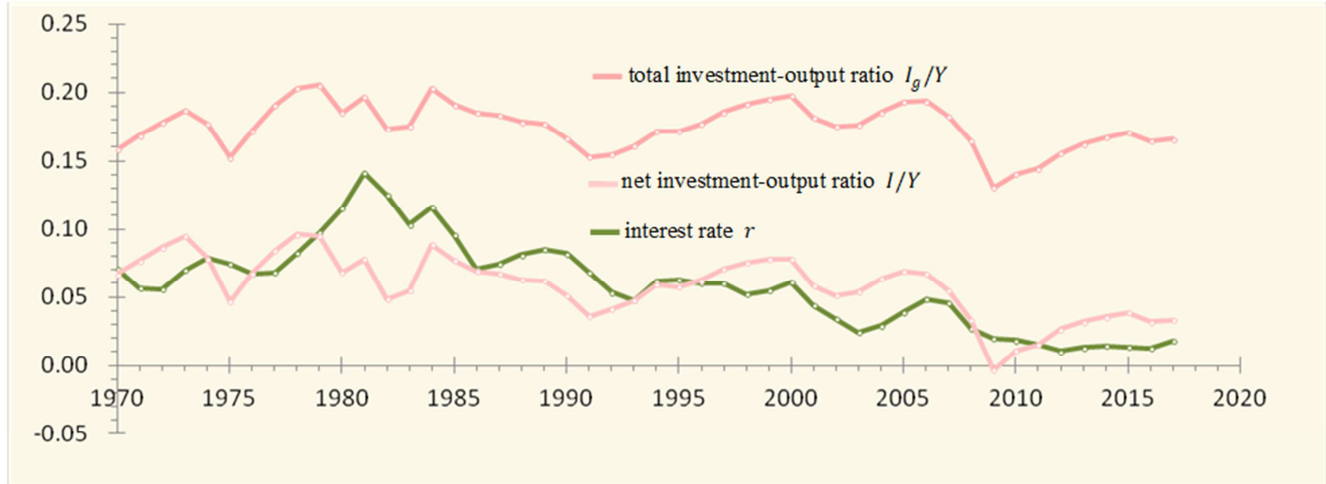

Figure 2. Trends of I_g/Y, I/Y and r. Sources: (1) The data sources of I_g and Y are the same as Figure 1. (2) Net investment $I = I_g - D$ and Depreciation are from http:// www.bea.gov/: Current-Cost Depreciation (Last Revised on: October 11, 2018). (3) The interest rate r is derived from the arithmetic mean of the annualized rate of return of various types of treasury bills in the United States. data is from http://www.federalreserve.gov/ (See the paper "A Kind of neither Keynesian nor Neoclassical Model (1): The Fundamental Equation" [2]).

Figure 4c shows that at $C/Y > 0.65$ to the right, the higher consumption-output ratio C/Y corresponds to a lower substantial average earnings ratios Y/K_f. This means that substantial production is less efficient. In Figure 4a corresponding to Figure 4c, the interest rate r is smaller than the equilibrium interest rate r^* [6]. It can be seen from Figure 2 that the net investment-output ratio I/Y

corresponding to the low interest rate r is also low. When the lower interest rate r approaches a higher equilibrium interest rate r^*, the net investment-output ratio I/Y will increase and the consumption-output ratio C/Y will decrease. At this time, the substantial production efficiency is improved, and Y/K_f is gradually approached to the optimal state $(Y/K_f)^*$.
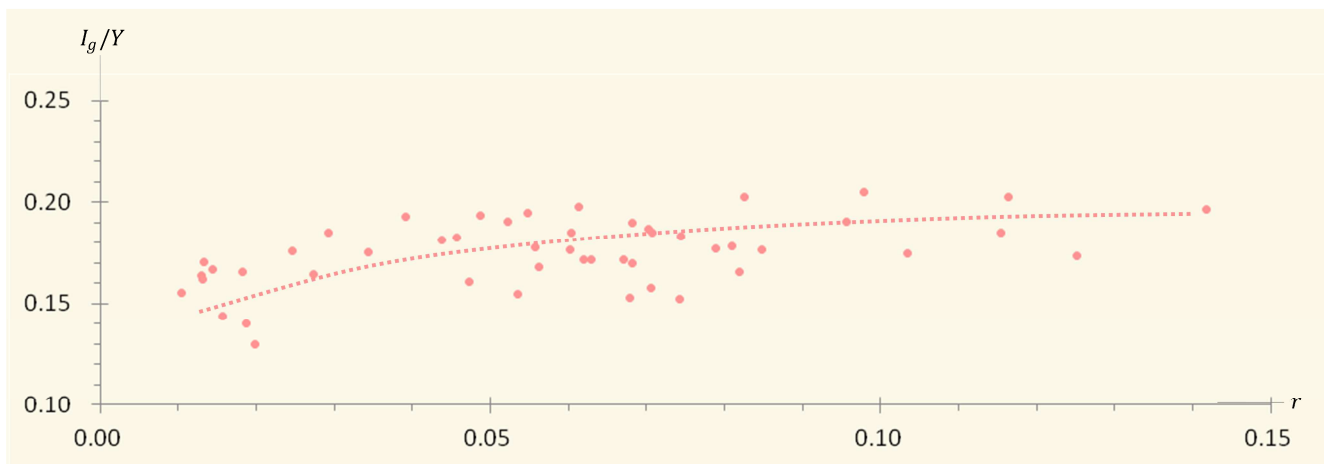

Figure 3. The relationship between the total investment-output ratio I_g/Y and the interest rate r in the statistics. Source: All data are the same as in Figure 2.
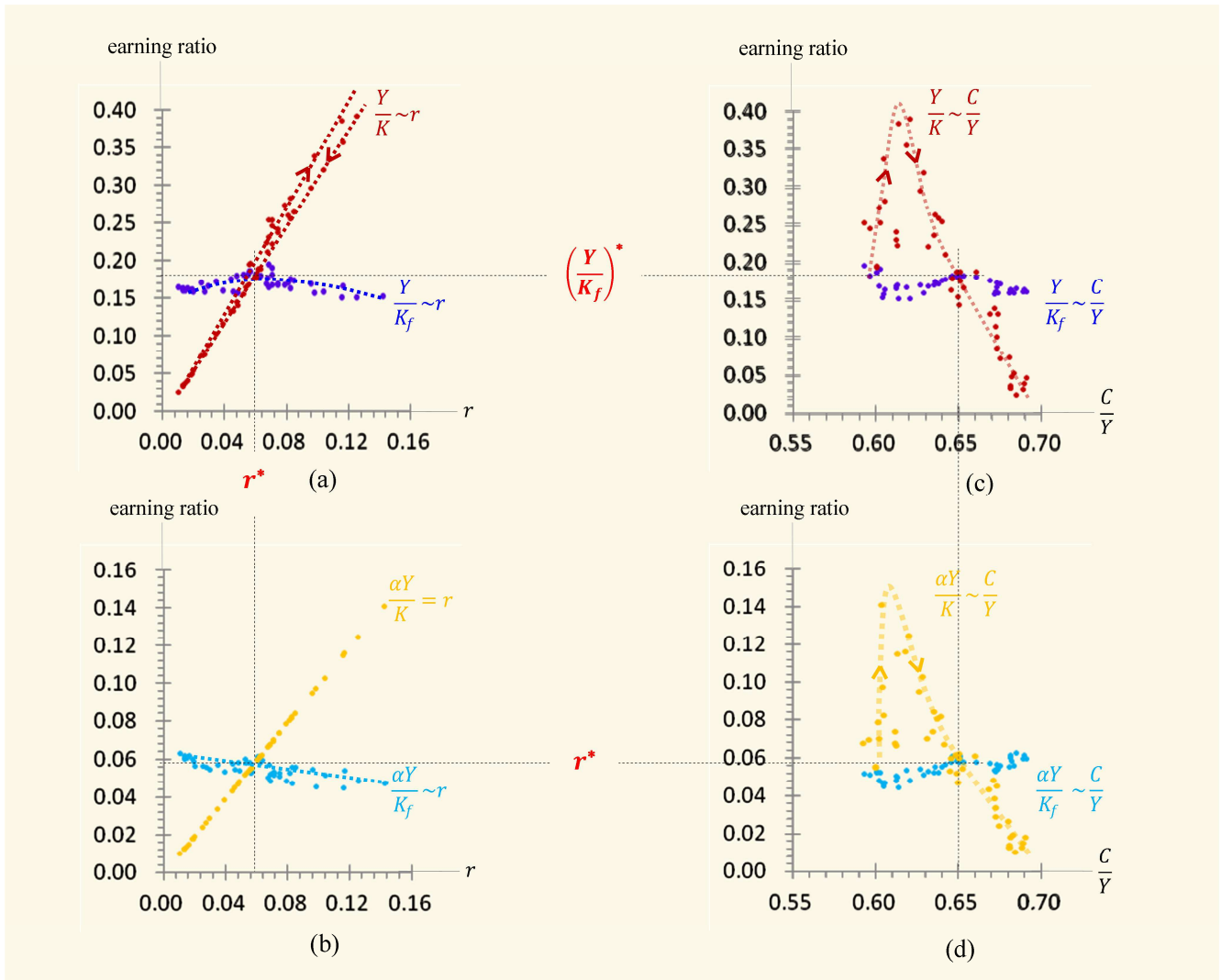
Figure 4. The relationship between household consumption –output C/Y, interest rate r and various earnings ratio (Y/K_f, $\alpha Y/K_f$, Y/K, $\alpha Y/K$). Sources: (1) household consumption C, nominal output Y and interest rate r are the same as in Figure 2. (2) Fixed assets K_f from http:// www.bea.gov/: Current -Cost Net Stock of Private Fixed Assets (Last Revised on: October 11, 2018). (3) $\alpha = 1 - \beta$, β is the ratio of salary to output GDP. The data of salary and GDP are from http:// www.bea.gov/: Personal Income and Its Disposition (Last Revised on: June 28, 2018) and Gross Domestic Product (Last Revised on: June 28, 2018).

In Figure 4c, the fictitious average earnings ratios $Y/K \sim C/Y$ associated with C/Y and the trend line of the substantial average earnings ratios $Y/K_f \sim C/Y$, at $C/Y = 0.65$, $Y/K \approx Y/K_f$. It can be seen from Figure 5 that the total consumption-output ratio $(C + G)/Y$ corresponding to the equilibrium interest rate r^* or the optimal substantial average earnings ratios $(Y/K_f)^*$ is about 0.845. From $C/Y = 0.65$, the government expenditure-output ratio G/Y is 0.195, and the corresponding $C/G = 3.33$.

From the statistical identity $Y = C + G + I_g$ and the investment equation $I_g/Y = r(1 - r) + D/Y$, it can be seen that while the interest rate r determines the total investment-output ratio I_g/Y, the total consumption expenditure-production ratio $(C + G)/Y$ is also determined. However, the distribution of household consumption-output

ratio C/Y and government consumption-output ratio G/Y in total consumption-output ratio $(C + G)/Y$ may be related to a country's cultural characteristics and income level, not all of which correspond to the resident-government expenditure ratio $C/G = 3.33$ in the balanced interest rate r^* or the optimal real average rate of return $(Y/K_f)^*$ as in the United States. We will discuss it further later.

The above analysis shows that the low interest rate monetary policy has brought about a trend decline in the investment-output ratio of I/Y, not an increase expected by the government. For a country, when the government expenditure-output ratio G/Y is constant, too low interest rate r and net investment-output ratio I/Y will produce too high consumption-output ratio C/Y, and lead to imbalance between the substantial earnings ratios Y/K_f and the fictitious earnings ratios Y/K.
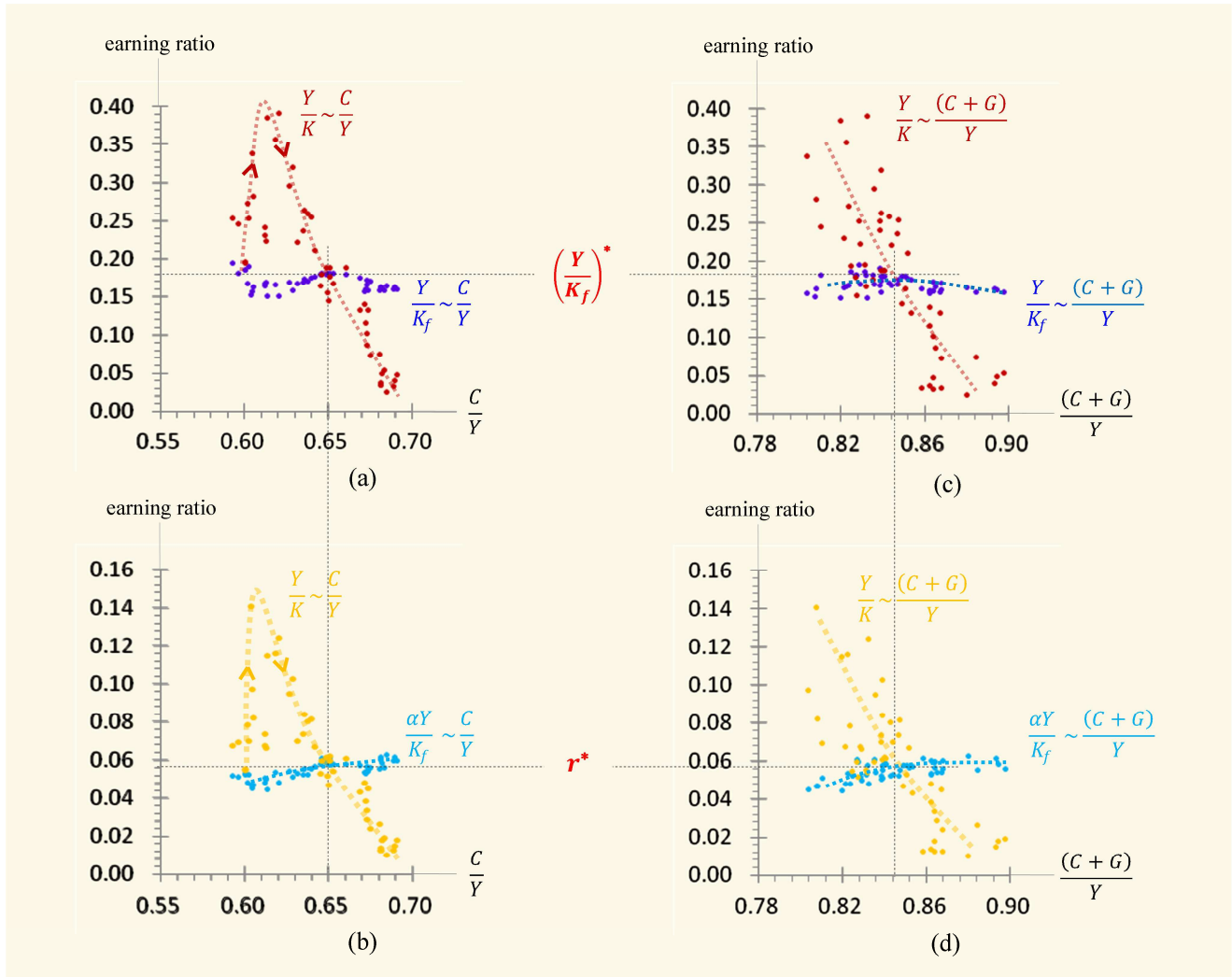
Figure 5. The relationship between total consumption expenditure-production ratio $(C + G)/Y$ and various earnings ratio $(Y/K_f,\ \alpha Y/K_f,\ Y/K,\ \alpha Y/K)$.
Sources: All data are the same as in Figure 4.

3. Reasons for Inflation

3.1. Inflation at the Level of Potential Output

After the 2008 financial crisis, the Fed's balance sheet expanded from \$0.9 trillion to \$4.5 trillion between 2008 and 2015 (data from http://cnbc.com). The base money supply has increased fourfold in the past eight years, with an average annual growth rate of $0.2228 \left[= (45/9)^{1/8} - 1\right]$. According to the inflation equation $\dot{P} - \theta\ddot{P} = \dot{M} - \dot{Y}_r$ [7], if the calculation is based on the currency growth rate $\dot{M} = 0.2228$ and the statistical average of 0.0130 for the real output growth rate $\dot{Y}_r$ during this period, the annual inflation rate $\dot{P}$ should be no less than $0.2098 \,(\approx 0.2228 - 0.0130,$ because $\ddot{P} \approx 0)$. This is much higher than the annual inflation rate of 0.0157 in this period.

This does not necessarily mean that the inflation equation $\dot{P} - \theta\ddot{P} = \dot{M} - \dot{Y}_r$ is incorrect. Because the monetary growth rate $\dot{M}$ calculated by M_2 during this period is only 0.0644 per year, instead of the Fed's base currency growth rate of 0.2228. The reason why the growth rate of M_2 in the inflation equation is less than the growth rate of the central bank's basic money supply can only be attributed to the fact that the monetary multiplier created by commercial financial institutions during this period is less than 1.

Since nominal interest rate r is composed of real interest rate r_r and inflation rate $\dot{P}$, we can observe the changes of real interest rate r_r and inflation rate $\dot{P}$ respectively in the analysis framework of substantial earnings ratios ($(Y/K_f$ and $\alpha Y/K_f)$ and fictitious earnings ratios (Y/K and $\alpha Y/K)$.

As shown in Figure 6, there is a significant path difference between the real interest rate r_r and the inflation rate $\dot{P}$: (1)

Since the nominal interest rate r has a path difference under the influence of the distribution parameter α, there are also path differences between r_r and $\dot{P}$ derived from r decomposition, and they are larger. (2) Under or near the optimal average earnings ratios $(Y/K_f)^*$, $\dot{P} > r_r$ at r upstream and $\dot{P} < r_r$ at r downstream. (3) During the period 1970-2017, most nominal interest rates r and their decomposed r_r and $\dot{P}$ were below $(Y/K_f)^*$. (4) Ignoring the path difference between r_r and $\dot{P}$, $\dot{P} \approx r_r \approx r/2$.
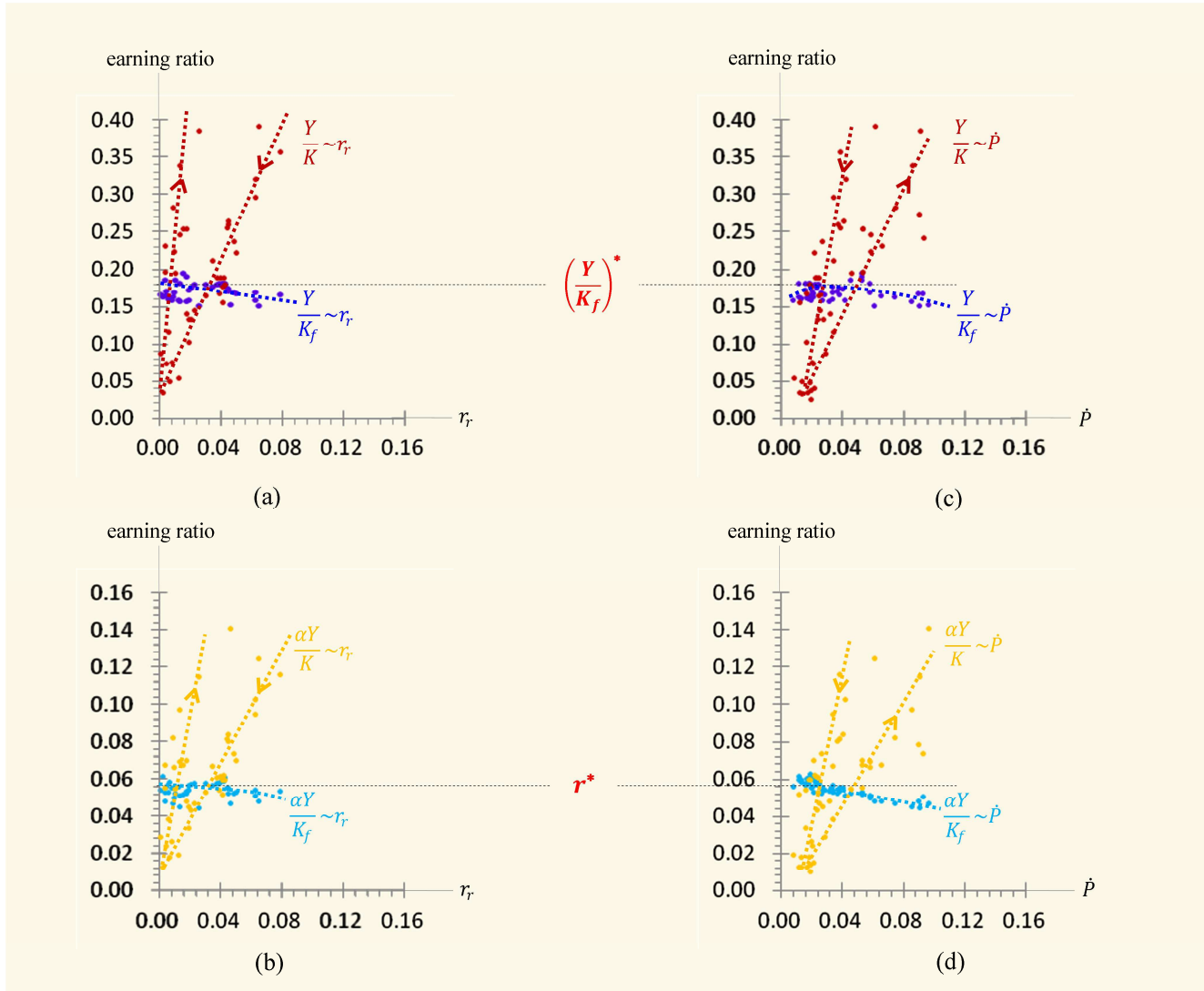

Figure 6. The relationship between inflation rate $\dot{P}$, real interest rate r_r and various earnings ratio (Y/K_f, $\alpha Y/K_f$, Y/K, $\alpha Y/K$). Source: (1) Inflation rate $\dot{P} = dP/P \approx \Delta P/P$. The price index P is calculated from the nominal GDP and real GDP by the deflator. The nominal GDP source is the same as Figure 1. The real GDP is derived from http://www.bea.gov/: Real Gross Domestic Product (Last Revised on: June 28, 2018). (2) Real interest rate $r_r = r - \dot{P}$, the nominal interest rate r data source is the same as Figure 2, and the rest is the same as Figure 4.

Why is the country with the more people in the same economic system having higher GDP? Because the more people there are, the more resources can be used; on the other hand, in countries with the same population but different economic systems, the reason for the large difference in GDP can be considered as the impact of economic system on the quality of resource utilization.

Below the equilibrium interest rate r^*, the change in the nominal interest rate r is a comprehensive change in the quantity and quality of resource use. Among them, the real interest rate r_r reflects the change of resource utilization quality in economic operation, and the inflation rate $\dot{P}$ which rises or falls simultaneously with the real interest rate r_r reflects the change of the economic system in the quantity of resource utilization. Below the equilibrium inflation rate $\dot{P}^*$ or $\dot{Y}^*$, inflation and employment rates change in the same direction. The monetary change rate $\dot{M}$ in the inflation equation $\dot{P} - \theta \ddot{P} = \dot{M} - \dot{Y}_r$ is also related to the quantity of resource utilization and is not directly related to the central bank's base money supply.

Before inflation became a monetary phenomenon, inflation rate $\dot{P}$ was roughly 1/2 of nominal output change rate $\dot{Y}$ or nominal interest rate r, which reflected the change of resource utilization quantity matching the quality of resource utilization. The faster the substantial output will be accompanied by higher inflation, although it cannot be said that the higher the inflation, the faster the substantial economic growth will be (because there is the possibility of "monetary inflation" that we will discuss later). In Figures 6 (c) and 6 (d), inflation with the fictitious earnings ratios (Y/K and $\alpha Y/K$) less than the equilibrium of the substantial earnings ratios (Y/K_f and $\alpha Y/K_f$) is the growth of the quantity of resource utilization in the process of substantial economic growth, not the result of the increase of money supply. As mentioned in the previous paper [8], in this process, even if the inflation rate $\dot{P}$ exceeds the equilibrium inflation rate $\dot{P}^*$ in the short term, it is usually only a cyclical fluctuation in the quantity of resource utilization, not a monetary phenomenon.

3.2. Inflation as a Monetary Phenomenon (Monetary Inflation)

The superiority of the modern monetary system is that it makes the economy more prone to inflation, but also provides more opportunities for debt management for the production and consumption entities. The link between inflation and money supply, as mentioned above, is not so close below the level of potential output, because the increase in money supply is only similar to the simultaneous expansion of assets and liabilities in the balance sheet, only those liabilities that are exempted or denied will bring inflation.

Compared with developed countries with lower inflation rate and developing countries with higher inflation rate, we can find that their monetary sources are not different. They all come from the central bank to borrow money or "print money" on the balance sheet, but the ways or paths of the new money diffusion is quite different.

In developing countries where fiscal revenue is severely scarce, whether the central bank is independent of the Ministry of Finance or not, the increase in money tends not to expand by lending to commercial banks or purchasing market bonds, but directly becomes revenue in the accounts of the Ministry of Finance. Because these new currencies, even if they amount to a large proportion of GDP, may not be enough for the government to pay for the wages of the police, the army, employees and the maintenance or construction of public facilities. This will quickly drive up prices, even hundreds of times hyperinflation, until people are unwilling to hold their own currencies. In accounting terms, when all the monetary liabilities that need to be repaid become the debtor's rights and interests unconditionally, the currency loses the measure of wealth value and the function of commodity trading medium.

Real consumption demand comes from real income corresponding to output. If the various ways of diffusing money are sorted according to the difficulty of becoming disposable income: work salary-–capital gain-– ...-–government transfer payment--pick up the cash that the central bank uses to fly in the air-–be added by the central bank in the debit card with a $1 million, etc., It is obvious that the more backward and the larger the amount of money supply, the faster and higher the rate of inflation will occur. This is because there is no corresponding output at the end of the disposable income or spending power that has been raised by the central bank.

The way in which the increased currency is spread in developed countries is often that the central bank lends to commercial banks with different discount rates, buys treasury bills or financial institution bonds, and even buys stocks in the capital market. As we have analyzed in previous papers [6] [8], the effect is often that the capital market reacts strongly, the substantial economy is indifferent, and the inflation rate $\dot{P}$ is hard to rise. If the proportion of debts that are exempted or denied in total assets declines as the total assets expand (due to the increase of the central bank's money supply), there will be deflation in which the inflation rate and the money supply reverse change.

Enterprises in developed countries do not lack the currency as a trading medium in the economic recession. They cannot convert the increased liabilities in the monetary easing environment into profits that enhance corporate rights, or the ability to improve the quality of resource utilization. The micro-cause may be due to excessive production and operation costs, or may be insufficient innovation. If the constant or accelerated expansion of the central bank's balance sheet is merely a debt to enterprises that cannot make profits, these currencies will neither become M_2 reflecting market liquidity nor directly become the interests of governments and residents, as in developing countries, but merely replace the liquidity originally created by commercial financial institutions.

If the opportunity cost of the capital market is relatively low under the loose monetary policy, some productive enterprises will even use more debt for capital market speculation. Although this has improved the mobility of M_2 to a certain extent, it is difficult to bring in additional inflation, because the M_2 increased at this time is only required by the capital market, and does not flow to the real economy.

In short, the expansion of the central bank's balance sheet does not necessarily lead to "monetary inflation" or inflation as a monetary phenomenon. It depends on how much of the added currency becomes disposable income without corresponding

output. In a recession, for a financially sound economy, even if the discount rate is negative, the huge monetary increment can only be deposited on the same huge corporate balance sheet, showing a troublesome liquidity trap status. Perhaps, at this time, adopting a fiscal policy that does not have to worry about the debt burden will help the economic system get rid of the plight of insufficient resources utilization.

4. The Nature and Role of Fiscal Policy

4.1. Fiscal Policy to Increase the Quantity of Resource Utilization

Assuming that Robinson can produce 800 pounds of wheat a year, 400 of which can satisfy his basic life of a year, then the GDP of the government without Robinson Country in the t-term is $Y_t = C + I = C + S = 400 + 400 = 800$. S is the savings, from a 400 pound inventory investment in surplus grain. In the $t + 1$ period, Robinson made a living from surplus grain and indulged in the writing of the great book "The Destiny of Subjective Consciousness". Although Robinson did not produce food in $t + 1$ years, there is a statistical GDP due to consumption: $Y_{t+1} = C + S = 400 + 0 = 400$. Compared with the previous period, $Y_{t+1} < Y_t$.

If in the t-term Robinson was forced to levy 450 pounds of wheat as the government's public expenditure, in order to maintain the basic life of 400 pounds of wheat, Robinson had to borrow 50 pounds of wheat from Brown Country. At this time, although the output of Robinson is 800 pounds of wheat, the GDP structure changes to $Y_t = C + G + S + (X - M) = 400 + 450 + 0 + (0 - 50)$. In the $t + 1$ period, Robinson had to give up his writing hobby and extend labor hours in order to pay off debts, producing 900 pounds of wheat. Thus, Robinson Country's GDP in the $t + 1$ period is $Y_{t+1} = C + G + S + (X - M) = 400 + 450 + 0 + (50 - 0) = 900$ 0. Since $Y_{t+1} > Y_t$ is obtained with the participation of the government, government spending may be beneficial to GDP growth.

We can also get more results we want under different assumptions, but as long as the accounting process does not violate the rules of statistical identity, any result will have these common characteristics: (1) The source of GDP is production. (2) If people have to work harder after the government expands spending, GDP can increase with government spending. (3) The government's participation may be reduced, and may also increase the welfare of the Robinson Country.

This simple Robinson Country model helps us understand Keynes's "digging economy" envisioned in the General Theory of Employment, Interest, and Money: "If the Treasury were to fill old bottles with banknotes, bury them at suitable depths in disused coalmines which are then filled up to the surface with town rubbish, and leave it to private enterprise on well-tried principles of *laissez-faire* to dig the notes up again (the right to do so being obtained, of course, by tendering for leases of the note-bearing territory), there need be no more unemployment and, with the help of the repercussions, the real income of the community, and its capital wealth also, would probably become a good deal greater than it actually is." [9] If Robinson has the potential for great labor, as long as the government uses such a pit game to stimulate Robinson and simultaneously levy the expenditures required in the process, the output seems to grow to the potential maximum.

Perhaps someone with Keynes's idea would ask: Why not just dispense with the process of filling in banknotes and digging out, and directly distribute the banknotes to those companies that need them? This is precisely Keynes's important contribution to macroeconomic theory. This kind of question is thought to be without understanding the essence of Keynesian thinking: without the wasteful spending of the government, there is no GDP growth.

What makes people most aware of the nature of the "digging economy " is to observe the differences and connections between the economic operation in wartime and peacetime. During the war, the market economy had to give way to meeting the planned economy needed to meet the war. Although the tanks and shells produced in the war do not improve people's living standards, they can be much higher than usual in terms of the quantity of resource utilization and their GDP. In fact, Keynes's "digging economy" is the "wartime economy" in peacetime: to increase the quantity of resource utilization by the government, the large pits dug by the employers are equivalent to many shells made in the war that cannot improve people's living standards; the process of letting the employers fill these pits is equivalent to sending these shells to the battlefield to blow up. Therefore, although the "digging economy" is different from the "wartime economy", the economic nature of resource waste is not different.

Unlike production in peacetime to improve people's welfare, people in the "wartime economy" are tools for making artillery shells rather than purposes of production. Because the failure of the war may cause huge material and spiritual losses to its citizens, people are willing to sacrifice their own interests and even lives in the war. The more shells produced in the "wartime economy", the lower people's living standards will be. Although "wartime economy" can create 100% jobs and high GDP, people cannot get disposable income or welfare corresponding to GDP. Therefore, there are important differences in interest mechanism between "digging economy" in peacetime and "wartime economy".

People in peacetime will not only sacrifice their own interests for the "digging economy", but may also regard it as an opportunity to obtain government transfer payments. If the government uses more tax revenues to "digging economy", the expenditure on government spending to provide services to Robinson will be reduced. This may affect Robinson's enthusiasm for producing wheat, and even cause him to abandon wheat cultivation and switch to employment in a more secure "digging economy". In this case, the "digging economy" will be worse than the "wartime economy": it will neither improve the quality of resource utilization nor increase the quantity of resource utilization.

4.2. Fiscal Policy to Change the Structure of Consumer Spending

If the active fiscal policy is not trying to intervene in the production state of the substantial economy, but only in the increase or decrease of public service content such as education, medical care, and national defense, its nature will be weakened into an adjustment to the structure of social consumption expenditure. That is, in the distribution of total investment and total consumption that has been determined by the market interest rate r, adjust the ratio between household consumption and public consumption, or adjust the composition between C/Y and G/Y in the determined $(C+G)/Y$. Such government expenditures only pass a portion of the consumption originally owned by the residents to the "government agent consumption" through taxation. The reason is to make people's living standards more average and consumption more efficient.

Replacing "resident own consumption" with "government agent consumption" may increase or decrease macro production efficiency and the welfare level of residents. It depends on people's changes in production enthusiasm and the operational efficiency of "government agency consumption". Inevitably, there are government transfer payments in the process of being forced to purchase and enjoy public services, and the greater the proportion of "government agency consumption", the more serious the transfer payment problem. If this explicit or implicit transfer payment does not affect people's production enthusiasm, nor the moral risk that is used by enterprises and individuals, the economic operation state will not be affected by the expenditure structure C/G, or even It is better because of the scale effect of "government agency consumption".

Although the economic model of high taxation and high welfare is rarely adopted by developing countries with low per capita GDP and developed countries that advocate competition, the practice in the Nordic countries shows that the "Government agent consumption" in education, health care and pension may be better than "resident own consumption". The conditions are: (1) People cannot care about paying more than half of their income to "government agent consumption" for a long time. (2) No company or individual attempts to take advantage of the high welfare system. (3) Government works honestly and efficiently. Therefore, the effect of "government agency consumption" may be closely related to the degree of economic development and cultural characteristics of a certain country, and not all countries are the same C/G. If necessary, the "government agent consumption" can be found out from the statistical data to be added to the "resident own consumption", and then a comparative study between different countries.

4.3. Financial Policy of Debt Operation

In terms of fiscal revenue, it is easier to raise fiscal expenditure for the "digging economy" by issuing bonds or "printing money" than by taxation, although bond issuance and "printing money" also have extrusion effects on disposable income compared with taxation.

If the government can be approved by Congress to raise funds for the public, the total amount of debt is determined by the annual tax and bond discount rate. Suppose that the government can tax up to 800 pounds of Robinson's 1200-pound wheat production capacity, with a bond annual interest rate of 3%, the debt ceiling is about 26667 pounds of wheat (= 800/0.03). Even if Robinson does not have the ability to buy debt, the government can extend the scope of financing to foreign countries. If the additional currency is also used as a source of revenue for the government, the Treasury's total debt can be further expanded on the basis of 26667 pounds of wheat, until Robinson's 400 -pounds wheat is also a seigniorage.

A tax-guaranteed government has no reason not to run in debt like a enterprise or a resident. If the government's debt-servicing credit is better than that of enterprises and residents, its debt ratio can be higher than that of enterprises and residents. The problem is that when the government expenditure-output ratio G/Y remains unchanged, the interest expense that increases with the debt will crowd out the public services provided by the government for the residents; if the public services are not reduced, the government expenditure-output ratio G/Y must be increased. Therefore, the main consequence of government debt operation is that higher government expenditure-output G/Y has a greater impact on the quantity and quality of resource utilization, rather than the intergenerational transfer of government debt burden, which can be merged into the analysis of "4.1 Fiscal policy to increase the quantity of resource utilization ".

4.4. Monetary Fiscal Policy or Fiscal Monetary Policy

As we analyzed in "3.2 Inflation as a Monetary Phenomenon",

not all added currencies will become inflation or seigniorage that reduces people's disposable income. The formation and size of the seigniorage is related to the mode of money supply.

From the inflation equation $\dot{P} - \theta\ddot{P} = \dot{M} - \dot{Y}_r$, under these two conditions, the added money will surely evolve into inflation: (1) The added money can become M_2 without loss; (2) the real output growth rate $\dot{Y}_r$ will not increase with the use of the added money. The first condition is that fiscal policy is different from monetary policy: enterprises or individuals who receive money from monetary policy (such as $100) are liabilities to be repaid, and disposable income is likely to be used to generate profits (such as $5) after production. If the $100 currency comes from government expenditure, it will either become income from the sale of products or services by enterprises or residents to the government, or transfer payments received by enterprises or residents. In short, enterprises or residents have increased their disposable income by $100 and M_2 in circulation. Although active monetary policy can prevent the reduction of the quantity of resource utilization to a certain extent when production efficiency is low (such as the rescue of enterprises on the verge of bankruptcy), its role in promoting the increase in the quantity of resource utilization is far less than that of active fiscal policy.

Therefore, in the absence of profit opportunities rather than debt capital in the market, the central bank will directly give the added money to the government as a right to us, rather than to expand the reserve of commercial banks, so that the additional money be used to increase the quantity of resource utilization under the established production conditions. The resulting "inflation at the level of potential output" will not only not damage the efficiency of economic operation, but also be conducive to the balance of virtual and real returns. We abbreviate the fiscal revenue and expenditure derived from currency issuance as "monetary fiscal policy" or "fiscal monetary policy".
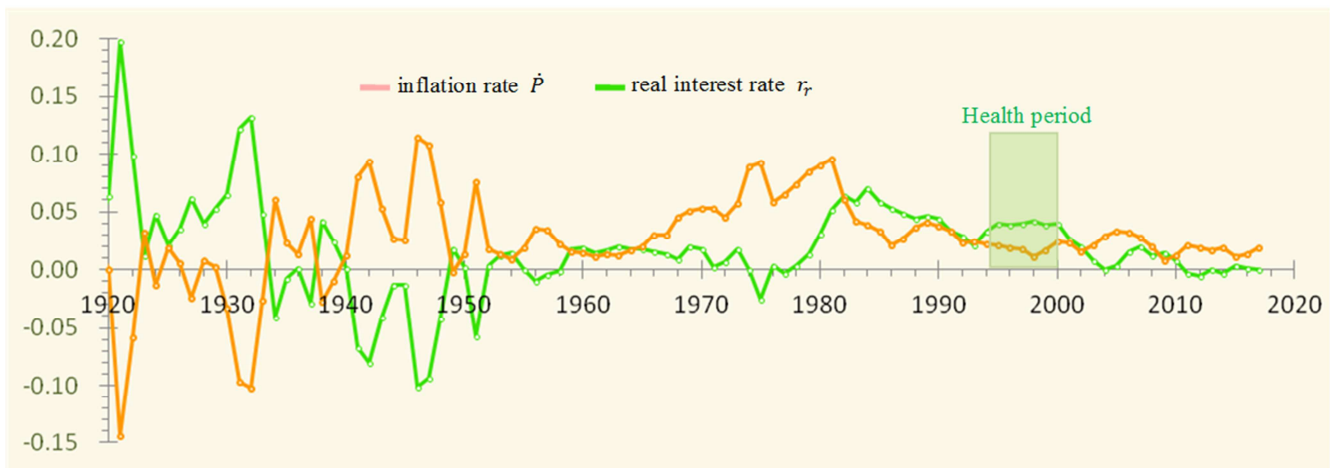

Figure 7. Shows the change in the inflation rate $\dot{P}$ and the real interest rate r_r in the time series. Source: data are the same as Figure 6.

As stated in "3.2 Inflation as a Monetary Phenomenon", "monetary fiscal policy" has the risk of losing the function of money as a trading medium, but appropriate monetary increment is conducive to expanding the quantity of resource utilization. Since the seigniorage and the income tax paid by the individual to the government are all the disposable income of the residents, why not exchange income tax for the seigniorage? This can both reduce the cost of taxation and constrain the government's possible abuse of "currency fiscal policy". The Fed transfers a certain amount of incremental currency to the Treasury each year (for example, Friedman recommends an annual increase of 3%-5% [10]), which is much easier than hiring as many tax officials to supervise people paying taxes. This will not only avoid the uncertainty of the central bank's money supply in the long run, but also help to play the role of monetary expansion in increasing the quantity of resource utilization.

Assuming that the added money expended through the Treasury Department can become the currency growth rate $\dot{M}$ in the inflation equation $\dot{P} - \theta\ddot{P} = \dot{M} - \dot{Y}_r$, and setting the inflation rate $P^* = 0.028$ in the balance of quantity and quality of resource utilization, and because the potential real output growth rate $\dot{Y}_r^* = 0.028$ [8], the $\dot{M} \approx 0.056$ can be calculated from $\dot{P} - \theta\ddot{P} = \dot{M} - \dot{Y}_r$. Based on the average stock of M_2 in 2016 of 12833.6 billion US dollars, the Treasury can receive fiscal revenue from the newly added currency of 718.7 billion US dollars (12833.6 × 0.056) from the Federal Reserve. This is almost the increase of M_2 from 12833.6 in 2016 to 13571.6 in 2017, an increase of 738 billion US dollars (13571.6-12833.6). If the average annual salary of a civil servant is $70,000, this can be used to pay more than 10 million civil servants.
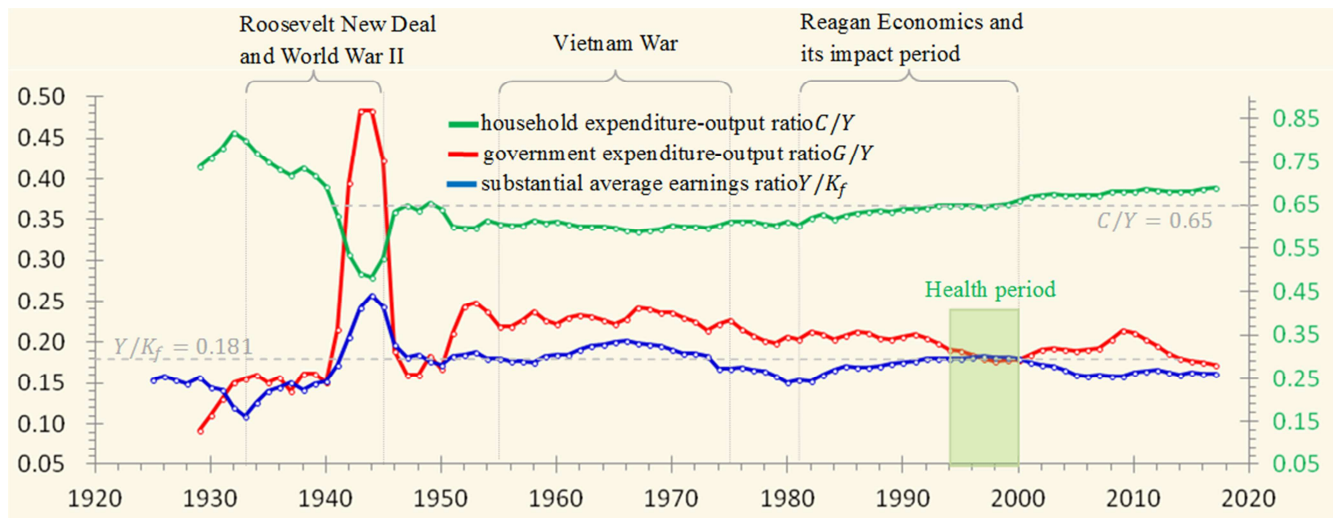
Figure 8. Shows the changes in the household expenditure-output ratio C/Y, the government expenditure-output ratio G/Y and the substantial average earnings ratio Y/K_f in the time series. Source: data are the same as Figure 4.

The way in which the government spends money to make the money to directly become the disposable income of the people is concerned with the balance between the fictitious economy and the substantial economy, rather than the cyclical fluctuations of the macro economy. When the money supply and fiscal expenditure in this way are excessive, not only will the fictitious earnings ratio (Y/K and $\alpha Y/K$) of economy be larger than the substantial earnings ratio (Y/K_f and $\alpha Y/K_f$), but also there will be an imbalance between the quantity of resource utilization mobilized by monetary and the quality of resource utilization. The performance of the statistical data is that the inflation rate $\dot{P}$ tends to rise while the real interest rate r_r tends to decrease.

As long as the amount of money added each year does not exceed the government's tax, the way of money supply deducting income tax will not only help to increase the quantity of resource utilization and reduce the cost of taxation, but also prevent the monetary inflation and the decline of the quality of resource utilization. It is a monetary fiscal policy or monetary expansion mode that is beneficial to producers, residents and the government.

5. Health Statuses of Macroeconomic Operations

If the inflation rate $\dot{P}$ and the real interest rate r_r are compared in a longer time series, as shown in Figure 7, it can be seen that the US economy was in a significant deflation state before the Great Depression of 1929, that is, the average inflation rate $\dot{P}$ was less than 0. This is a serious imbalance between the quantity and quality of resource utilization. Further, from the perspective of Figure 8, compared with the average of 1929-2017, before 1940, the US consumer-output

ratio C/Y and the substantial earnings ratios Y/K_f were higher and lower, respectively. This may have something to do with the Great Depression of 1929. If it were not for the Roosevelt New Deal and the outbreak of World War II, the adjustment time for the Great Depression could be longer.

Roosevelt's fiscal policy and the huge amount of fiscal expenditure during World War II changed the situation of a serious shortage of the quantity of resource utilization before 1933. As shown in Figure 8, compared with the average of the government expenditure-output ratio G/Y of 0.2090 during 1929-2017, the G/Y of 1943 and 1944 was as high as 0.4830 and 0.4840, respectively, and the substantial earnings ratios Y/K_f of the United States was rose from the 0.1391 (1929-1939 average) of the Great Depression adjustment period to the astonishing level of 0.2574 (1944). This is the magic of the "wartime economy." However, there are gains and losses: while output is rising in fiscal spending and the "wartime economy", people's lives or welfare levels are declining. In Figure 8, the household expenditure-output ratio C/Y has dropped significantly from 0.7576 (1929-1939 average) in the previous period to a very low level of 0.4835 (1944).

Although the government expenditure-output ratio G/Y fell below 0.2 and the household expenditure-output ratio C/Y rose to more than 0.6 after World War II, the Vietnam War, which lasted for 20 years since 1955, caused G/Y to rise above 0.23, followed by the gradual rise of inflation rate $\dot{P}$ in Figure 7 from 1963 to 1980 and the decline of the real interest rate r_r in the capital market. It was not until the rise of Reagan Economics in 1981 that was contrary to the Roosevelt New Deal that inflation was controlled [11]. Figure 7 shows that from 1981, the U.S. economy has experienced a period of nearly 20 years of general balance between the quantity and
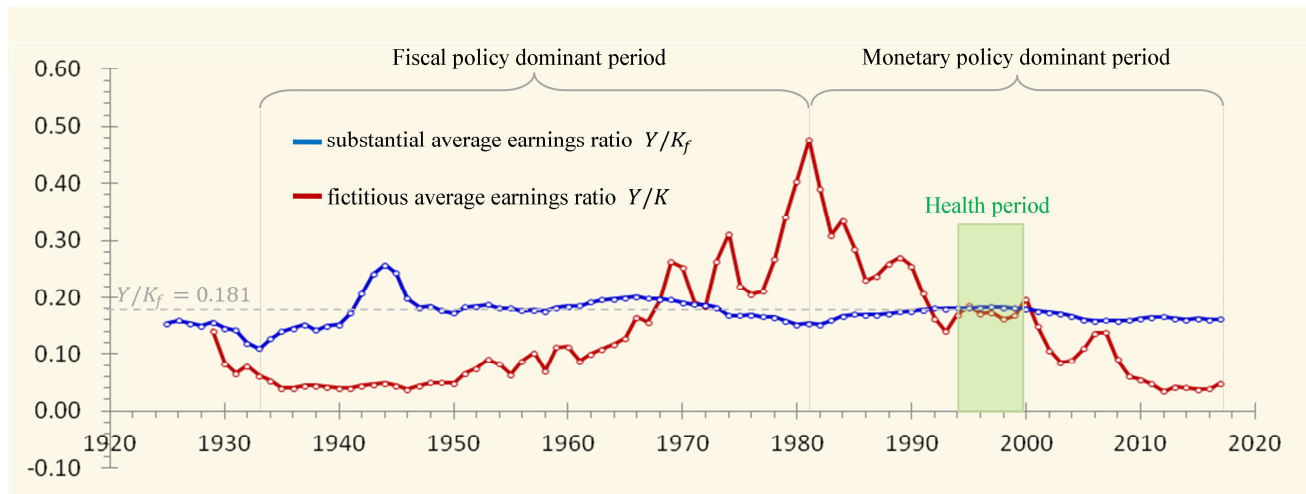
quality of resource utilization.

Figure 9. Shows the changes in the average return rate Y/K_f and the virtual average rate of return Y/K in the time series. Source: (1) The data source of Y/K_f is the same as Figure 4. (2) $Y/K = r/\alpha$, where the data source of the allocation parameter α is the same as in Figure 4, and the interest rate r of 1920-2017 is "Short-Term Rate: Surplus Funds, Contemporary Series" and "Long-Term Rate: The average of the Contemporary Series" (see "A Kind of Neither Keynesian Nor Neoclassical Model (7): The Cause of the Financial Crisis" [8]), data are from http:// www. Measuring Worth.com/.

From the perspective of the balance between fictitious economy and substantial economy, as shown in Figure 9, during World War II, there is a big gap between substantial earnings ratios Y/K_f and fictitious earnings ratios Y/K : the substantial earnings ratios Y/K_f of the United States is as high as 0.26, and the fictitious earnings ratios Y/K of the capital market is below 0.05 in the same period. On the one hand, Y/K_f determined by the quantity of resource utilization during the war is high. On the other hand, the nominal interest rate r that comprehensively reflects the quantity and quality of resource utilization is very low. This is because the real interest rate r_r of less than 0 under wasteful production offsets the higher inflation rate $\dot{P}$. Among them, the most significant performance is that the household consumption-output ratio C/Y is lower under the higher substantial earnings ratios Y/K_f (1944, $Y/K_f = 0.2574, C/Y = 0.4835$).

When G/Y is constant, too high C/Y (or too low I/Y) will lead to imbalance between substantial and fictitious earnings ratios and between quality and quantity of resource utilization. In the market resource allocation, the interest rate r is the bond between the substantial and the fictitious earnings ratios. The interest rate r will not only affect the fictitious earnings ratios Y/K （$= r/\alpha$）, but also determine the assignment between total investment I_g and total consumption $(C + G)$ in the total output Y (because $I_g/Y + (C + G)/Y = 1$) under the constraint of the investment equation $I/Y = r(1 - r)$. Only when the inflation rate $\dot{P}$ reflecting the quantity of resource utilization in production is coordinated with the r_r reflecting the quality of resource utilization, and there is a balance between the substantial earnings ratios Y/K_f and the

fictitious earnings ratios Y/K, there will be a healthy state of economic operation.

Therefore, when resource allocation is dominated by fiscal policy, not only is there a large gap between the $\dot{P}$ reflecting the quantity of resource utilization and the r_r reflecting the quality of resource utilization, and it is difficult to balance the substantial earnings ratios Y/K_f and the fictitious earnings ratios Y/K. Combining Figure 7, Figure 8 and Figure 9, we can see that during World War II, Vietnam War and Keynesianism prevailed in 1933-1981, fiscal policy played a strong leading role in the U.S. economy:

(1) The real interest rate r_r reflecting the quality of resource utilization is low, and the inflation rate $\dot{P}$ reflecting the quantity of resource utilization keeps rising during this period, which is at a higher level.

(2) During 1933-1981, the household consumption-output ratio C/Y was lower than before 1933 and after 1981. This is because, affected by the "wartime economy", GDP has more wasteful output.

(3) After a short balance between the fictitious earnings ratios Y/K and the substantial earnings ratios Y/K_f from 1968 to 1969, Y/K continued to climb to an alarming height in 1981. Meanwhile, the substantial earnings ratios Y/K_f fell to its lowest level since the Vietnam War. During this period, seigniorage was heavier and currency depreciation was faster.

After 1981, the painful stagnation led to the acceptance of Reagan Economics. From the characteristics of economic operation, it can be seen that 1933-1981 was a period of fiscal

policy leading and monetary policy accompanying each other. After Reagan Economics, monetary policy replaced fiscal policy, while inflation was controlled; it was gradually distorted by the fictitious economy. This is manifested in:

(1) Real interest rate r_r reflecting the quality of resource utilization rose and remained at a relatively high level until 2000, the inflation rate $\dot{P}$ reflecting the quantity of resources utilization has continued to decline.

(2) The household consumption-output ratio C/Y reflecting people's disposable income keeps rising, while the waste output of GDP decreases.

(3) The fictitious earnings ratios Y/K declined and the substantial earnings ratios Y/K_f increased. In the 1990s, the two experienced a healthy balance for almost six years, and then gradually opened the gap.

The US economy in the 1990s was not only a golden age of people's sensibility, but also a relatively good state of various economic data. Regrettably, such a golden age only occurred in a short period of about six years in the 100-year-old US economy. This cannot but be said to be the sorrow of economic theory. Because even this short period of health is not a credit for economic theory, but a state that will inevitably occur during the decline of the fictitious earnings ratios Y/K after 1981. When Greenspan thought he had mastered the magic weapon of using the counter-cyclical monetary policy to regulate the economy, the fictitious earnings ratios Y/K continued to decline, and the deviation from the substantial earnings ratios Y/K_f became more and more, and triggered a financial crisis with the real estate bubble as the carrier [6].

If the rise of Y/K for more than 40 years from 1933 is mainly due to the influence of fiscal policy, then the continuous decline of Y/K from 1981 to nearly 40 years is definitely the result of monetary policy. When the regulation of monetary policy is not improved, fiscal policy may be used by people, and show attractive effect in the early stage of use, because it can effectively improve the fictitious earnings ratio Y/K. If this is the case, it is hard to say that the fictitious earnings ratio Y/K will not start a long up cycle as it did before 1981. However, under the preference of people who seem to hate inflation rather than the capital market bubble (rejection between inflation and capital market bubbles [6]), the more likely state in the future is that the fictitious earnings ratio Y/K hovers below the substantial earnings ratio Y/K_f for a long time, and the capital market crisis erupts again.

6. Conclusion

The conditions required for a healthy economic state are: (1)

The balance between the fictitious economy and the substantial economy. (2) The balance between the quantity of resource utilization and the quality of resource utilization. (3) Under the premise of the above two balances, the highest possible resident-government expenditure ratio C/G. (1) and (2) are necessary conditions for the economic system to achieve potential production efficiency. The third condition is to ensure that the laborer is the purpose of production rather than a tool to increase production efficiency or resource utilization. It should be noted that the balance here is the balance of various variables (fictitious earnings ratios Y/K, substantial earnings ratios Y/K_f, inflation rate $\dot{P}$, real interest rate r_r) in the trend of change, not that there is no difference between them in the phase of fluctuation and the magnitude of change.

Sustainable economic growth requires coordinated advancement in the quantity and quality of resource utilization. The resource utilization inflation helps to increase the quality of resource utilization.. Under the system design of income tax deduction of the seigniorage or the integration of monetary policy and fiscal policy, the use of fiscal expenditure to replace the monetary expansion of commercial bank loans not only helps to promote resource utilization inflation and the balance between the quantity and the quality of resource utilization, but also prevent currency inflation and the quality of resource utilization caused by excessive money supply. This can be a short-term measure to prevent liquidity traps, and it can also be used as a money supply method or rule to replace or constrain traditional monetary and fiscal policies in peacetime.

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