

THE CLASSICAL DICHOTOMY

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Klasická dichotómia

Abstract: *The classical dichotomy is the thesis that the real economy can be effectively studied independently of the monetary economy. It says that the knowledge of technical details of the monetary economy as e.g. of the money markets, the stock market, and the interbank payment system is not needed if one wants to build a theory of the real economy. The aim of this paper is to critically assess the arguments that try to prove that the classical dichotomy holds. The paper summarizes models that show that money is neutral towards the real economy and therefore implies that money can be excluded from the analysis. Ultimately, the paper asks if it is really the case that monetary phenomena can be reduced to real phenomena.*

Keywords: *classical dichotomy, monetary neutrality, economic theory, real and monetary phenomena, reductionism*

JEL Classification: E 40, B 41

1 Introduction

In textbook economic models we can observe a peculiar property that should surprise a non-initiated academic economist. Popular macroeconomic models, e.g. AD-AS [8], IS-LM [9] and DSGE [14] tend to abstract from the existence of the credit market, the stock market, various securities markets and other money markets. The only monetary market that is always included is the so-called loanable funds market. This market equilibrates saving desires and investment desires via the real interest rate. Even if this is perceived as the money market, in actuality, all the variables in this model are real variables that are determined by real factors. Savings can be determined by the marginal utilities given by consuming today versus consuming in the future and investment can be determined given the expected return of the investment. So in effect, these are real variables, even if they are describing the market for money.

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Why is there such a dichotomy between the real and monetary sectors of the economy? The purpose of this paper is to trace the establishment of the classical dichotomy in economic theory and ultimately challenge its validity.

The thesis that states that we can model the economy without the various money markets is the so-called classical dichotomy. This thesis states that monetary economic phenomena have no impact upon real economic phenomena and that is why we can abstract from various money markets when building models that predict changes in real phenomena like the employment rate, investment rate, the growth rate and others. It has been said that money is neutral, that changes in the stock of money have no impact upon real economic variables, that they impact only nominal economic variables, which is why they are secondary in importance. This is the case because ultimately we want to explain the real economy, not the nominal. We want to understand the processes of production and consumption and not their nominal money-value counterparts. This is, in and of itself, a good reason to abstract from the monetary sector, although in this paper we will argue that this abstraction is in error because monetary phenomena do indeed influence real phenomena, and that is why given the same scientific objective, it will be the case that we cannot abstract from the monetary sector.

In this paper we will reconstruct the neoclassical model that was used as a proof of the validity of the classical dichotomy. This will represent an introduction to the topic. We will then turn to objections to this model and ultimately prove that the classical dichotomy cannot hold, if we are not prepared to accept absurd assumptions about the economic system.

Our work builds upon the Post-Keynesian School of Economic Thought (for an introduction to this school of thought see King [4], Lavoie [7]; for an introduction into post-Keynesian theories of money, see Kaldor [4], Moore [10], Wray [12] and Godley et Lavoie [3]), which attempts to build models of the economy not as mere instruments for making predictions of economic phenomena, but as models of a degree of descriptive realism, which enables them to explain economic phenomena in addition to providing testable predictions).

It should also be stated that the neoclassical school makes a long-run, short-run distinction when it comes to the classical dichotomy. Most of the time it is assumed that money is indeed non-neutral in the short-run, but that it is neutral in the long-run. In the tradition of the Post-Keynesian School and the critique of this distinction and the usage of time in general in economics by Joan Robinson we will not accept this distinction in this paper. To state this critique in detail would require another paper, but we will summarize the critique as follows. The long-run is just a sequence of short-run phenomena. Some phenomena do indeed need “longer” to change, but that does not have to mean, that if something influenced the economic system in the short-run, that it would have stopped to be an influence in some long-run scenario. In Joan Robinson’s usage of historical rather than logical time, as is the case in neoclassical economics, it is untenable to assume this distinction. If something influences the economy in the short-run, then the economy will still be influenced by it in the future or in the long-run scenario, and furthermore the future will be nothing else but

just another short-run scenario, where there could possibly be once more an event of the same kind, which influences the new short-run economy once more. In this paper we will therefore dispense with the notion that economic models can be divided into a short-run and a long-run in the sense explained here.

2 The Neoclassical Model

The neoclassical model of the economy divides the economy into a real sector where relative prices are determined and a monetary sector where the level of absolute prices is determined [11, 12, 13]. The real sector is modelled in the vein of the Walrasian model of general equilibrium and the monetary sector gives the level of absolute prices simply given by the quantity theory of money, or the exchange equation.

The real sector determines relative prices (prices of goods in terms of other goods) as a set of relative prices given the general equilibrium condition that there is no excess demand or excess supply in any market. But such a system could not, according to the neoclassical school, function smoothly, because it would be impractical to simply barter the desired goods. The chain of trades necessary to ensure equilibrium would be too complicated to be practical. That is why money is introduced into this system as a lubricant which streamlines the trading process. Money has no impact upon relative prices though. The stock of money simply gives us the level of absolute prices. Let us assume a standard equation of exchange as seen in (1).

$$M \times V = P \times Q \quad (1)$$

The level and structure of production is set in the real sector (next we will explain how this is done) and is here denoted by Q . The stock of money M is set exogenously by the central bank. If we are ready to assume a constant V then changes in M will result only in changes of P , which is the absolute price level.

The monetary sector is easy enough. Let us build the real sector. Following Léon Walras [15], let us imagine an economy consisting of m economic agents a

$$(a_1, a_2, \dots, a_m) \quad (2)$$

, and n goods g .

$$(g_1, g_2, \dots, g_n) \quad (3)$$

Every economic agent a has an initial endowment of goods he possesses denoted by $E_{g,a}$ which states the level of endowment of each good g by the agent a .

Let us say that the n -th good will be the numéraire, the accounting unit of this economy (it does not matter if this good is a utility bringing commodity or simply non-utility bringing fiat money – it is essentially a barter economy, even if the actual trading proceeds indirectly through a numéraire). It follows that P_g gives the relative

price of good g in terms of the amount of the n -th good which is needed to exchange (or “buy”) it for one good of g . Suppose for example, that to get one good g_1 we have to exchange three n -th goods. So we can write

$$P_{g_1} = 3 X g_n \quad (4)$$

, and therefore

$$P_{g_n} = 1 \quad (5)$$

, because we need one n -th good to exchange it for one n -th good.

So this economy has agents and their initial endowments of goods. The trading can begin. However, in the Walrasian system trading does not occur sequentially or without thought. Trading occurs only when relative prices form a set of prices which will cause the system to be free of any excess or shortage in any market, which will mean that the system will be in general equilibrium. So economic agents will haggle over prices until they are all satisfied and informed about the process named “*tâtonnement*” by Walras.

It is intuitively clear why the introduction of fiat money in such a system does nothing to relative prices. The economic agents have perfect knowledge about the state of the market and trade occurs only on the assumption that general equilibrium was reached. Real effects like changes in the initial endowments, or utility functions of economic agents would lead to relative price changes. But if we changed the money stock, then absolute prices would change accordingly (given (1)), but no economic agent would act or feel differently because their utility functions and initial endowments of goods would not change. The trading would be simply delayed (in logical time, not in historical time) by the monetary change until the *tâtonnement* process finds the new general equilibrium set of absolute prices with no change in relative prices.

This idea was put forward most famously by Milton Friedman. Friedman imagines a helicopter which flies across the country and drops money from the sky, giving each economic agent a proportional increase in their money holdings [2]. If these agents can be represented as Walrasian economic agents then this change will not bring about a change in relative prices, but only an increase in the absolute price level (assuming the validity of (1)).

This idea could be made even easier if we imagined that some computer error multiplied (or divided) every money balance in the economy by a factor of ten (for simplicity, we are assuming a money stock which consists completely of highly liquid electronic bank money, so M1 excluding cash). Obviously, this would not change anything in the real economy, so it would not change relative prices although the absolute price level and the nominal value of the different goods would increase (or decrease) by a factor of ten.

3 Objections to the Neoclassical Model

Now we will turn to objections against this reasoning. We will identify three objections. The first objection concerns the nature of money. Why is there money in the Walrasian system? Yes, it can be used for transactions, but outside of them money serves no purpose. So why do economic agents hold on to money? Given perfect information, should they not invest in the stock market, or invest in some securities? Even if they would need money for transaction purposes at some point, they could always liquidate their financial assets and get the needed money balances. The problem in this system is that money is a non-interest bearing, non-utility providing asset, but economic agents still do not wish to part with it. This point was, according to the Post-Keynesian School, the cornerstone of the Keynesian revolution. According to Keynes:

“In the second place, it (money) is a store of wealth. So we are told, without a smile on the face. But in the world of the classical economy, what an insane use to which to put it! For it is a recognized characteristic of money as a store of wealth that it is barren; whereas practically every other form of storing wealth yields some interest or profit. Why should anyone outside a lunatic asylum wish to use money as a store of wealth?

Because, partly on reasonable and partly on instinctive grounds, our desire to hold money as a store of wealth is a barometer of the degree of our distrust of our won calculations and conventions concerning the future.”

(J. M. Keynes [5])

Therefore, money is valued because we use it as a hedge against an uncertain future. Our information about the future is not only not perfect or asymmetric but non-existent. We can surely make some educated guesses, but they will, more or less, fall short of reality. That is why economic agents proceed rationally and hold money balances as a hedge against uncertainty. Money demand is therefore a proxy variable for the state of expectations about the future. If money demand is high we can assume pessimistic expectations. If money demand is low we can assume optimistic expectations.

In an uncertain world, economic agents do need to ask the portfolio question – what should they invest into? Should they keep some cash or should they invest in the stock market? In a perfect information, perfect foresight and money-less world, like in the neoclassical Walrasian model these questions are meaningless. Economic agents simply trade away every commodity they do not need at equilibrium-assured prices and get all those commodities that maximize their utility function, given their budget constraint (which in this case is the initial endowment of goods) in return. In an uncertain and monetary world, where it is impossible to foresee every economic outcome, economic agents have changing expectations, which changes money demand, which has a direct impact upon the real economy.

This objection in effect says that the classical dichotomy does not hold because expectations, which change given an uncertain world, influence the demand for mon-

ey, which influences aggregate demand and therefore the real sector of the economy.

(Objection 1)

The second objection concerns the pure barter exchange assumption of Walras. Such an economy is only a gross abstraction. Modern economies are monetary production economies where it is simply not true that every economic agent has some initial endowments of goods to trade with. Capital goods which are being used in the production process have to be financed (even before they can generate additional cash-flow) and be built. It is obviously true that various money markets affect the real economy in such a system. The value of stock of a company or the availability of a loan in the credit market, for example, determines whether a firm can finance a new capital good. If the firm finds the financing necessary in the money markets, then the capital good can be produced, which changes the capital structure of the economy – which is a real phenomenon.

This objection in affect says that the classical dichotomy does not hold because the various money markets directly influence the capital structure (the aggregate supply side) of the economy.

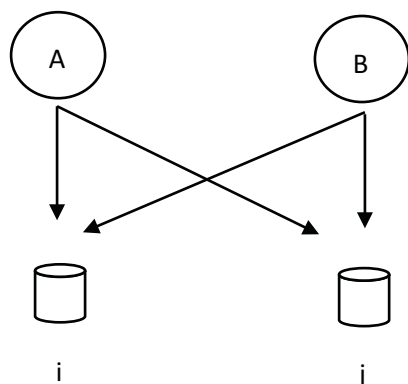
(Objection 2)

The third objection concerns the dynamism and point of injection of money in the economy (for a historic and methodological perspective see [1]). Here we will come back to Friedman's imaginary helicopter. Such an event obviously happened only in the minds of economists, not in the real world. In the real world, economic agents need to get money from loans or from previously made investments into the various money markets (in excess of what they received as payment for a factor of production).

Let us say that we have an economy consisting of two economic agents (A and B) and two economic goods (i and j). Both agents have the same utility function (both buy both goods in equal amounts) as can be seen in Figure 1.

Figure 1

A homogenous agents, helicopter-money economy



Source: authors' construction.

In such an economy the price of commodity i , P_i is given by the demand for i by economic agents A and B (see (6)). The price of commodity j , P_j is equally given by the demand for j by economic agents A and B (see (6)). If a helicopter flies by and drops money proportionally to every economic agent, then it will indeed be the case that both demands will rise proportionally (see (6)) and relative prices will not change (see (7))

$$\frac{P_i = f(Qd_{A,i}, Qd_{B,i})}{P_j = f(Qd_{A,j}, Qd_{B,j})} \xrightarrow{\text{Friedmans money dropping helicopter}} \frac{P_i^+ = f(Qd_{A,i}^+, Qd_{B,i}^+)}{P_j^+ = f(Qd_{A,j}^+, Qd_{B,j}^+)} \quad (6)$$

, which will mean that

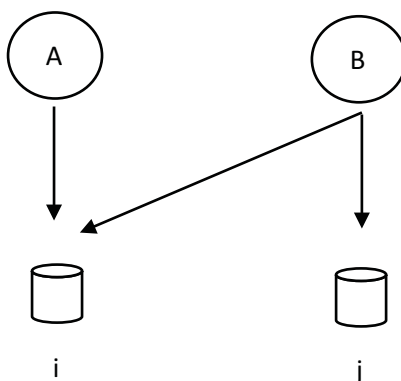
$$\frac{P_i}{P_j} = \frac{P_i^+}{P_j^+} \quad (7)$$

, so that relative prices will be unchanged, after the increase of the stock of money.

But in the real world economic agents are not homogenous. They have different utility functions and different market-power in the various money markets. Let us imagine an economy of two heterogeneous agents and two goods, as can be seen in Figure 2.

Figure 2

A heterogeneous agents, money market economy



Source: authors' construction.

The economic agent A demands commodity i and economic agent B demands both commodities i and j . The relative price equation will be

$$\frac{P_i}{P_j} = \frac{f(Qd_A, Qd_{B,i})}{f(Qd_{B,j})} \quad (8)$$

Now let us say that economic agent A gets a consumption loan (or simply gets unexpected dividends from the stock market). The quantity of commodity i demanded

by economic agent A , Qd_A will increase, although the quantity of commodity i and j demanded by economic agent B , Qd_A will stay the same. This will mean that

$$\frac{P_i}{P_j} = \frac{f(Qd_A, Qd_{B,i})}{f(Qd_{B,j})} \neq \frac{f(Qd_A^+, Qd_{B,i})}{f(Qd_{B,j})} = \frac{P_i^+}{P_j} \quad (9)$$

, after the loan financed additional consumption of commodity i took place, the relative price of commodities i and j changed. So, a monetary phenomenon influenced a real variable – the relative price of goods. This influencing will not stop here. The price of commodity i , P_i will rise not only in relative terms, but also in absolute terms. This could incentivize new firms to invest in the commodity i making industry, which would alter the production potential of the economy in the future, thereby influencing the real economy in this way as well.

This objection in effect says that the classical dichotomy does not hold because the various money markets are directly and non-proportionally influencing the money balances of heterogeneous economic agents, which directly influences the demand for some commodities, which changes relative prices and thereby the real economy as well.

(Objection 3)

4 Conclusion

The classical dichotomy divides the economy into a real sector, where relative prices are determined according to a general equilibrium framework, and into a monetary sector where absolute prices are determined according to a quantity theory of money framework. However, this dichotomy is in error. Even if we accept a rough general equilibrium approach, we have to depart from the classical dichotomy if we de-idealize the model – if we support the model with facts regarding some simple assumptions. If we do this, we get three objections to the proof of the classical dichotomy.

The first objection states that given changes in expectations, money demand changes, which changes the level and structure of aggregate demand and therefore relative prices and the real economy as well. The second objection states that money markets influence capital goods production that influences the capital structure and therefore the real economy. And the third objection states that money market activities change money holdings of heterogeneous economic agents, which influences demand only for some commodities and therefore relative prices and the real economy.

The theoretical and policy lesson that we should draw from the dismissal of the classical dichotomy is that we have to include the various money markets into our macroeconomic models if they are to be descriptively realistic, capable of accurate predictions and helpful for policy advice, because as was shown, the monetary sector does influence the real sector. This does not mean that each and every event which could be labelled as a monetary phenomenon will indeed influence the real sector in some profound way, but it does mean economic models should not exclude the

monetary sector to such an extent as they currently do. The monetary sector is important, indeed crucial, when it comes to the functioning of the real sector and there is no scenario where this ceases to be the case. This means that the monetary sector should be included in a deeper way in every economic model that will want to be empirically useful.

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