Beyond Quantitative Easing (Towards a New Monetary Theory)

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BEYOND QUANTITATIVE EASING

Towards a New Monetary Theory

by

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INDEX

INTRODUCTION[1]

In his book *Interest and Prices*, originally published in 1898, Wicksell summarized the two goals of monetary policy that today constitute the cornerstones of monetary theory. The first goal is to prevent monetary shocks due to excessive/or insufficient credit in the system, resulting in a conservative view of monetary policy. The second goal is to adequate the level of credit to changes in the real sector of the economy as reflected in changes in the the real level of savings or investment. The first goal has been the main emphasis of the Quantitative Theory of Money which supports both *Monetarism* and *Rational Expectations*. The second goal was the route taken by Keynes who emphasized the volatility of investment as a main cause of economic instability. However, if Keynes' view of the dynamics of the economy had been right the world economy would have had many more major economic crises because after all, volatile investor expectations are there *all the time*. In the real world, economies, for the most part, remain close to full employment equilibrium. And in the few occasions in which they depart from this position, it is not due to the instability of investment expectations. We only have had three such occasions in the last 150 years: the 1930's Great Depression (1930 GD); the 2008 Great Contraction (2008 GC); and today's Covid 19 Global Pandemic (2019 GP). None of these extraordinary events were caused by the instability of investment expectations. They were caused by other factors, as we explain in this piece.

KEYNES'S RESURRECTS, PARTIALLY

The Quantitative Theory of Money was right: economies are usually near equilibrium. It is true that the long run Phillips Curve is vertical, and that in the long run money increases only traduce themselves into prices.

[1] This book has benefited from conversations that I have had with my colleague Jorge Mariscal; with whom I have written a paper in monetary policy in emerging markets, see bibliography. I wish to acknowledge the importance of his contributions. I also want to thank him for his suggestions to the first draft of this book.

However, it went too far in arguing for a pre-established fix rule that defines money growth. This has never convinced policy makers. Although, in normal times real economy shocks are relatively small, they do exist, and an active monetary policy is a welcomed countercyclical tool. This was the main conclusion of Rational Expectations models that introduced short term Keynesians-like rigidities, and became the base of the accepted monetary theory from the eighties until the 2008 GC.

However, the Global Financial Crisis of 2008 changed the world of policy. The GD could no longer be seen as the isolated event never to be caused again by the absence of modern theoretical and practical economics as Lucas had argued. The causes of the 2008 GFC had to be explained. In addition, economists and policy makers needed to understand why the huge increases in the quantities of money, injected as a policy response, did not have the expected impact in the speed of the recovery, and why they did not produce inflation.

Keynes was back, not because his teachings could explain the origin of the crisis (which as we said they could not), but because of his Liquidity Preference Theory (LPT) which explains the conditions under which monetary policy loses efficacy. Furthermore, the worsening of investor expectations once the crisis starts can be analyzed through Keynes' Marginal Efficiency of Capital; (MEC) becomes relevant.

QE AND BEYOND

The most effective tools and the best solution found for the 2008 crisis was Quantitative Easing (QE), introduced by the Federal Reserve under Ben Bernanke. By buying directly toxic assets from the market, the Federal Reserve became a direct player in the credit market, circumventing Keynes' Liquidity Preference Trap. The Liquidity Trap occurs when banks cannot lend at any interest rate because economic agents' balance sheets have deteriorated to the point that they become unviable. In these conditions, the difference between the Central Bank discount rate, and the rate at which the Banks are willing to lend, is unsurmountable; no matter how low the discount rate goes.

QE is again being used in the 2020 Pandemic. Notwithstanding the relatively successful experience of 2008-09, several theoretical questions (with implications for policy) need to be answered. What is the theory that explains why QE works? How does QE relate to traditional mon-

etary theory? How does QE relate to Monetarism and to Rational Expectations? Should QE be used in "garden variety" downturns, or only in major crisis? How does QE relate to LPT? How does QE relate to MEC? Could QE have been better designed and applied in the 2008 crisis? Is QE properly applied in the current? What would a new monetary theory that includes QE look like? What is the role of Central Banks in the post QE world? To answer these questions, we need a historical perspective on both of monetary theory policy.

WHAT IS MONEY TODAY?

Money is not an end in itself; it is just the means for economic agents to transact more efficiently in the real economy markets. The goal of any economy is real growth. Money facilitates savings, and it is therefore intimal connected with an expectation about the future. Therefore, money and expectations are always related. But expectations are not irrational animal spirits incapable to know the truth and subject to manipulation. Expectations are based on all available current information. In this sense, they are rational. However, in addition to having full information of the economic model, they also incorporate a rational evaluation of the capabilities of the institutions in society that regulate the economy and respond with policies to unknown future events. *Thus, any proposal made in relation to the role of money and monetary policy in the economy has to consider that (1) economic agents incorporate an expectation that markets aim to achieve the economy's main goal which is economic growth; And (2), that expectations about the future incorporate their confidence on the capacity of the institutions to cope properly with future and unforeseeable shocks to the economy*.

The relationship between money and the adequate functioning of the real economy is of crucial importance. Money is not mechanistically related to nominal GDP. Money facilitates savings and thus creates the bridge between the present and the future of the real economy. Money represents the true social pact, that allows the real economy to operate properly. Money usually functions well as economies are near full employment equilibrium most of the time, and institutions are trusted to confront normal volatility. In these conditions traditional monetary theory works fine. Avoiding unwarranted monetary shocks, and having a conservative, moderately active monetary policy is enough. But occasionally major event happens that disrupt the economies well functioning; and institutions do

need to respond properly. In these infrequent, but very important cases, like 1930's GD, 2008 GC, and Covid 19 GP; the performance of the institutions is closely watched. If they do a poor job, confidence on them deteriorates; and expectations of the economic agents about the future worsen – This means that the MEC declines. And if the institutions allow a credit crisis to unfold, Keynes' LPT would become relevant, as the balance sheets of most economic agents in the economy deteriorate.

A NEW UNDERSTANDING OF THE ROLE OF CENTRAL BANKS

Before the 20th century, money had been the responsibility of the elected governments. Central banks existed since 1668 in Sweden, and 1694 in England, but these early Central Banks' main task was to finance the governments. Governments used their power to finance themselves by diluting the gold content in the coins, which implied an unannounced inflationary tax. This generated unstable expectations, mistrust in the government's finances, and uncertainty about the future of the economy.

In the last one hundred years governments have been moving to delegate part of their responsibility to Central Banks. Today they enjoy a high degree of autonomy, although their top officials (usually the governors) are still elected by the government. However, there are important questions that need answering: have been Central Banks been able to separate themselves from the traditional mistrust in the governments' mismanagement of their finances? And, what should be the main role of modern Central Banks in the economy? Should it be only to impede the inflationary consequences of mismanage public finances? Or, should Central Banks be responsible of the whole relationship between money and the real economy? In practice, some Central Banks (like the European Central Bank) have the single goal of maintaining inflation under control; others have incorporated a dual objective that, in addition to inflation, includes stable real growth of the economy. But even when they do incorporate this second goal, it is always unclear how it is shared with the government. In this manuscript our main argument is that Central Banks must be responsible of the whole relationship between money and the real economy. This includes responsibility for forming expectations about both future inflation and economic growth. Since the GFC, Central Banks in the developed world have been moving in this as shown by

their use of QE. However, this role and the accompanying policies, are limited, not well defined, and often not well directed.

THE MONETARY CREDIT BAZOOKA

The Central Banks of the future must interact more directly with the society and not operate mostly through the government. *Money is not a monopoly of the government; it is socially own*. The Covid-19 pandemic represents a test for the role of Central Banks – one they are not passing with high grades. Namely, Central Banks are still mostly financing governments (as their balance sheet holds large amounts of government, or quasi-government bonds), their financing has been insufficient to prevent a deep decline in growth or a rapid economic recovery, and has been unable to fully reset economic expectations about the future. In this manuscript we argue that Central Banks have at their disposal a *Monetary Credit Bazooka (MCB)*[2], that they had been unwilling to use, and which could have been critical in the response to the response to the Covid-19 pandemics.

The MCB is not and everyday tool. It should be used only in infrequent major economic crises. The Central Bank cannot just print money or buy toxic assets at will. Because it would be just going back to the behavior of the governments of the previous centuries when distrust in governments and Central Banks prevailed. Therefore, in normal times, Central Banks must behave according to traditional monetary theory. However, in severe crisis, they must use the MCB in order to remain credible. The reason is that key institutions like Central Banks help connect the present with the future. They are one of the chief channels economic agents have to asses the risks in unknown future. If Central Banks' response is not proportional to the size of the crisis they risk losing the trust of society, which feed into more uncertain and volatile expectations. In the end, it is the credibility of institutions' capability to adequately manage unknown future events what provides some confidence for consumer decision and for investors to risk capital into the future. MCB consists of long term lending, with preferential conditions, to all economic agents capable of repaying the loans which here, we will call the *productive economy*. Loans can include the government

[2] This name is due the paper in monetary policy in emerging markets written by my colleague Jorge Mariscal and myself. us in our discussion of monetary theory because it must be understood that there is nomic growth foster rapid technological cha

in so far as its debt repayment capacity is present.

The new monetary theory presented in here, proposes that Central Banks are responsible for the whole relation between money and the real productive economy, with the purpose of maintaining a proper functioning of the real economy. Most of the time, traditional conservative active monetary policy is enough, and it must be followed to maintain the credibility of the Central Bank. But in major crisis, that only happens occasionally, Central Banks must use the MCB to guarantee a fast return of the economy to a position near full employment. One of the concerns of the use of MCB is that it may deteriorate the Balance Sheet of the Central Banks. But while this is true in regular times because bad assets will not be repaid, it is not true in major crisis. In the latter, an economic recovery induced by the use of the MCB can turn non-performing assets into viable ones. *What does credibility in the Central Bank really means? To believe that it can properly bridge between today and tomorrow; that it is able to maintain an adequate relationship between money and the real economy, so that this can operate properly near full employment equilibrium*. Using MCB in a major crisis is the rational course of action as it will actually increase confidence in the Central Bank, just like QE did in 2008. The positive shock on the economy achieved through the use of MCB more than offsets concerns with the quality of the Central Bank's balance sheet. Not doing enough from a monetary policy perspective would actually result in a loss of credibility.

THE SEPARATION BETWEEN MONETARY AND FISCAL POLICY

Central Banks must be responsible for what we have defined as the productive economy. Fiscal policy (the government) should be focused on the *social economy*. Which is defined in here as the segment of society negatively affected by the crisis to the point. where they are not credit worthy.

The Government may borrow from the Central Bank for expenditures needed to help the social economy in major crisis in so far as it shows repayment capacity (like any other economic agent), based in future tax revenues in the recovery, or other austerity measures to be implemented when economic normality returns.

Economic agents are not irrational actors. Especially in major economic events are related. Some microeconomic behavior can be well explained with *Behavioral Economics*, but not macroeconomic events. In this document we will discuss how Behavioral Economics relates to Monetary Theory.

When institutions perform poorly they create mistrust, and loose the economic agent's credibility on the capacity of the institutions to bridge between the present and the future.

Before 2008 most in the economic profession were convinced that shortages of money produce a contraction, and that excess money only produces inflation. Thus, the recommendation was a mildly active monetary policy. In a world of rational expectations with short term Keynesian frictions this implies that the economy is almost always near full employment. Free market and sound institutions, it was argued, always produce a full employment equilibrium. In this context, the role left to Central Banks was to control inflation and counterbalance some minor and temporary real shocks, consequence of Keynesians rigidities in the system. The period of stagflation of the seventies was thought to have been caused by irresponsible Central Bank responses. This made them loose credibility.

Then, the 2008 global financial crisis became a reality which forced Central Banks to act well beyond their traditional duties. QE was introduced because fiscal stimulus, despite its large size (over 110% of GDP in the US), was not enough. At the same time, traditional monetary policy was trapped in Keynes' LP. Banks were not lending despite ultra-low interest rates.

It is not yet not yet fully appreciated how big of a change in macroeconomic policies QE really is. It meant that Central Banks entered the realm of long-term lending, giving Central Banks a powerful tool like the MCB. This tool of policy has not been fully used in the Covid 19 crisis due to ideological conservatism regarding the role of Central Banks which ascribes inflation as their main objective. The argument in this book is that Central Banks have the main and exclusive responsibility for the whole relationship between money and the real economy, and to be less reluctant to use tools like the MCB when circumstances merit it. In the current juncture, Central Banks could do much more to mitigate the economic impact of Covid-19 and to prepare the economy for a stronger and fatter recovery. However, to fully embrace this, require major rewriting of monetary theory.

Keynes was right in that traditional monetary policy was unable to fight very deep recessions due to the Liquidity Preference Trap; but the MCB is not traditional monetary policy, and it does not have the limitations foreseen by Keynes. Furthermore, fiscal policy has proven of limited value to fight deep recessions (something that Keynes suspected). However, Central Bank can and should use their balance sheets more aggressively and resort to the MCB when needed. Central Banks and economists should not be afraid. New ideas are always needed to confront unprecedented new situations like the Covid-19 crisis. We should not

be afraid that using MCB will worsen the balance sheets of the Central Banks. The resulting economic recovery will ensure that non-performing assets will transform into viable. MCB will not be inflationary because its mainly target is the productive economy, and because it will increase the economic agents' confidence in the Central Bank.

In other words, whether or not MCB will bring a recovery, depends upon the size, timing and messaging of the policy. This will determine how economic agents form expectations. In the 2008 GFC economic agents lost confidence in the institutions as a result of the mismanagement of the sub-prime crisis. That is in part why recovery was mild and slow. QE brought back confidence and accelerated the recovery, despite the fact that it was introduced late. The slow recovery also explains why deflationary pressures have persisted. The regained confidence in the Fed explains why stagflation has been avoided. In the current crisis, QE has been introduced earlier and scaled quicker than in 2008. Fiscal policy was also activated faster. This is also why the stock market has performed well. However, QE has not been adequate in three areas: 1) It has not been specifically directed to the productive economy, 2) the amounts are still insufficient, and 3) although it tried to use communication to positively shock expectations, it could have been done better.

New ideas are powerful to transform reality, they are a key input that promote rapid and flexible social change. But the new ideas have to confront the old ones, and they do not always win the battle. Old ideas, even when they no longer correspond to the new social reality are represented by institutions that were built in the previous reality. As a result, what was once functional to promote change may become one of the key impediments to understand what must be done under new circumstances. Macroeconomics is not the exception.

Understandably in a historical context, Central Banks thinking, is dominated by the fear of inflation caused by excessive money supply growth. But one must distinguish between normal times and exceptional ones. Most of the recent monetary theory was built with economic data near full employment equilibrium. We must think out of the box and look more carefully at situations where the economy is far away from equilibrium, like now. QE has shown us that unconventional monetary policy not only works, it also increases the confidence in the Central Bank, and has not produce inflation. It is now the time to go beyond QE, and for all Central Banks to use MCB. We must not be afraid. The depth of the crisis and the speed and length of the recovery are at stake.

PREAMBLE: CLASSICAL AND NEOCLASSICAL MONETARY THEORY

For the Classical economist, money was not a central concern. Smith initially focused in economic development, and later with Ricardo and Marx, on the theory of labor value. Neoclassical economist focused on a theory of value from the point of view of prices. Monetary theory was simple, more gold implied higher nominal GDP, and less gold implied lower nominal GDP. For all these thinkers, nominal GDP always followed real GDP. Therefore, although there were economic cycles, these were always around the equilibrium determined by the real economy. The Classical and Neoclassical Monetary Theory (CNMT) is closely related to the Theory of Capital. Real savings and real investment opportunities equal each other and define the real interest rate that maintains the economy at its long-term growth potential. Note that there can be more than one long term growth potential, but only one that relates to full employment equilibrium. But that was not a concern for Classical and Neoclassical thinkers, for whom real savings and real investment opportunities are exogenously given.

A good summary of the Classical and Neoclassical perspective is given by Wicksell [3]For him the "natural rate" is the one that equals real savings and real investments in an inter-temporal sense, compatible with Bohm Bawerk's Capital Theory. It is an inter-temporal equilibrium, between the inter-temporal preferences of the savers and the inter-temporal possibilities of production foreseen by the investors. Thus, the role of the monetary policy is to maintain the "nominal rate" equal to the "natural rate" (the one that equalizes real savings and real investment).

The disequilibrium may have both monetary and real causes. Monetary causes relate to banks intermediating between the supply of savings and demand for investment. If banking credit is higher than real savings –which means the bank rate is lower than the natural rate, investment is higher than savings and there will be inflation; if it is less, investment is less than savings and there will be deflation. The role of monetary policy

[3] Mainly in Interest & Prices.

is to maintain savings equal to investment. Real causes relate to parametric changes in inter-temporal preferences of the saver, or in the investors planned investment (which among other causes, may be due to an external shock) which may result in the old banking rate higher or lower that the new natural rate.

There is already in Wicksell a justification for what latter would become the preferred monetary policy of Monetarists and proponents of Rational Expectations, a stable rate of growth of money supply. This is because in Wicksell's view, the role of monetary policy is to remain neutral. In other words, the Central Bank should not produce monetary disequilibria.

It is remarkable that the rule of a stable rate of growth of the money supply has never convinced Central Banks in the real world. And the explanation can already be found in Wicksell's vision of the frequent parametrical changes, both in real savings and in real investment. In this sense, there is in Wicksell a recognition that monetary policy has to be active as it should react to parametrical changes in either real savings or real investment, to avoid the banking rate to remain above or below the new natural rate.

Therefore, Wicksell, summarizes what would constitute accepted monetary theory for many years to come: (1) Central Banks most avoid a monetary policy that introduces unnecessary fluctuations in nominal GDP. And, (2) given shocks, whether internal or external, to the real economy, a conservative, but active Central Bank policy is required.

The most important lesson to learn form CNMT is that money is not and end of itself, the key problem of any economy at any time is the real economy.

Keynes' *Treatise of Money* was written in the neoclassical tradition. Following Wicksell, Keynes argued in this work that the role of the Central Bank is to maintain the bank rate equal to the natural rate, which meant real savings equal real investment. Thus, Keynes in the Treatise is still compatible with Bohn Bawerk's Capital Theory. Keynes' Treatise of Money is still in the neoclassical tradition, but it differs from Fisher's Quantitative Theory of Money. The latter focuses on monetary disequilibria, while Keynes focuses on the disequilibrium produced due to parametrical changes in savings and investment.

In the *Treatise of Money*, economic equilibrium is defined by real savings and real investment. Disequilibria mainly express in the level of prices, though Keynes argues that disequilibrium can have short term consequences in the level of employment. *The Treatise*, however, is not a significant departure from the CNMT. In fact, Keynes' second fun-

damental equation in the Treatise may be written in such a way that it is compatible with Fisher's. The difference between the two being that: Fisher's covers all the transactions and Keynes' does not. However, Keynes places special emphasizes in the instability of the real economy, particularly due to investment – a concept he will use latter on in the *General Theory*.

QE and Keynesian Monetary Theory

Keynes had three key contributions, and two unwarranted propositions. The first critical contribution was, as Patinkin has convincingly argued, his theory of the consumption function. Keynes' consumption function for the first time allowed the conceptualization of theoretically diverse economic equilibria, of which only one corresponds to full employment. As far as this contribution goes, the IS-LM model does recover it very well.

His other two contributions were his Liquidity Preference Theory (LPT), and his concept of the Marginal Efficiency of Capital (MEC). The first was substituted by Tobin's Liquidity Theory (LT), based in a probability view of risk, while the second was substituted by Hick's investment theory (IT). To understand why LPT and MEC were left behind one needs to understand the two unwarranted proposals made by Keynes.

The first one is that the dynamics of the real economy were mainly defined by the volatility in the investors expectations, derived from uncertainty about the future. In other words, he implied that his concept of the MEC was relevant at any point in time in any given economy. However, if he had been right, we should have seen many more major crises in history. The uncertainty of the future is always there, yet major crises only occur infrequently. As such, they are not explained by MEC - the latter only becomes relevant after a major crisis happens. This is why we listed it as significant contribution. It however, does not explain the normal functioning of the economy which is better accomplished by IT. Economies are usually close to full employment equilibrium; because markets are efficient and flexible prices make the economy quite homeostatic.

The importance of institutions

Markets, however, always operate within a given institutional arrangement, which usually works well. When there is a serious institutional mistake, the economy may move from near full employment equilibrium to a far away suboptimal one, in the form of a major crisis. When this

happens, the confidence of economic agents in financial institutions worsens drastically, and MEC becomes relevant.

A similar argument applies to LPT. In normal times the balance sheets of most economic agents are sound and therefore, Central Bank policy rate movements define movements in the Banks' lending rate – in line with Tobin's LP which explains rather well the economic mechanisms at play. But once a major crisis occurs, the balance sheets of most economic agents seriously deteriorates, and Keynes' LPT becomes relevant. Because both LPT and MEC are only relevant in major crises and not during the regular operation of the economy, these concepts were removed from the IS-LM analysis, and substituted by LT and IT, both of which explain better the functioning of the economy in normal times or mild recessions.

The second unwarranted proposal in Keynes is found in the chapter in the General Theory titled *Sundry Observation on the Nature of Capital*, where he argues that the interest rate is a pure nominal phenomenon. This chapter reflects Sraffa's influence – the latter had mounted a critique of Neoclassical Capital Theory and which he would develop in his book *Production of Commodities by Means of Commodities,* many years later.

As I have argued elsewhere, Sraffa's was wrong[4], but under his influence, Keynes mistakenly abandons the Neoclassical Capital Theory, and makes the economy hang on pure nominal categories. These approach will have defined Mrs. Robinson volatile *animal spirits*. With this proposition Keynes, dissociates his theory from the real economy, and from the problems of economic growth (this is further discussed in chapter five). A view of nominal quantities dominated by the uncertainty of the future was clearly a poor substitute to the Neoclassical Capital Theory where the real interest rate was a function of savings and investment. LT and IT had the virtue that they were compatible with a vision of a real interest rate, as defined by the Neoclassical Capital Theory. Years later, Solow's Theory of Economic Growth would be compatible with the IS-LM frame, and therefore with LT and IT.

It should be quite clear why the main economics tradition refuses to incorporate LPT and MEC: they were not useful to explain the regular or normal operation of an economy. *Despite this however, once a major crisis happens, LPT and MEC become relevant concepts. The first one, to explain the inefficacy of the traditional monetary policy after a major crisis occurs. And the second one, to explain the deterioration in the economic agent's expectations as to the capacity of the institutions to manage the crisis.*

[4] See Obregon 2018b

It is important to understand that Keynes did not have a monetary theory of his own. However, both LPT and MEC are key elements in his thought that allow us to explain why QE (Quantitative Easing) did works in major crises. This understanding will be helpful in the construction of a new monetary theory. The *Treatise of Money*, as we said before, is compatible with the CNMT, and Keynes did not develop a new Monetary Theory of his own in his *General Theory*.

What changed between the *Treatise*, published in 1930, and the *General Theory*, published in 1936, was the Great Depression. Keynes made two major contributions in the General Theory. First, the consumption function which allowed him to understand full employment equilibrium, as distinct from other equilibriums. Second, an explanation of why monetary policy may be some times ineffective in maintaining the economy at full employment equilibrium. This second contribution is lost in the IS-LM model. The consequences are serious. As we already mentioned, Hicks left out Keynes' MEC, and Tobin dismantled Keynes' LPT; and with these two changes the IS-LM model became incapable to explain the inefficacy of the monetary policy. And in fact, unable to understand an economy far away from the full employment equilibrium. The Keynesians versus Monetarists debate of the post war era ended up with the triumph of the monetarists, latter reinforced by the triumph of Rational Expectations explaining Stagflation.

Keynesians were doomed from the start because, without Keynes' MEC and LPT, they had to mount their defense on rigidity assumptions and monetary illusions that were both theoretically and empirically indefensible (prices are almost always quite flexible, and markets disseminate information efficiently): 1)Wage rigidity, to explain unemployment; 2) Monetary illusion, to explain movements in the full employment level; 3) An inelastic investment function and the Liquidity Trap, to explain the inefficacy of monetary policy.

The results of the debate were: First, that the Keynesian policies directed towards managing aggregate demand were shown less useful than what Keynesians initially suggested. In turn, this was due to (a) external shocks, uncertain expectations, and unknown response lags, it is difficult to forecast and understand the results of a specific aggregate demand policy; (b) the fact that if the economy is near full employment, aggregate demand policies will only produce inflation; c) inflationary expectations which seriously restrict the possibilities of aggregate demand policies. These results did not fully eliminate active aggregate demand policies, but seriously restricted their scope. Second, the instability of the money

demand function makes it impossible to fully abandon monetary policy and to substitute it by fixed rules. And, third, the microeconomic foundations of the IS-LM model were very poor and needed to be addressed, which was done by the Rational Expectations School. Under the assumption that all the economic agents have all the available information, and that they process it accordingly to the best available economic model, Rational Expectations was able to explain the Stagflation phenomenon of the late seventies. Despite its enormous success, however, this school was unable to convince the profession that a policy of aggregate demand was not needed at all. Short term, Keynesian-like, rigidities were introduced in models of Rational Expectations, that became the accepted justification of minor interventions on aggregate demand. The vision of the economic world was mostly back to the CNMT. The Central Bank was argued has to avoid creating unnecessary monetary disturbances, and active monetary policy is needed to attend the minor disequilibria produced in the real economy by small and short-lived rigidities.

This was the state of mind in the economics profession when the GFC arrived in 2008. As I have argued elsewhere, the GFC was not inevitable – it was rather caused by untimely and misguided intervention of economic institutions such as the Fed and US Treasury. Intervention, when it finally came, was based on the incorrect theoretical framework[5], i.e., CNMT. This framework works very well when economies are in the vicinity of full employment equilibrium. But it is ill-suited to explain economies far away from it, as was the was the case during the Great Depression of the 30's (1930 GD), the Global Financial Crisis of 2008 and is the case now as a result of the Covid-19 global pandemic.

For these extreme cases, something else is needed to understand the role of monetary policy. This was understood by Keynes who provided some highly useful insights in this area, though was unable to provide a full answer of what is needed to be done. Keynes argued that monetary policy was inefficient in these cases because of his LPT, and he was right. He, however, did not develop an alternative proposal for a new monetary theory, nor concrete policy ideas. *We will argue in this book that QE, extended into the concept of a Monetary Credit Bazooka (MCB), could provide such new monetary theory.*

Keynes had doubts as to the possible efficacy of the fiscal policy in large crises, but since he was left without monetary policy, he did not see other option but to use fiscal policy fully. In the response to Covid 19 GP, governments are still relying mainly on fiscal policy. We argue that

[5] See Obregon 2011 and 2018c.

this is a mistake. Once the MCB is at our disposal, it should be a key element that should collaborate with, and reduce the size and scope of fiscal policy. In what follows, we will review Keynes's views from the point of view of what is relevant for economies far away from equilibrium. Both, to explain why QE works, and to provide the building blocks of a new monetary theory appropriate for large crises.

Keynes' LPT and MEC

The best way to understand Keynes' relevance for today's Covid 2019 crisis and address what is missing in the IS-LM, is to start with Minsky's interpretation, which provides a good version of Keynes' LPT[6]. Minsky modifies the money demand of the IS-LM model to make explicit the precautionary demand of money. In the IS-LM model, the demand for money is given by (1), and in Minsky by (2):

(1) $Ld=Ld\ (y,p)$

(2) $Ld=Ld\ (y,Pk,F,NM)$

where, y is national income, p is the deposit interest rate, Pk is the price of capital goods – and Minsky introduces the uncertainty associated with its possession, F is the precautionary motive for possession of Money, and NM is quasi-money, which can also be used to satisfy the precautionary demand for money. For Minsky, the key is that the price of real capital assets in relation to financial debts depends on U, the state of uncertainty. In the recession, when the money supply goes up and p goes down, the debt capitalization rises and Pk should also rise; but if Udeteriorates, then Pk does not go up enough. The balance sheets of the companies deteriorate. Given; the higher perceived risk banks raise their margin and the bank lending rate rises, or banks ration the credit, or a combination of both. Note that in this recessive process there is an increase in real balances as a consequence of the fall in prices and monetary wages, and that this stimulates consumption (the neoclassical effect). But Minsky's point is that, the effect of the increase in corporate the debt (and we would add consumer debt), consequence also of the fall in prices and wages, can more than offset the effect of the increase of the real balances.In Minsky's and Keynes's model the deterioration in U could be read as volatile expectations. In our

[6] Minsky's interpretation is used by Kindleberger in his book, Manias, Panics and Crashes: A History of Financial Crisis.

view as we will show, it would be due to large and consequential mistakes made by the institutions and policy makers which drastically reduce trust in their capabilities to manage the situation.

To summarize the above model, the distinctive feature of a credit economy is that it depends on the state of confidence , i.e., on uncertainty as incorporated in the view of economic agents about the future. If the state of confidence deteriorates, assets whose value depends on the resulting (more uncertain) view of the future (in the case of Minsky, capital goods) lose their value, the balance sheet of economic agents deteriorates, and banks restrict credit. As a result, the differential with the Central Bank's policy rate rises, and negative feedback loops are unleashed.

Minsky's model does not include consumers, nor parallel banking[7]. But it is relatively easy to see how it would operate in this case. Parallel banking is more willing and able (because it is less regulated) to take more risk; so that it should ration less the credit, and it will take more the route of significantly higher lending rates. But the macroeconomic consequence is similar as the one in the case or regular banks.

Long-term assets owned by the consumer, such as their home and their investments in the stock market, also incorporate a view of the future. During recessions consumer net worth goes down. Normally when the policy rate goes down the stock market should rise. However, given diminished confidence in the future (in our view, in the capabilities of institutions to manage the situation), *U*deteriorates, and as a consequence the stock market nor only does not rise, but may go down significantly. A similar phenomenon occurs with real estate. Home prices decline, but consumer debt does not, implying a deterioration in consumers' balance sheet. In turn, this lead to a reduction in the supply of consumer loans, unleashing a negative loop. Bank credit and *r* rises, and a negative feedback loop is unleashed. That is what happened in 2008. Despite the fact that QE put an end to the crisis, the slow and incorrect actions of policy makers (such as not addressing sub-prime, adjustable-rate mortgage holders when rates started to rise, and allowing Lehman Bros to fall) were a blow to confidence in policy makers that explains, at least partially, why the US recovery has been so slow. In a credit economy[8], monetary policy is not as effective as it is in a traditional macroeconomic model.

[7] Parallel banking refers in here to institutions that intermediate credit but are not regulated as Banks.

[8] A credit economy is one which largely operates through credit intermediation, a feature not specifically taken into account in the traditional economic model.

The models developed by Minsky, Stiglitz, and Greenwald[9], emphasize the decline in the supply of credit as a result of the deterioration in the balance sheets of credit claimants. The model of Stiglitz and Greenwald has the advantage that it is a more elegant and precise mathematical formulation, but it operates in a similar way to Minsky's[10]. These authors point out that the objective of monetary policy is not p but r. If *r* rises above the desired equilibrium - if in a recession *r* is contractionary rather than stimulating - the Central Bank must lower p even more and reduce reserve requirements. This task is difficult if parallel banking is widespread, as the central bank has little control over it.

Minsky's model makes an explicit description of the demand for money that is not in Keynes's work, but is compatible with the view of this author. In Keynes, as in Minsky, Stiglitz and Greenwald, financial relations are expressed in nominal terms. Keynes criticizes Fischer[11] because he distinguishes between the nominal interest rate and the real rate, but does not distinguish whether future changes in the value of money were anticipated or not[12]. Thus for Keynes, Fischer's theory is written on the basis of a real interest rate that would have to prevail "as a result of a change in expectations about the future value of money, so that this change has no effect on the current product"[13]. The distinction of Minsky, and Stiglitz and Greenwald, between p and *r* is very compatible with Keynes's original thinking in his LPT.

Keynes goes further. Aside from LPT, he introduces the MEC, *rd*, the discount rate used by investors for future cash flow. If *rd* is very high, it means that investors are very concerned about the future (again, for us this includes a degree of trust in the capability of institutions to manage any situation). Thus, in Keynes there are two mechanisms that slow economic recovery and hinder the effectiveness of monetary policy. The first is the LPT, i.e., the contraction of bank credit, and the rise in the lending rate of banks. And the second is the rise in the MEC. According to Keynes, uncertainty is reflected both in the LP and in the MEC. The first maintains *r* too high and/or reduces credit amounts, and the second increases *rd*.

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[9] 2003.

[10] For a summary of this model see Obregon 2008a.

[11] A point Patinkin did not understand

[12] Keynes, quote in Obregon, 1989, p. 173

[13] Keynes, quote in Obregon, 1989, p. 173

In Keynes, the demand for credit and the supply of credit can determine *r* and the amount of credit, but not rd. The lack of credit may be a problem for investment, but the presence of credit does not necessarily solve the investment problem, since *rd* is defined by the uncertainty associated with expected future cash flows.

With this background we can see with theoretical clarity why it was so difficult for Central Banks to stimulate the economy after the 2008 crisis: (1) Central Banks have control over p, but less so over *r* (and with the growth of the parallel banks have been losing control over monetary aggregates); (2) and even if Central Banks manage to influence r, they have no control over the demand for credit and over rd. What Bernanke brilliantly understood with QE was the need to sustain asset prices by buying them directly, which was equivalent to lower r, which significantly quickens the recovery. The recovery, however, was still slow because *rd* remained too high for a significant period.

In Keynes there is also no theory that describes what happens to the consumer, but it is easy to extend the model. The consumer has his own discount rate of the future, let's call it rdc. Even if the Central Bank manages to influence r, it is possible that the economy recovers slowly because *rdc* and *rd* remain too high. Therefore, if we compare what happened in Japan before, with what happened in the USA after 2008; the difference is that due to Bernanke's heterodox policies the USA was able to influence r, which Japan never manage to do; this is why recovery happened faster in the USA than in Japan. But still Bernanke's large purchases of assets did not influence *rdc* nor rd, that is why USA recovery, despite being faster than Japan's, was slow.

The crisis of 2008 began with a bank's credit crisis, consequence of the authorities' mismanagement of the adjustable rate subprime mortgage loans crisis. In Minsky's model the confidence in the future *U* deteriorated. Then at first the supply of credit is reduced (the supply curve shifts to the left). Later, as credit quality of bank and mortgage lenders worsened, the supply of credit became inelastic (insensitive to changes in p). Finally, the demand for credit itself is reduced as a consequence of the increase in *rd* and *rdc* rise (the demand curve also shifts to the left and also becomes inelastic). At first with the reduction in the supply of credit *r* rises, then with the fall in the demand for credit *r* tends to decline. The value of *r* is indeterminate. However, what we do know is that the total amount of credit is reduced, and that the new LM is inelastic to both changes in p and *r*.

With the rise of *rd* and *rdc* both investment and consumption fall, and become insensitive to changes in both p and *r* (the IS also shifts to the left and become inelastic). With the shift of both LM and IS to the left, aggregate demand is reduced, and as a consequence of both curves aggregate demand also become inelastic, hindering the Central Bank's ability to help the economy recover.

The consequence of the above is that total credit falls, credit to GDP is low and GDP growth is low, along the lines of what happened in the GFC of 2008. In the US, total credit fell 42% in 2008, and was negative in 2009. Credit granted by financial institutions in 2018 fell 23.2%, and was still negative in 2009. The crisis caused a sharp reduction in credit / GDP. GDP declined -0.3% in 2008, and 3.5% in 2009.

At first sight, fiscal policy seems to have the advantage of increasing aggregate demand directly, and does not have the problem related to the uncertainty of U, *rd* and rdc. But unless the increase in aggregate demand caused by fiscal policy is seen as sustainable, fiscal policy will have similar problems to traditional monetary policy. If fiscal policy is seen as unsustainable, it will not modify the uncertainty of the future.i.e., expectations of institutional capacity to manage the crisis –, and recovery will be spurious.

For fiscal policy to be efficient, it must be seen as sustainable. And its sustainability is related to the economic recovery, which depends in the private sector trust in the institutional capability to engineer and support a recovery. Keynes himself warned us, that while monetary policy in an environment such as the 1930 GDG, or the 2008 GFC, had difficulties in recovering the economy; he was not sure that fiscal policy could solve the problem either. Fiscal policy has problems of its own: 1) it is influenced by political considerations[14]; (2) it is directed indistinctly to the social and the productive economy, without considering that only the second can produce economic recovery; (3) even the resources directed to the productive economy are never well focused; because the government lacks the needed understanding of the productive economy, to be able to expediently discern what corporations are viable and which are not[15]. (4) government demand lacks the main virtue of the capitalist system, the transmission of consumer preferences in an efficient way through the price system. Because of all these problems fiscal policy did not produce a fast recovery after 2008.

[14] Now in the US, for example, it is under the influence of next November presidential election.

[15] Which right now is a particular key point, given the structural changes that the Covid 19 crisis will produce.

The basic problem of the economy in 2008 was the lack of confidence in the proper functioning of the economic system because of the deterioration in the balance sheets of systemic agents in the financial system. Thus, the main goal of policy should of have been to regain confidence, i.e., raise *U* in Minsky's model. The first job of the government or the Central Bank in 2008 should have been cleaning up those balance sheets. It was therefore of paramount importance to withdraw the so-called toxic assets from the system at an early stage. Without reestablishing health in the balance sheets, it was impossible to achieve economic recovery quickly. If they had acted this way,U would of recover In Minsky's model, *U* would have risen and the credit economy could of have been put to work[16]. If early done, the 2008 GFC could have been avoided. Furthermore, it could have been done cheaply. Waiting only worsen the balance sheets and increases the cost of the rescue. QE was efficient to reduce U, but was introduced too late and, as a result, large amounts were needed.

Fiscal policy typically does not influence U, and without healthy balance sheets recovery is necessarily slow, as it happened in 2008. Neither QE, nor fiscal policy, influenced directly *rd* and rdc. They could only have been reduced if the policies as announced appear sustainable and capable to solve the crisis.

The MCB proposed in this manuscript is directed specifically to the productive (viable) parts of the economy, which are the ones that will bring about the recovery; it should be publicly announced from the start of the crisis to positively shock expectations. This helps both reduce the amounts needed and further deterioration of *rd* and rdc. A large package of MCB, and a proper fiscal policy, both announced early in the crisis, could have had prevented the deterioration in the balance sheets of the economic agents and could of have prevented the deterioration of *rd* and *rdc*.

The key to a new monetary theory is to understand how the Central Bank can extend its responsibilities to better complement the fiscal policy efforts. The proper communication to regain consumer confidence is a task that the government can do efficiently, but to be credible there has to be real policies of recovery, for which the Central Bank new monetary policy proposed in here might be very useful. The new monetary theory consists in short in arguing that QE can go much further than it had in the past. The goal of the Central Bank should be the management of the

[16] That is why events like the mismanagement of Greece's case by the European financial authorities, in the Great Contraction, was so disturbing for the world economy. Because they raised - the mistrust in the ability of the credit economy to function properly.

whole relationship between money and the real economy, which includes: inflation, productivity, economic growth, and employment. The productive economy must be the goal of the Central Bank, because as the classical economists well understood the only purpose of money is to facilitate the better functioning of the real economy. The social economy should not be a concern of the Central Bank; it should be the Government's. The independence of the Central Bank should be increased.

CONCLUSION

LPT and MEC do not explain economies in regular times, that is why they were excluded from the IS-LM version, and were substituted by Hick's IT and Tobin's LT. The IS-LM is an equilibrium theory, which after a long controversy between Keynesians and Monetarists, discussed further in the next chapter, ended up in a revival of the CNMT. However, in some rare events, the economy moves from a full employment equilibrium to another far away equilibrium. And in these cases, both the LPT and the MEC can be helpful. There are however many questions that have been left unanswered. First, we have argued that MEC is not a candidate to explain why and how the economy moves to these infrequent far away, inefficient equilibrium because MEC is always there, and these events happen rarely. But then, we need to explain why and how these rare events happen. In the next chapter we will address this issue using Institutional Economics and General Equilibrium Theory.

Second, it is unclear in Minsky and in Keynes why and how U deteriorates, and in Keynes why rd (and our added rdc) also deteriorates. The topic of what is the role of uncertainty about the future? deserves further attention and explanation because again uncertainty about the future is always there, and big crises happen rarely. The answer to these questions can only be found in the advances in economic theory achieved in the last years and which have not been fully incorporated in Monetary Theory. These include the fields of Institutional Economics, General Equilibrium Theory, and Behavioral Economics. A discussion of these is the subject of the next chapter.

CHAPTER I: THE LAST SEVENTY YEARS OF MONETARY THEORY AND POLICY

The second half of the twentieth century witnessed a boom as far as developments in economic theory is concerned. This was largely due to the mathematical formulation of economic theories by Samuelson, Arrow, and many others. In relation to monetary theory three topics are of particular interest: (1) There was a huge success of the CNMT, which influenced macroeconomics, microeconomics, risk theory, portfolio theory, finance, and asset management. (2) The effort by many to resuscitate Keynes' original thoughts on monetary theory was in general a failure, likely due to the fact that Keynes himself did not had a monetary theory of his own. (3) Despite the CNMT success, this theory is incapable of explaining equilibria far away from full employment, and we are left without a theory that can describe major crises like those of 1929, 2008 and 2020. To explain them, we argue, we need to incorporate developments in other economic areas, mainly Institutional Economics and General Equilibrium Theory. In this chapter we expand in each one of the three topics mentioned above. And in the Chapter III we develop a new monetary theory capable of explaining equilibria that are far away from full employment.

THE SUCCESS OF THE CLASSICAL-NEOCLASSICAL MONETARY THEORY

To explain economies near full employment equilibrium, and to make the explanation compatible with the neoclassical capital theory, Hicks substituted Keynes' MEC for his IT, and Tobin changed Keynes' LPT for his LT. IT and LT are a function of the interest rate and therefore define an endogenous model. This endogeneity defines a clear equilibrium position, which through the interest rate connects it with the neoclassical capital theory. Once the IS-LM model was defined, there was a macroeconomic controversy between Keynesians and Monetarists, which as we

said was won by the Monetarists. Understandably so, because in the real world prices are mostly flexible, information generally flows well, and markets are quite efficient. Therefore, any assumption of money illusion or of price rigidity was not validated by the data.

The Monetarist success came with the conviction that more solid microeconomic foundations were needed. And the more these were developed, the clearer it became that markets display homoeostasis on their own. Thus, normally they maintain themselves close to full employment equilibrium.

The final blow to the Keynesians was the success of Rational Expectation to explain Stagflation. However, the Monetarist' and Rational Expectations' proposal of a fix rule of money growth was never accepted. Because, although the economies in the real world were near equilibrium since the second world war until 2008; economic cycles we evident. And the Rational Expectations School's explanation of such cycles, based in the lack of transmission of information between the Phelp's islands, was very unconvincing – for the same reasons that monetary illusion was previously rejected. The cycles were then explained introducing short term Keynesian rigidities, which justify the need of a moderate active monetary policy. The conclusion of all of this is a contemporary CNMT, characterized by a view that prescribes very moderate and conservative monetary policy.

The development of the endogenous microeconomic foundations strengthened the view of an economy always near equilibrium, in which risk is viewed in terms of historical probabilities. Tobin's' LT became the cornerstone of future key developments in finances and in portfolio theory. An economy in equilibrium, and a concept of probabilistic risk, are the theoretical basis for: (1) Black and Scholes options theory which had a huge impact on the growth of the derivatives markets. (2) Modern portfolio theory developed by Tobin, Markowitz, Sharpe, and others, which is the theoretical basis of today's professional asset management practice and has been decisive in convincing large pension funds of the benefits of index investing. (3) The Modigliani-Miller theorem which is the foundation of contemporary financial thinking about the capital structure of a company. The actual functioning of the world global finances just would not have happened without the vision of an endogenous economy in which risk is perceived in terms of probabilities.

In summary, CNMT explains nor only the behavior of Central Banks before QE, but also the functioning of the financial markets in the global economy, and how individual consumers and investors make their economic choices. Its success is undeniable.

CHAPTER II: THE FAILED EFFORT TO RESUSCITATE KEYNES' ORIGINAL THOUGHT

There have been several failed attempts to build a monetary theory based on Keynesian concepts. They involved a large number of economists, which can be divided in four groups: 1) Those involved in the IS-LM controversy; 2) the Post-Keynesians; 3) the proponents of Disequilibrium Macroeconomics; and 4) Behavioral Economists.

What of all them have in common is the use of unwarranted rigidities and/or of irrationality in decision making. Rigidities with flexible markets, however, are short lived, and thus cannot be used to frame an alternative monetary theory-much less explain why economies occasionally may move so far away from full employment equilibrium. The assumption of irrational behavior has the problem that if economic agents are *truly irrational*, since *they must be so all the time, then the frequency of major crises should be much higher than history shows*.

THE POST-KEYNESIANS

The so-called post-Keynesian economists, distinguished between a monetary economy and a non-monetary one. The argument being that money is the reason why economies may be far away from equilibrium. They avoid the rigidities and the monetary illusion of the IS-LM Keynesians. There are two distinct groups within the post-Keynesians. In the first group, the distinguished participants are Clower and Leijonhufvud. In the second, Shackle, Davidson, and Minsky. Clower developed the microeconomic foundations of a monetary economy in a general equilibrium framework, and showed that unemployment is a possibility. Leijonhufvud rescued basic ideas from Keynes' Treatise of Money. However, none of the two is successful in explaining why most of the time economies are near full employment, and then occasionally they move far away from it. Clower's failures at the microeconomic level are always there, therefore they cannot explain the actual di-

chotomy in the real world. Clower's microeconomic foundations however, were influential in the General Equilibrium literature later on.

Leijonhufvud used *The Treatise* and went back to Wicksell's CNMT. In his formulation there are real and monetary shocks, but the economy always maintains itself in a corridor near full employment. He uses CNMT to explain normal conditions of the economy (with the advantage that it connects with the Neoclassical Capital Theory), but he uses Keynes' MEC to explain why the economy moves far away from a corridor near full employment equilibrium. There are however, two problems with Leijonhufvud (1) he ignores the LPT of the General Theory, and (2) he does not explain, (also missing in Keynes' work) what is the source of drastic changes in the MEC during large crises.

Shackle, Minsky, and Davidson, in opposition to Leijonhufvud, insisted that the uncertainty as to the future has its main impact in the economy through Keynes LPT, and therefore, it is a mistake to remove it out. Davidson, criticizes the use of General Equilibrium used by Clower and Leijonhufvud, because in this framework there is no money. The problem with this second group, however, is that they are never able to explain the dichotomy observed in the real world which Leijonhufvud attempted to explain. This is because, as we said before, since the uncertainty is always there, then it is inexplicable why economies are most of the time near full employment equilibrium.

Whether uncertainty as to the future only enters through MEC like in Leijonjufvud, or through both MEC and LQT as in Shackle, Minsky and Davidson (closer to Keynes's original thought), the question remains unanswered: why all of a sudden, in very rare occasions, these factors impact the expectations of economic agents so negatively.

DISEQUILIBRIUM MACROECONOMICS.

The argument for these group of economists is that unemployment is consequence of rigidities either in salaries or prices. It has a long tradition in models of several economists such as Malinvaud, Bennasy, Grandmont, Hahn and others. These models can never explain where the rigidities come from. Therefore, Grandmont substitutes the price and wage rigidities by rigidities in the interest rate, and Hahn by conjectures. But, none of these models truly explain economies far away from full employment equilib-

rium. Rigidities of any sort are normally short- lived in flexible markets; and Hahn's conjectures were never convincing because they are also short lived. Short term rigidities were finally incorporated in Rational Expectation Models, like the ones initially developed by Dornbusch and Fisher, which became the justification of the Contemporary CNMT, but, still, they only explain movements inside the corridor near full employment equilibrium.

BEHAVIORAL MACROECONOMICS

The triumph of Monetarism and Rational Expectations meant that the old Monetarist-Keynesian controversy was substituted by a debate between the Rational Expectations Model of real cycles, and Rational Expectation models with the Keynesian rigidities, both of which were used to explain short term cyclical fluctuations near full employment equilibrium. This explains Lucas' dictum that Keynes was death, and that the 1929 would never happen again with the tools at hand that contemporary economics offered. But 2008 happened, and the CNMT had no explanation, because it was not supposed to happen.

When human beings cannot explain something, they often turn to irrational explanations. The official explanation of the crisis by the economics profession, which we have argued is wrong[17], resorted to irrationality of economic agents in the US real estate market. The crash, of this market they offer was the cause of the crisis.

It is interesting to note here the revival of Keynes irrational expectations using Behavioral Economics. However, as we have said, if the reason for a major crisis like 2008 is that the economic agents are irrational, then why we do not have a major crisis more often? The volatility in animal spirits that only happens in rare occasions has to be explained by causes different from the irrationality of the economic agents, because economic agents are not on and off irrational. Intrinsic *irrationality of economic agents* cannot explain *rare cases* of crisis that move the economy so far away from equilibrium.

In *Animal Spirits,* first published in 2009, Akerlof and Shiller argue that "declining animal spirits are the principal reason for the recent economic crisis"[18]. For them, the understanding of the main drivers of the economy

[17] See Obregon 2011 and 2018c.

[18] p. vii

"lie somewhat outside the traditional boundaries of economic research, in the realm of psychology…"[19]. They identify five psychological factors: confidence, fairness, corruption and bad faith, money illusion, and stories. They defend that the invisible hand story "although right in a fundamental way, is wrong at the level of detail and approximation that is necessary to explain what we need to know about macroeconomics"[20]. The 2008 banking and housing crisis "was caused precisely by our changing confidence, temptations, envy, resentment, and illusions – and especially by changing stories about the nature of the economy"[21]. But we ask again, what produces all the changes that they allude to?

For them confidence is more than just prediction, it means trust and "the very meaning of trust is that we go beyond the rational. Indeed, the trusting person often discards or discounts certain information. She may nor even process the information that is available to her rationally, even if she has *processed* it rationally, she still may not *act* on it rationally. She act according to what she *trust* to be true."[22]. "confidence – implying behavior that goes beyond a rational approach to decision making – indicates why it plays a major role in macroeconomics"[23]. For these authors "confidence comes and goes. Sometimes it is justified. Sometimes it is not. It is not just a rational prediction. It is the first and most crucial of our animal spirits"[24]. And again, it is never explained why confidence comes and goes. Especially how is it that it only goes in certain rare occasions such as 1929, 2008, and 2020, and not at other times?

They quote the experiments of fairness of Kahneman and others. And unemployment according to these authors, is the consequence that employees ask for a fair wage, and employers give it to them because employees then respond with more productivity. However, since the fair wage is above the clearance level, there is unemployment. Their proposal will explain permanent unemployment, but not cyclical unemployment; and much less huge levels of unemployment in far-away equilibria.

They discuss the corruption in corporate America before the 2008 crisis, and argue that it was one of the elements that caused the crisis. Re-

[19] p. viii.

[20] p. xi

[21] p. 4

[22] p. 12

[23] p. 13

[24] p. 14

cessions they argued, always involve corruption scandals. They describe Milken's junk bonds, Enron, and the irregularities with subprime loans. They argue that the business cycle is connected to fluctuations in the level of corruption, which are related to "cultural changes over time to facilitate or to hinder aggressively competitive or predatory activities"[25]. There are several problems with introducing corruption as an element producing economic crisis. First: Japan, Korea and China have grown quite efficiently with corruption. Of these countries, only Japan entered a major crisis. If corruption produces major economic crisis, Korea and China should of have had one already. Second: the major corruption events happened after the banking crisis in 2008 had already started, not before it. As we have argue elsewhere, the 2008 crisis was not a real estate crisis, but a banking and credit crisis[26]. Therefore, the corruption that could have happened in real estate before was irrelevant. Third, most non-performing mortgages happened after the beginning of the banking crisis, and as a consequence of the rise in interest rates, and were related to ALT A loans and not to subprime loans[27]. Fourth, there was no corruption in rating agencies. Fifth: Banks held 75% of the MBS (Mortgage Back Securities) that were in private hands; clearly they were not corrupt when they were structuring the securities that they finally held. Banks did not, no body willingly, shat themselves in the foot. Akerlof's and Shiller's argument that corruption causes major economic crisis is just not theoretically or factually defensible.

They argue that at low levels of inflation there should be some degree of money illusion.

The argument of money illusion was already discarded in the Keynesian-Monetarist controversy many years ago. Moreover, to explain stagflation in the real world requires Rational Expectations, which imply that there is no money illusion. Even if we were to accept the arguments of behavioral economists, they would only explain minor fluctuations around full employment equilibrium. Moreover, when counter cyclical monetary policy is used and it works, it is not because there is money illusion, but because economic agents anticipate that there is margin in the economy for a real recovery. This means that they trust that the Central Bank and the Treasury are doing the right thing. Finally, in large depressions,

[25] p. 39

[26] See Obregon 2011 and 2018c.

[27] ALT A loans have higher credit quality than subprime loans, but less tan the prime loans.

Keynes argument that the monetary policy would not work has nothing to do with money illusion, but, with the real fact that the balance sheets of the economic agents have deteriorated, and banks do not find healthy customers to lend to.

For these authors "confidence is not just the emotional state of an individual. It is a view of other people's confidence, and other people's perceptions of other people's confidence"[28]. So they argue that there are new era stories that spread like an epidemic. Confidence is as contagious as any disease. It is true that any Institutional Arrangement does have a corresponding story, a conceptual system that binds the institutions together. Therefore, any economic situation does have a story attached, which is reflected in the actual institutions that exist. But these stories are not just imagination, nor are they the outcome of irrationality. They are built as part of the true real history of the economy in question, and they are part of the survival characteristics of such society. Stories found in conceptual systems are not irrational and do not exhibit whimsical abrupt changes. They have a rational survival relatedness with reality which is required for evolutionary and economic subsistence. Stories may end up being wrong ex-post. But but ex-ante, at the time they are formed they are always rational, and compatible with the all available real facts. Such facts may be read in an optimistic or negativist mood, but mood is not just irrational either. It depends on real events that are changing the confidence in the institutional arrangement in question. If there is a gold-mining boom that may seem irrational, but it happens only because someone in fact did find gold. It is true however, that there can be Manias, Panic and Crashes, but they can only explain regular financial crisis that may explain short term fluctuations around the full employment equilibrium. Something else is needed to justify a truly major global economic crisis. Finally, the key thing to focus on is: that stories are there all the time, and therefore major economic crisis that occur sporadically cannot be explained just by stories.

THE 2008 CRISIS

The best way to understand the consequences of using Behavioral Economics for macro problems is to review Akerlof's and Shiller's explanation of the 2008 crisis. Basically, for them *animal spirits* produced a real

[28] p. 55

estate boom which eventually had to crash, and it did. And "in its wake it has left the biggest real estate crisis since the 1930s, the so-called subprime crisis, as well as a global financial crisis whose full dimensions have yet to be grasped"[29]. Due to *animal spirits* "it appears that people had acquired a strong intuitive feeling that home prices everywhere can only go up"[30]. The story did spread mouth to mouth and created cycles of feedback. "Money illusion appears to explain some of the impressions that homes are spectacular investments"[31]. This housing boom was greater than ever before because of the political intention to provide housing to the most disadvantageous population. "The feedback that produced the epidemic of home-price increases had institutional, as well as cultural and psychological correlates"[32]. And "In this atmosphere it was easy for mortgage lenders to justify loosing their own lending standards"[33].

The problem with these authors argument is that major economic crises appear almost from nowhere, from *animal spirits* whose dynamics are mysterious and unpredictable. There is no doubt that markets do have herding behavior, in the sense that people are trying to guess what others will do. But booms do not start out of nowhere. Neither do crashes. They start with stories and in this behavioral economics has a point. However, two arguments must be stressed: (1) these stories always have a rational component. And, (2) They have to be institutionally supported by financial authorities. The critical point is not whether there are or not psychological influences when investing at the individual level, because it is clear that there are. The important discussion is whether these psychological influences at the individual level define market prices.

Keynes' and Knight's uncertainty concept means that the future is not known and investors have to build stories about what is going to happen and doing so they can be optimistic or pessimistic, but there is always real basis for their views. In *Irrational Exuberance*, Shiller argued that stock market boom in the mid-1990s was fueled by "the story" of the advent and explosion of the internet. We can argue ex-post how optimistic or pessimistic the story ultimately proved to be, but the phenomenon of the commercial expansion of the internet was a real story. People that be-

[29] p. 149

[30] p. 150

[31] p. 152

[32] p. 155

[33] p. 155

lieved in this story chose to invest in companies that benefited from the so called Technology, Information and Communications (TIC) revolution, and some made a fortune. Today the largest companies in the USA stock market are those who best exploited to the TIC revolution.

Given real world uncertainty people have to create stories, but they do it based on the best available information available to them. This information is always incomplete and requires intuition and risk taking. Manias do extend market prices away from what pure fundamentals can justify, but not irrationally - people do their best guess using both their emotions and their reason. Manias are not due to irrationality, but to uncertainty.

In the 2000s prices in real estate in USA increased partially due to a long economic boom, which had increased substantially the consumer's wealth, and stock prices have become expensive while real estate was still reasonably priced[34]. Thus, relative to other assets, fundamentals correctly indicated buying real estate. The 2008 crisis was not the consequence of the crash in real estate. Two facts back up this view: (1) real estate prices in Europe in that decade increased much more than in the US, but the crisis did not happen initially in Europe[35]. And (2) a careful analysis of real estate indices reveals that real estate prices in the US only started to fall after the banking crisis had dramatically increased interest rates. The causality is the inverse of the conventional narrative: the real estate crash did not produce the banking crisis, the banking crisis produced the real estate crash. The only crash that took place before the banking crisis was in the adjustable rate subprime real estate market, due mostly to the rapid increase in the policy rate by the Fed in 2005-2007. There is a clear reason that explains why the boom happened in the adjustable rate subprime real estate market in USA, and why the crash occurred: the rapid downward and upward swings in the Federal Funds Rate. But the collapse of subprime did not imply a major crisis. Contagion to the broader system occurred because sub-prime loans were packaged into derivative securities that included mortgage loans of higher quality, the so called Mortgage Backed Securities, or MBS. These derivative products were engineered to get an optimal mix of risk and return. MBS became exceedingly popular because they provided a higher yield at a time interest rates were very low. At the time, MBS were so attractive, that banks kept 75% of the MBS in their books. With the collapse of the subprime real estate market

[34] Obregón 2011 and 2018c.

[35] Obregón 2011 and 2018c

it became almost very difficult to value the MBS containing these loans Because banks held the MBS in such large amounts, they began to distrust each other's financial health. The result was a pullback in interbank credit lines and an increase in the LIBOR rate (the rate at which banks lend to each other). The consequence was a generalized increase in interest rates, that eventually caused both the generalized real estate and the stock market crashes. Thus, *there are clear fundamental causes of the 2008 crisis*. It is not necessary to resort to irrationality to explain it. These reasons also explain why it did happen initially in the US, and not in Europe[36].

The crisis was not contained in time, because *inadequate institutional policies were implemented.* These were mostly predicated on the basis of a free market ideology of limited intervention. Financial authorities believed that risk was probabilistic, and that markets could manage it well. They thought markets could take care of the subprime segment and would be able to discriminate amongst viable financial institutions. Authorities were wrong-the amounts involved were too high, relative to the banks' capital.

The lack of proper policy intervention added a level of uncertainty with regards to the financial system that could not be managed with probabilistic risk. Confidence in a credit economy is essential for economic transactions. The only way for confidence to be restored was for the Fed and/or the government to extract subprime loans and the "toxic asset" (MBS) from the banking system. If done early in the crisis the cost would have been lower, the implementation easier and the policy more effective. Because authorities waited too long confidence in the banks suffered, breaking the spinal cord of a normal credit economy. Importantly, trust in the ability of the Fed and the US government to manage such crises took a major blow. The economy entered a credit crisis.

For our purposes it is crucial to understand that the deterioration of confidence was not the result of whimsical irrational shifts, but was based in two real facts: the balance sheets of the Banks had deteriorated, and regulatory and oversight institutions were not showing themselves capable of solving the problem. Given these two facts, it is rational to forecast future problems. What allows economic agents to invest in an uncertain future is the assumption that institutions would be able to cope with future internal or external shocks of the economy of a systemic nature, and therefore that the future will resemble the past. This is the assumption under which all the assets are priced in an economy. Only under this assumption Tobin's probabilistic risk works. When institutions make a

[36] For a more detailed explanation of the 2008 crisis, see Obregón 2018c chapter three.

major mistake in coping with internal or external shock of large magnitude, people will rationally extrapolate that there will be future trouble – a concern that can become widespread.

In the above environment, economic agents turn more conservative as it happened in 2008. These rational adjustment of expectations drove the severity of the crisis and the muted recovery that followed. By looking carefully at what happened in 2008 we get a first clue about the importance of the credibility of institutions in the determination of *U* in Minsky's model, and MEC in Keynes's model.

The 2008 crisis was not a psychological crisis of generalized mistrust because the boom in real estate had been overextended. Booms do relate to stories about the uncertain future, and when they are wrong, they correct themselves. And yes, there are manias and contagious effects in these processes. Market volatility is in fact explained by uncertainty about the future. However, that happens all the time in economies hovering within the corridor near full employment equilibrium. But a major collapse like the 2008 GFC is typically accompanied by serious and fundamental institutional mistakes The recovery was slow because the economic agents' confidence was shaken. This causes an increase in , with a corresponding higher spread between the policy rate and the interbank rate. The loss of confidence also increases MEC, which shows up as higher values for and To belabor the point, the shift in confidence is not due to a whimsical or irrational deterioration of confidence. Rather, it stems from the realization of institutional failure. Under these conditions, it would actually be irrational for confidence not to be shaken.

During the duration of the 2008 crisis there is no evidence of money illusion. Buyers read the newspapers and consulted specialists, and they knew houses had become expensive, This, however, did not help them predict when the boom was going to end, which is why they continued buying. While some corruption did happen, it was not the cause of the crisis as it happened later – in the middle of the banking crisis. Some observers have argued that the credit agencies were either irresponsible or corrupt and that the banks were greedy and abusive; but that story cannot be sustained in view of the fact that banks kept in their books 75% of the MBS. And as we have said, *nobody deliberately shoots himself in the foot*[37].

It is also argued that mortgages were sold with irresponsible schemes to consumers of questionable economic means. This happened to some extent, but it happened also with higher quality ALT-A loans, and after

[37] Obregón 2011 and 2018c

the subprime adjustable rate real estate loans crisis had already started. In fact, the rise in interest rates explains the growth in flexible rate mortgage schemes.

In sum, it is difficult to explain the GFC as the result of irrational mistrust, money illusion, corruption, or stories, or consumer fairness. It was not produced by irrational animal spirits, but by institutional mistakes that improperly managed the shock. *These fundamental mistakes and errors explain the dimensions of the crisis*. They made future uncertainty unmanageable with probability models. The only rational thing left was to be very conservative.

The view of strong proponents of free markets was shown to be wrong in the 2008 crisis. For risk to be able to be managed with probabilities the Institutional Arrangement has to be working properly, so that internal and external shocks do not change much the actual normal course of the economy. If there is a huge institutional mistake, future uncertainty cannot longer be managed, economic agents become conservative (and economic agents reduce drastically their transactions related to the future, and the economy enters a major crisis. Markets manage well risk probability; but they cannot alone by themselves manage uncertainty when the Institutional Arrangement makes a huge mistake.

What explains frequent fluctuations in asset prices, is not that the economic agents are irrational, but the presence of uncertainty about the future which they are continuously assessing because whoever gets it right reaps huge profits. Economic agents may not be as as rational as Rational Expectations assumes; but nor are they as irrational as Akerlof and Shiller have argued.

In the postscript of *The Nudge,* Thaler argues that the 2008 crisis was partially due to: (1) extreme complexity in products offered to investors, and in the extreme diversity and complexity of mortgages offered; (2) *lack of self control by refinancing the mortgage instead of paying it;* (3) the social contagion in the real estate bubble – he cites Shiller. *Nudges* he argues, if implemented would make a crisis like this less likely to occur. Is he right? As we had seen, he is not correct; none of the elements mentioned by him caused the crisis. *Nudges* would not have helped.

As we have seen, Keynes LPT neutralizes conventional monetary policy in acute credit crisis. That is the reason why the Federal Reserve had, for the first time in history, to entered the credit markets directly; implementing QE – buying huge amounts of private assets. This wise move from the Federal Reserve single handedly prevented the global

economy from entering a depression like the one in 1929.

For markets to operate they require a proper institutional arrangement normally evolving and learning, and prone to minor mistakes. They create volatility around full employment equilibrium. However, when institutional mistakes are of a systemic nature, they lead to a serious deterioration of the balance sheets of key economic agents in large numbers and shake the confidence of economic agents. Markets alone cannot solve this situation and major economic crises occur.

CONCLUSION

The last seventy years of monetary policy were mainly defined by the huge success of Monetarism and Rational Expectations which consolidated a well founded contemporary version of the CNMT. Keynesians, Post-Keynesians, and Macro-disequilibrium theorists failed to resuscitate Keynes' original thought in a useful manner. The main reasons are: that the rigidities of any sort are short-lived in flexible markets, and that information flows are significant enough so as to discard any form of money illusion. However, contemporary CNMT can not explain major economic crisis either. According to this theory the GFC could not have happened. Behavioral macroeconomics also tried to rescue Keynes original thought, but it encountered the problem that irrational animal spirits cannot explain major economic crisis, because they are always there. Economic agents are always irrational, yet major crisis only happened in rare occasions. A better understanding of what happened in the 2008 GFC helps us understand why major crises occur: they are the consequence of huge institutional mistakes in coping with an internal or external shock. Markets operate within an Institutional Arrangement, which usually functions well and guarantees the continuity needed to be able to estimate future uncertainty through probability risk. Large institutional mistakes however, make it rational to expect more problems in the future, due to the loss of credibility in the institutional arrangement. When this happens economic agents' confidence deteriorates (and and the economic agents drastically reduce their transactions future consumption and investment plans, and a major economic crisis occurs. To further explore the genesis of major crisis is one of the main topics of the next chapter.

CHAPTER III: A NEW MONETARY THEORY

Anew monetary theory (NMT) has to accomplish three tasks: (1) It has to explain why QE worked in the 2008 GC; (2) It has to explain why and how major economic crisis occur? and Why they only happen rarely? and (3) It has to define what is the appropriate monetary policy in major crisis. In addition, the NMT must be compatible with contemporary CNMT, which operates fairly well in normal times. Task (1) was already accomplished in Chapter I where we have shown that Keynes' LPT explains why QE worked in the 2008 GFC. Tasks 2) and 3) will be the topic of this chapter.

WHY AND HOW MAJOR ECONOMIC CRISIS OCCUR? AND WHY THEY ONLY HAPPEN RARELY?

In normal times there are all sort of frictions that explain economic cycles around the full employment equilibrium. These include: short term Keynesian type rigidities, temporary problems in transmission of information, manias, panics and even market crashes that may explain a particular crisis in real estate, a financial sector, the price of gold, the stock market, and others. They also come from particular temporary individual behavioral irrationalities, minor institutional adjustments, minor monetary shocks taking place in the process of adjusting monetary policy to new conditions of the real economy, and all sorts of internal and external shocks which are absorbed usually both by institutional new policies and/or by price flexibility in the markets. All these processes are complex and imprecise, and there are all sorts of fluctuations whether in real output, in prices, or in the level of employment. But normally, the economy stays in a corridor near full employment[38].

In rare occasions however, economies move to far away equilibriums, since there are only two shock absorbers: flexible market prices and insti-

[38] We remind the reader that the idea of the corridor was introduced first by Leijonhufvud.

tutional policies. And market prices, except for very short-term rigidities, remain flexible. It follows that the explanation of the economy's shift to a far-away equilibrium must be found in huge mistakes in institutional policies. Our previous analysis of the GFC indicates that such is the case. The great Depression was also caused by huge institutional mistakes. In this case, by: a severely contractionary monetary policy, and an unwarranted increase in trade tariffs that produced a draconian reduction in international trade. In the current Covid-19 pandemic, US authorities have been applying both fiscal and monetary policy responses more properly. These are, however, still insufficient and largely misdirected. As a consequence, the recession is likely to be deeper and longer that what the underlying shocks justify.

So far we have seen that major crises occur due to large unwarranted institutional mistakes which occur occasionally. But we need to dig deeper into the concept of an *institution*. Why can institutions make these huge, though infrequent, mistakes? and Why the economies remain in a far-away equilibria for long periods? To answer these questions, we will take advantage of knowledge that has been accumulating in the fields of Institutional Economics, General Equilibrium Theory, and other social sciences.

INSTITUTIONS VERSUS INDIVIDUAL AGENTS

Traditional economics has been caught in a vision of social dynamics defined exclusively by the individual agent. The discussion is whether humans are rational and selfish as contemplated in the contemporary CNMT, or whether they are irrational and volatile like in behavioral economics and in Keynes. By focusing only in the individual agent traditional economic theory has become incapable of explaining major economic crises. This is because if the individual agent is rational and selfish, then markets work and are flexible, and the economy should in the full employment equilibrium corridor all the time. And if she/he is irrational, then she/he is so all the time, and major economic crisis should be much more frequent.

Conventional economics cannot explain two distinct realities of the economy (within the corridor equilibrium and occasionally in a far-away equilibrium) only with the permanent economic agent's characteristics (whether they are conceived as rational or irrational). Since the economic

agent's characteristics (whichever they are) are always the same, something has to change, something has to be different, to explain the two distinct realities of the economy. What is different is the institutions which in normal times operate well, but occasionally make huge mistakes.

The conception of isolated individuals defining social economic dynamics is inconsistent with our evolutionarily history. We evolved from apes who already had a social life. From an evolutionary perspective, the social group always has had primacy over individual agents. Experiments in social psychology have clearly shown how crucial the influence of the group on the individual is. The same individual behaves differently in diverse institutional settings[39].

An institution is composed of a *conceptual system* which defines the main set of beliefs and values of a given society, and its corresponding *institutional arrangement*, which consist of the pragmatic institutions that operate the beliefs and values contained in the conceptual system[40]. As an example, the British constitution is part of the conceptual system, while the parliament is part of the institutional arrangement. Institutions are changing all the time. Social dynamics occurs both at the level of the institutional arrangement, like Veblen and Marx taught us, and at the level of the conceptual system, like North's historical analysis has shown.

Humans belong to the existential universe, and their evolutionary survival requires for them to develop three ways of belonging: (1) To the closest human beings, what we have called *Love* else[41], and which has been extensively documented by the *Psychology of Attachment* of Bowlby and others. (2) To the social group, which we have called *social belonging*. And, (3) to the material and biological universe at large, which we have called existential belonging. Institutions define the three ways of belonging. In particular, social belonging expresses itself through three social systems: The Integrative System, the Power System, and the Economic and Exchange System[42].

The Integrative System contains the set of values, emotions, beliefs, and institutions holding the social group together. The Power System relates to the use of force, usually a monopoly of the state, whether to main-

[39] Two crucial classic experiments in psychology are the Robbers Cave Study (Sherif, M. et al., 1961) and the Stanford Prison experiment (Zimbardo, P., 1971).

[40] See Obregon 2019.

[41] See Obregon 2016.

[42] This clasification is original due to Kenneth E Boulding.

tain internal order, or to protect the social group from external threat. The Economic and Exchange System was traditionally defined by the integrative system, but in capitalism it has acquired a force of its own. In capitalism, individuals are allowed to express their selfishness through the markets. But markets have never existed isolated; even in capitalism they develop as part of the social belonging system which includes the Integrative System and the Power System. The growth of the welfare state, for example, could not be understood without the Integrative System. The GD can not be explained without understanding the consequences of the use of power in the First World War. The latter resulted in an inadequate peace settlements which implied excessive transfers from losers to winners which could not be fulfilled[43]. The losers printed large amounts of money (as an inflationary tax) in an effort to extract resources from their economies and fund the transfers. In the end, losers weren't able to fulfill these obligations and the winners did not receive the expected payments. To offset for the missing payments, the winners also printed large amounts of money. The excess money supply caused the hyperinflation of the 1920s which was the main precedent to the drastically contractionary policy - one of the main causes of the Great Depression. Furthermore, both war and hyperinflation exacerbated the nationalism, which led to the increase in tariffs which was the other main cause of the crisis.

Institutions are overly complex systems, which due to evolutionary and survival reasons usually work well. However, occasionally something goes awfully wrong, and a major crisis is produced. In the 1929 GD the grave institutional mistakes were contractionary monetary policy, and an increased trade protectionism. Understandably, during the Great Depression economic agents lost their confidence in the institutions capability to manage the situation. Keynes's LQT and Keynes' MEC became relevant.

The behavior of any individual agent is heavily context dependent. individuals can display altruistic and cooperative social behavior in some cases, like the Dictator's Game in behavioral economics (or the high social expenditures in developed economies), and act differently in other circumstances (like the extremely low international aid which is nothing else than a global Dictator's Game in real international economic life)[44].

[43] This was Keynes topic in the Economic Consequences of the Peace.

[44] In the dictator game in which the player A is a dictator that can give whatever he pleases and keep the rest, surprisingly enough 74% divide the money equally and in the punishment stage 81% choose to share $10 with a fair allocator in instead of $12 with an unfair one. In public good games the standard traditional economic prediction that no one will

Since the 50's Neoclassical Economics endeavored to show that markets – defined by individual economic choices – can stand by themselves. It has followed three main routes: Welfare Economics (WE), General Equilibrium theory (GE), and Rational Expectations (RE).

Neoclassical Economics tried to show that markets optimize social welfare, and it failed as the Arrow's theorem showed; the only solution is to introduce external social values as Sen has suggested[45].

GE fail in demonstrating that there is a unique equilibrium. In fact, as Nash showed, there are many, of which an important subset are suboptimal non Paretian equilibriums. And RE failed to show that economies always remain close to full employment, which has become evident with the 2008 GC and the 2019 GP. The models developed are extremely useful, but they precisely showed the opposite of the initial neoclassical intention. Economic markets do not stand by themselves and cannot be understood if the Institutional Arrangement in which they exist is not analyzed and understood.

Institutional Economics as developed recently by North and others, and long before by Veblen and others, has clearly documented the market dependence upon the Institutional Arrangements. In GE terms, an Institutional Arrangement could be conceptualized like a game in game theory; depending upon the game, one gets diverse several distinct stable

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cooperate turns out to be wrong; on average people will cooperate half their stake to the public good. Which is argued by Behavioral Economics as an empirical demonstration that *humans* are not rational selfish calculators maximizing their personal well being. However, what it really shows is that in developed countries there is a strong Integrative System. And we must recall that both the Integrative System and the Power System are reflected in monetary and economic transactions. Therefore, it is not surprising to find that the Integrative System plays a role even in monetary transactions in the laboratory, in the Dictator Game and others.

The Integrative System and the Power System are part of the economy. *Governments at the beginning of the 20th century were in average in developed economies only around 10% of GDP, today they are around 40%; of which the Power System represents around 4%, social expenditures around 25% and other integrative functions 11%. Thus, the Integrative System represents 36% of the economy, the Power System 4% and the Economic and Exchange System 60%.* Individuals living in developed economies live in a world in which social cooperation is a reality, that is why they display cooperative and altruistic behavior. That however does not mean that they will behave altruistic in a large competitive market, *in these markets they behave selfishly*. And it does not mean that man is, by nature, altruistic. While altruism and social cooperation is very high inside the developed economies, it is almost non existent in the international arena. At the global level, the world economy presents us a *Real Global Dictator Game*, which results in minimal altruism-due to the extreme weakness of the global Integrative System; international aid is only 0.2% of GDP, and even some of it is conditioned to the interests of the donor.

[45] See Obregon 2008.

equilibriums, some of which could be Nash and others Pareto. And many of them, whether they are Nash or Pareto, may be far away from the full employment corridor. Eventually societies may learn, and Institutional Arrangements may be modified, and the economy may return back to the full employment equilibrium corridor, but it may take a long time depending upon the institutional decisions taken.

Behavioral Economics is a critique of traditional Neoclassical Economics, which also starts from the individual economic agent and has been useful to understand several microeconomic disturbances[46]. However, from a macroeconomic perspective viewing economic agents as irrational, altruistic, and socially cooperative, makes it impossible to explain many empirical phenomena, such as: (1) Why individuals behave selfish in large markets, while they display altruistic and cooperative behavior in laboratory settings or small groups - even in monetary transactions. (2) Why individuals can display altruistic and cooperative social behavior in some cases, like the Dictator's Game in laboratory setting, or in the high social expenditures seen in developed economies but not in other cases, like in the extremely low international aid (which is nothing else than a global Dictator's Game in real life). (3) Why in some cases individuals can display very aggressive behavior, particularly to *other* individuals (the out-group). And very cooperative one in other cases, mainly to those individuals included in the group which the individual belong (us, the *in-group*). 4) Why the companies with more global success are the ones which introduce new options to the customer and new ways to process information in a more rational way. 5) Why despite the presumed individual non rationality markets work so well both to allocate resources and to promote economic growth. To explain these realities, we need to go beyond Behavioral Economics; we need to introduce Institutional Economics.

What explains seemingly contradictory behavior in (1), (2) and (3) is that there is a change in the institutional settings. In (1) in large markets the individual is operating within the Economic and Exchange System, thus he behaves selfishly; in the laboratory settings, he operates within the Integrative System that is why even in monetary transactions he behaves altruistic and cooperatively. In (2) again in the laboratory setting he operates within the Integrative System, and the same happens with decision about social expenditures within a developed country, it is *us*. International aid is related to *the others* as distinct from *us*. The integrative international social system is very weak and almost inexistent, therefore individuals do

[46] See Obregon 2018a

not behave altruistic. (3) is explained by *us* within the Integrative System, versus *others* outside the Integrative System with whom we relate on the basis of the Power System. In fact, in a given society, the same individual may be a soldier killing the enemy within the Power System, a wonderful and loving father and neighbor within the Integrative System, and a fierce business man within the Exchange and Economic System.

To explain 4) and 5) Classical economics is required. Adam Smith's contribution was precisely understanding the power of markets to produce wealth in the nations. Markets do not need rational expectations to operate, but clearly a rational economic agent is required. While human beings behaving selfishly and rationally in large markets is a necessary condition for these to have so much productive power it would have not been sufficient to generate wealth as rapidly as capitalism has. Key institutional changes were also needed. One of the most important institutional changes in capitalism was the rapid growth of middle class consumption which enlarged the markets, and therefore fostered fast technological change.

To explain why economies are usually in the full employment equilibrium corridor, and occasionally far away, a social dynamics based only upon the individual choices is inadequate. If she/he is assumed rational, we will always be in the corridor and never a major crisis should occur. If he is assumed non rational, frequent major crisis should happened more frequently. To explain reality, we need to realize markets work within an Institutional Arrangement. This arrangement usually works reasonably well because its task is to guarantee survival and reproduction of society and the system. It mostly maintains the economy in the full-employment corridor. However, due to its complexity, institutions occasionally makes huge mistakes, and the economy moves to a far-away equilibrium.

WHAT IS THE PROPER MONETARY POLICY TO FOLLOW IN MAJOR CRISIS?

A critical characteristic of large markets is that economic agents behave selfishly, therefore they are eager to obtain information and any help they can obtain in analyzing it. Markets are far from perfect, but they are reasonably efficient, and prices are mostly flexible over the medium term. Therefore, although the rational Expectations assumption is very extreme, it alerts us to something quite important, namely, that institutions and policy makers

cannot fool economic agents. QE worked in the 2008 GC because it was the reasonable thing to do, and it was implemented in a context in which economic agents regained confidence in the Central Bank.

If the main cause, as we had been arguing, of a major crisis is a large institutional mistake: *the first thing for policy makers to keep in mind is to try to avoid such mistakes.* Preventing is always much cheaper than remedying. In the 1930 GD: the drastic monetary contraction and the sharp increase in protectionism were clearly the wrong policies to implement. The current ideologues supporting nationalism have a lot to learn from this experience.

Nationalism is a recipe for international economic disasters. In the 2008 GFC there was a cheap preventing measure: to have had applied QE much early, and to have taken out the subprime adjustable rate real estate toxic assets from the private Banks. If deployed early, a program of around only 2% to 5% of what was finally done would of had been enough[47]. It could be argued that this recommendation is done with hind sight and that enough information was not available then. But this defense is unwarranted, the Federal Reserve knowingly aggressively hiked interest rates, and should have anticipated that it was going to produce disequilibrium in the mortgage markets that policy makers had to resolved. Instead, they initially left it to the markets because of an erroneous concept of the workings of the economy. For policymakers, it is critical to review regularly the impact of changes in the Institutional Arrangement on the economy. Regulators need to be much more involved with the markets that they were back then, something that it is now universally recognized.

Institutions have so far under-estimated the economic fallout from the Covid-19 pandemic. And although they reacted much better than in the 2008 GC; in general, it has being too late and too little[48].

Given that preventive and early responses (in both the health and economic areas) were not applied and we are already in the middle of a major crisis, decisive and aggressive measures need to be deployed. Keynes' LPT remains a good guide of why we cannot rely on traditional monetary policy. Instead, QE show us what to do on monetary policy, and Keynes' MEC tell us how to do it. MEC tell us that whatever we do should be large, publicly announced, and convincing, so that it can influence and Keynes' LPT analysis did not propose QE, it was former Fed Chairman Ben Bernanke's creative policy response to the GFC. And for this he deserves all the merits. However, Keynes' LPT allow us to under-

[47] See Obregon 2011.

[48] For a further discussion in this topic see Obregon and Mariscal 2020.

stand the reason why QE works -- because it gets around the problem of the weakened balance sheets of key economic agents.

QE worked very well in the 2008 GC, but it was applied late in the crisis. The early and the most decisive it is used, the better. The name of the game is to prevent the deterioration of the balance sheets. The idea is to keep, as possible, the crisis from becoming a widespread credit crisis which in turn will end up producing a banking crisis. In a widespread credit crisis, the cost of borrowing rises, and the stock and real estate markets drop. The current crisis has not yet morphed into a credit crisis. This may be avoided given that this time both governments and Central Banks have been more proactive. However, countries are unnecessarily relying on fiscal policy, while monetary policy had been insufficient and misdirected.

On July 30, 2007, the Fed's Balance sheet had $0.87 trillion in assets; by December 29, 2014 the Fed had accumulated $4.50 trillion assets. On March 16, 2020 not much had changed, the Fed held $4.67 trillion assets; of which $2.64 were TB treasury bills and bonds (TB) and $1.37 MBS. As a result of the monetary response to the Pandemic the Fed's balance sheet swelled by $ 2.5 trillion, in the span of 2 months to a June 3, record of $7.1 trillion. Of this total, $4.13 trillion are TB, and $1.83 trillion which indicates that that most of the Fed's financing is still going to the Government.

The markets and the private Banks are much better suited than the government to make a distinction between viable and not viable enterprises, that is their daily work. This creates a division of labor between fiscal and monetary policy. We proposed a new role for the Central Bank. In this role, its autonomy increases and scope of responsibilities, solely becoming responsible for the whole relation between money and the real economy. After all, the main purpose of money is the well-functioning of the markets and the real economy. In this role, the Central bank must prevent the deterioration of the balance sheets of private economic agents that belong to the productive economy.

THE MONETARY CREDIT BAZOOKA

In the above context, and in a crisis of large magnitude, the Central Bank should buy long-term viable credits held by the private banks, and should grant new loans as required and do it through private banks, and/or de-

velopment banks (more common in emerging economies). The idea is for these loans to be long term, 10 to 30 years, with a grace period of 3 to 5 years. Their goal is to foster a quick recovery of the productive economy.

- Which economic agents belong to the productive economy? Those with repayment capacity of the mentioned loans.
- How will the mechanism work? Through private banks, which are best suited to discern economic agents with repayment capacity.
- What will be the interest of the private banks in participating? They should receive an operating fee and a commission in return for keeping in their books between 15% to 20% of the loans granted. Furthermore, this mechanism slows down the surge in non-perfoming loans in their balance sheet.
- What should be the exact commission? To de defined by the market.
- What happens with the economic agents that do not have repayment capacity? As entrepreneurs they will receive no help, because their companies are no longer viable, but as private citizens they belong the the social economy.
- What is the social economy? All those citizens that need help due to the crisis.
- Who is responsible for the social economy? The government through fiscal policy.
- Can the government receive loans from (sell his securities to) from the Central Bank, to be able to help the private citizens that belong to the social economy? Yes.
- Under Which conditions? The government will need to demonstrate its repayment capacity to the Central Bank based upon future taxes or spending savings. It should be noted that the recovery will increase the government's tax revenue. If, as expected, the economic recovery restores the agent's balance sheets, the loans will be eventually repaid and there will not be a transfers from the general tax payer to those who receive the loans. What is the logic of the new monetary theory? The idea is simple, major crises must be avoided as much as possible, and when happen they must be attended very early and decisively. The Government's budget is under enormous political constrains and pressure to privilege their political support basis. It can also be affected by electoral cycles. Government transfers benefit few, but have to be funded by all taxpayers,

thus raising questions of fairness. There is also a risk that these emergency spending becomes permanent. Government bureaucrats change too often, and they do not often develop the required expertise to understand when a decisive action is required to prevent, or stop from advancing, a major systemic crisis. Governments lack the expertise to distinguish which companies have repayment capacities. Because of its built in inefficiencies, government expenditures are just not fit to properly attend the pressing needs of the productive economy during the crisis and during the recovery. Economic agents know all of these challenges to fiscal policy and they rationally distrust large increases in government expenditure.

Keynes recommended to rely in the fiscal policy, because he was convinced that traditional monetary policy would not work; and he was right. However, thanks to Bernanke, QE has opened a new powerful channel for monetary policy to operate. We should use this as an entry way to enter a new era of monetary policy. This new era is, characterized by a more vigilant Central Bank responsible of the adequate functioning of the entire productive economy. We shall call this extended use of QE, the Monetary Credit Bazooka (MCB).

WILL MCB BE INFLATIONARY?

One key reason why most of the world's response to the current crisis has been through fiscal policy is because proponents of the contemporary versions of the CNMP argue that an expansive monetary policy will result in high inflation. There are diverse theoretical frameworks that can be used to analyze this question.

The IS-LM

In this framework money will only become inflationary once the economy is near or at full employment equilibrium. A simple historical example of how this can happen can be found in the US economy with Paul Volcker at the helm of Fed. In the second half of 1982 and in 1983 an expansionary monetary policy was followed. The results were that inflation went down, and unemployment also went down.

The Monetarist View

This branch is best represented by Schwartz and Friedman long term study showing that in the long-run inflation is a monetary phenomenon. But, one must be careful interpreting these results. In normal conditions with the economy near full employment, which is the norm in their sample period, their results hold (even in simple IS-LM terms). But this does not mean their conclusions are valid when the economy is far away from equilibrium. In fact, there are clear cases which show empirically that it is not the case. The most recent example is the massive increases in money supply witnessed in developed economies after the 2008 GFC which have not translated into inflation, and which produced a slow recovery. The second example is the very low growth with low inflation that Japan has experienced for the last 20 years. Despite several infusions, QE did not produce inflation or rapid growth. The understand why money supply increases do not always translate into inflation when the economy is way out of equilibrium? We can see use the simple quantitative equation, $MV=PQ$, where Mis money, V is the velocity of money, P is the price level and Q is real output. Assuming a constant velocity of money; either money moves with prices or real output. If the economy is way out of full employment equilibrium there is a large space for money to go to output and not to prices, the same result can be obtained with a simple IS-LM model. Moreover, the velocity of money is not constant. And when the economy is far away from equilibrium, V goes down significantly due to Keynes LPT according to which banks can not find economic agents with healthy balance sheets, and therefore do not lend. Thus, money either goes to Q, or to V, and it does not go to P. This is not a theoretical result. Rather, this is what has actually occurred in Japan and the US after years of QE. It is also important to underscore that not all money supply increases have the same impact on prices. It is critical to understand the degree of connection between Q and M. The more M is connected with Q, the less it will have an impact in P. MCB is directed to the productive economy, and not just to government spending. Therefore, it has a higher impact on Q that a neutral increase in M.

Rational Expectations

The period of stagflation in the 70s showed us that economies can have inflation, even if they are not at full employment. When central banks have an irresponsible monetary policy rational economic agents, who have ac-

cess to all available information and process it efficiently, will mistrust institutions and increase their prices. An important lesson from that period is that Central Banks must behave in a credible and responsible manner. Otherwise, any increase in money will quickly translate into inflation. It is all a matter of expectations. Either economic agents believe that the policy used is the right one, expect an economic recovery, invest, and do not increase prices (in which case Q goes up). Or, alternatively, they believe policy is irresponsible and inadequate, will not lead to a recovery, and they do not invest and raise prices (all of the increase goes to P).

The use of the MCB with an economy far away from equilibrium should not produce inflation provided that is properly communicated within an environment of institutional credibility. Institutional leadership is required to help building the bridge between the present and the future.

Keynes' LPT and MEC.

A company trying to convince potential and actual shareholders of the benefits of an aggressive expansion plan requires credibility and leadership. The same is true for society. Investing in the future requires institutional leadership. This is even better understood with Keynes MEC. LPT, as we have already said, reduces *V*, therefore increases in *M* go to *V*; but in addition MEC implies that unless there is confidence, people will not invest (neither they will consume as we had explained in the first chapter), and therefore a fast recovery will fail to materialize. This is what has happened both in Japan historically, and in most large developed countries after the 2008 GFC. Institutions need to be credible. Any Central Bank's increase in *M* can be thrown out of the window by changes in *V* (Keynes LPT), or by autonomous economic agents' increases in prices (*P* raises, as explained by Rational Expectations).

MCB avoid the problems associated with Keynes LPT because the Central Bank enters directly the credit markets, and because the liquidity injections are specifically targeted to the productive economy supporting *Q* growth. But to be successful, it needs to be used only in major, systemic crises – in which economic agents will understand that it is the most appropriate policy to follow. It also needs to be announced properly to provide a positive shock to economic agents' expectations. In real world experience, QE has strengthened the economic agents' confidence in the Federal Reserve. Had it not being used, mistrust would have lengthened the crisis as economic agents would have questioned the Fed's capacity to manage it.

CONCLUSION

Keynes had the correct insight that in certain critical circumstances, when the economy is in a far-away equilibrium, traditional monetary policy does not work properly. However, he did not provide an alternative monetary theory – distinct from the CNMT. Nor did he have a good explanation of why the economy gets far from its normal full-employment equilibrium corridor. In the General Theory Keynes tries to develop some of his insights from the *Treatise of Money*. As we recall, Wicksell's version of the CNMT includes two causes of disturbances: monetary and real ones. In the *Treatise*, Keynes argued that the disturbances in the real economy came from investment, and he reinforces this view with the introduction of a stable consumption function in the General Theory. The disturbances in the MEC latter on were interpreted as the "Animal Spirits" by Mrs. Robinson. Therefore, curiously enough, real disturbances in the economy were seen as coming from the irrationality of investor's economic expectations. Today this view is represented in the version of Nobel prizes Schiller and Akerlof. This view is, as we had shown, unsustainable for several reasons: 1) If the economic agents expectations were so unstable as these irrational views claimed, then why major crises are so rare? Lucas was wrong when he claimed that Keynes was death. But it is also true that in the twentieth century we had only had three events with the economy been fully away from equilibrium, the Great Depression, the 2008 GFC, and the Covid-19 pandemic.

None of these crises was produced by irrational expectations. The 1930 GD was the result of a combination of overly restrictive monetary policies and the enactment of highly protectionist trade policies. Thus, it was the consequence of wrong policies and this institutional failure created negative consumer and investment expectations. The latter were rationally based in the poor performance of the institutions of the time to tackle the economic problem at hand.

The 2008 GFC was the consequence of inadequate polices by the Federal Reserve of bringing down interest rates sharply (and keeping them there for too long) in the early 2000s, and then quickly raising them in 2005-7. Add to this the government's refusal to intervene in the subprime mortgage market early in the crisis. Finally, in Europe there was a complete misunderstanding by regulators of what was in the assets of European banks.[49]. Here again, the critical element is the deterioration of

[49] See Obregon 2011 and 2018c.

economic agents' confidence in the capability of the institutions to deal with the crisis.

The Covid-19 pandemic is also consequence of external causes—in this case a virus that was largely out of investors' expectations. What is now critical is to have adequate institutional responses (both in the health and economic arenas) to: (1) avoid a future deterioration in the economic agent's confidence in the institutional capacity to deal with the crisis; and (2) to prevent a further deterioration in the balance sheets of the economic agents. So far in few countries have tackled both the health and economic policy adequately. On the economic front, countries like the US and Germany are doing much better than in the 2008 GFC. However, they are still relying excessively on the fiscal policy, with all the inefficiencies that this entails. In other cases, such as the European Union as a whole, responses have less adequate. Emerging economies are a special case discussed in the next chapter.

CHAPTER IV: MONETARY THEORY, CAPITAL THEORY, AND ECONOMIC GROWTH

One event in the history of economic thought that went unnoticed by most economists is Sraffa's influence on Keynes' writing of the General Theory. It is however a decisive event in the history of monetary theory. By convincing Keynes that the interest rate was only a monetary phenomenon, Sraffa was indirectly responsible for much of the confusion that has been with us for almost a century in monetary theory[50] . If the interest rate is seen as a purely nominal phenomenon, it means that money has a life of its own, quite independent of the real economy. Thus, many thinkers have spent many hours trying to understand the unique characteristics of a monetary economy. And they tried, in vane, to find in money the reason for which the economy can be sometimes far-away from full-employment equilibrium in major crisis. It was a fruitless endeavor for some of the brightest minds in economics, such as Clower, Leijonhuvfud, Davidson, Hahn, Malinvaud, Grandmont, Mrs. Robinson, among other. In our view, money is nothing special. The only role of money is to facilitate the proper functioning of the real economy. Money is indistinguishable from the real economy. There are no modern economies without money. But it is also true, that there are no monetary economies without a real counterpart. This may sound as a truism, but it clearly states why Sraffa and Keynes were wrong in asserting that the interest rate was a purely monetary phenomenon. Mathematically, it is very difficult to understand why Sraffa was wrong, but conceptually it is easy. Monetary theory cannot separate itself from capital theory. There has to be a connection between the nominal and the real interest rate. Any financial transaction, for sophisticated that it may seem, is ultimately related to the real economy., Despite all the sophistication in global financial technology, what was truly important was to realize in the 2008 GFC that the adjustable rate subprime mortgage loans could not be repaid at

[50] Sraffa as we have said was mistakenly convinced that the neoclassical capital theory was wrong, and he was very convincing in his arguments. In fact, he also convinced Samuelson later on. Although in the end, Samuelson understood that Sraffa was wrong. See Obregon, 2018b; which I wrote under Paul Samuelson direct guidance.

the new, very high (in relation to previous years) Fed's real interest rates. To understand what happens in the financial economy, it is always required to understand what is going on in the real economy.

By focusing in nominal expectations unrelated to the real economy, MEC became very unstable. The unexplained "Animal Spirits" dominated the economic dynamics. For left-leaning economists, Keynes was welcomed because he had shown the perverse dynamics of Capitalism. And, it was just one step away for some to argue that perverse investors with unstable expectations should be substituted by the trustworthy government. Thus, government expenditures became not only, as in Keynes, the key to turn back the economy to full employment equilibrium, but also to promote stable economic growth free from the instability of the investor's expectations. Nominal government expenditures, unrelated to the real economy (financed by money printing), soon became large government deficits, which brought back the old distrust in the governments, and translated into hyper inflations. Still today some countries around the world suffer from this gross misinterpretation of Keynesianism (Argentina and Venezuela are examples).

The interest rate is not just a nominal quantity. Rather, it is clearly related to the real rate of interest and has important implications for the quantity of capital demanded and the amount of savings offered. The higher the amount of capital in an economy, the higher its rate of growth. One of the reasons for the success of the Asian Growth Model in countries like Japan, Korea, and China, among others, is a very high saving rate supported by institutional reforms. An extremely low real interest rate has allowed a rapid increase in capital in these group of countries. Moreover, nor all capital has the same quality in term of promoting sustainable economic growth. If savings are used to build capital goods with obsolete technology, as happened in the URSS or in the countries that followed the Import Substitution model, growth will be short lived – because as soon as these economies open up foreign frontier technology will cause the disappearance of local industries developed with obsolete technology.

A Monetary Theory has to be unified consistently with theories of Capital and Economic Growth. MCB is a good strategy to bring back an economy far away from equilibrium, but it only works in an economy in which the Central Bank has credibility. MCB should not be used either to achieve long-term growth objectives or to finance social expenditures. Economic growth requires real savings, and financing social expenditures must be done from taxes. If MCB is used for economic growth, or to fi-

nance social expenditures the Central Bank will loose its credibility. The end result will be only inflation, and eventually a financial crisis.

In what follows we will briefly comment on Capital theory and on Economic Growth Theory just to make sure that the relationship between them and Monetary Theory is clearly understood, this is particular relevant for developing countries.

CAPITAL THEORY

Bohm Bawerk intuition was that more roundabout process of production (process involving more time) would be more productive. Sraffa uses this hint to transform an input-output matrix into a dated series of labor. With it, he shows that the demand of capital, whenever there is reswitching (going out and back to the same technique of production), may be misbehaved (the demand function may have a positive slope). Therefore, he was convinced that there was no way to define the real interest rate. Long before he could prove it mathematically, Sraffa had this strong intuition, which is why he convinced Keynes that the interest rate was a pure monetary phenomenon. Mathematically, I have shown elsewhere that Sraffa was wrong[51]. But, the damage he inflicted on the history of monetary theory was already done. Decoupling the nominal rate of interest from the real one to understand major crises puts all the emphasis on the monetary-financial side of the economy. This is how Keynes conceived volatile investor' expectations in his MEC. And this is what Mrs. Robinson called "animal spirits". A concept used by Akerlof and Shiller in the explanation of the 2008 GFC. All this is unfortunate because after all, any financial transaction is always rooted in the real economy. The separation of the monetary and the real economy is not useful.

ECONOMIC GROWTH

Arguably, the economics science started with Adam Smith worrying about how the market system delivers economic growth. However, given the rapid growth witnessed by capitalism, economists came to be-

[51] Obregon 2018b.

lieve that growth was an inherent feature of the system. As a result, they turned their focus away from economic growth and into, first the Theory of Labor Value from Ricardo and Marx, and then into Price Theory with the Neoclassical School. Keynes thought developed under the same assumption that capitalism inherently produces rapid economic growth. Thus, his main goal was to understand how to obtain macroeconomic stability (because once there, economic growth is guaranteed) – that is, to move the economy back to the full employment equilibrium corridor. While disagreeing with Keynes as to the potential magnitude of the economic crises, as well as to their causes, the CNMT school also assumed economic growth as a given, once economic stability was achieved.

The question of economic growth did not come back to main stream economics until the publication of Solow's model of economic growth in 1956. In Solow's economic growth model, technological process is exogenous and economic growth is defined by the level of savings, which is what moves the economy from one growth path to the next.

Increasing savings was the main idea behind both the Communist Model of Economic Growth followed by the USSR, and the Import Substitution Model followed by Latin America and other countries. Both models failed, because the increase of savings was invested inefficiently in obsolete technologies. Savings is a necessary condition for growth (as Samuelson once told me), but it is not sufficient. The difference between the failed models described above, and the successful Asian growth models, is that the latter employed frontier technology. This was because these economies exports were oriented to satisfy demand from the middle class of the Western developed countries[52].

Technology has been made endogenous in several models of the CNMT. These include: education (labor quality), learning by doing, science, and research and development. While these models describe well the Western model of economic growth, they cannot explain why the Communist Model failed. The USSR had huge savings, science, education, learning by doing, and research and development, yet, it stopped growing. The factor missing was frontier technology, guided by the dynamically changing needs of a large middle class. The only two models of economic growth that had been historically successful were guided by the dynamic preferences of the large Western middle class: The Western Model and the Asian Model (through exports). In particular, understanding the main differences between the failed Communist Model, and the successful Asian Model (e.g.

[52] Obregon 2008a.

USSR versus Japan or China), is critical. This is because, it clearly shows us that a good economic growth policy framework makes all the difference.

It can be shown both theoretically and empirically that nor macroeconomic stability or income distribution policies can promote economic growth[53]. The Neoclassical Model of Economic Growth, on which the Washington Consensus based its recommendations for Latin American and other developing countries, was based on the erroneous assumption that macroeconomic stability would guarantee economic growth. The reason behind its failure is that, given the new TIC revolution, capital did not go the the well behaved neoclassical countries (those that reduce their government, establish free trade, liberated prices and so on); but to China and other countries, that followed the Asian Growth Model. These countries offered more favorable conditions for foreign investors to produce the segment of production that they wanted, and to establish efficient supply chains. This experience has clearly shown that Macroeconomic stability, while a necessary condition for economic growth, is not sufficient. Economic Growth in the Western Model is the outcome of the historical development of many institutions that foster individual creativity (as North has shown), but also of the rapid expansion of a middle class that enlarged the market and fostered rapid technological change[54]. Western growth by definition happened with frontier technology, because there was nobody else. But, once the West reaches development, it defines the technological frontier, And, true economic growth cannot happen in other countries, unless these countries export to the West – which involves them in frontier technology. Economic growth cannot occur based on obsolete technology.

All this is important for our discussion about monetary theory because we need to understand that no aggregate demand policy (fiscal or monetary) promotes economic growth. Conventional aggregate demand policies are useful for minor adjustments during normal economic cycles within the full employment corridor. They can also be used to bring back the economy from a position of a far-away equilibrium. For this second purpose, the MCB may be particularly useful. But it must be clearly understood, especially by policy makers in developing countries, that the MCB should not be used to stimulate economic growth. Not only will it be ineffective in producing growth, but it may lead to capital flight, inflation and a financial crisis. A fundamental precondition for the MCB to be used, is the credibility of the Central Bank in the eyes of economic

[53] See Obregon 2020.

[54] See Obregon 2008a.

agents. And that means that investors believe that the additional credit provided by the MCB will be used properly to foster the recovery of the productive side of the economy, and that the recovery will happen. If the economic agents distrust the Central Bank, and see the MCB as an attempt of the Government to finance itself for social and other expenditures, or to promote economic growth; the economic agents would predict that MCB will be unsuccessful. Capital flight, currency devaluations, and high inflation, will be the consequences.

CONCLUSION

In CNMT the Central Banks task is to maintain the economy within the full employment equilibrium, but this only requires a moderate conservative monetary policy. What to do when an economy is in a major crisis? or How to prevent getting there? Are not topics studied by CNMT, because it states that major crisis cannot happen. The NMT presented in here argues for a new more ambitious role for the Central Banks that includes the whole relationship between money and the real economy. The Central Bank has been argued is better suited than the government to maintain the productive economy in healthy conditions. Preventing the economy from entering major economic crisis, and getting it out whenever one happens, should be a critical task for the Central Banks. The MCB is a particularly good tool to be used in major economic crisis, but it should only be used for economic recovery, and should be specifically target to the productive economy. MCB should never be used to finance government general expenditures, social expenditures, or to promote economic growth. The Central Bank should never be responsible for the social economy, nor for economic growth.

CONCLUSION

We have shown that major crises are the consequence of large institutional mistakes that deteriorate the confidence of economic agents in the ability of institutions to cope with the economic shock (whether it is internal or external). Major crises can be seen in the GE tradition as Nash equilibriums, or as Pareto equilibriums, which are far away from the full employment corridor. To understand why huge institutional events may occur in rare occasions, we have reviewed the enormous complexity of social change, of which markets are only one element.

Finally, we have discussed what to do when a major crisis hits. We pointed out that too much emphasis has been given to fiscal policy, despite the fact that it has so many limitations, and that Monetary policy has not been used to its full potential when needed. This is due to historical legacies: (1) Keynes was convinced that traditional monetary policy would not work. And, (2) Monetarists were convinced that an expansive monetary policy would be inflationary.

We have shown that an expansive monetary policy need not be inflationary if used in major crisis. And we have argued that QE open a new door for monetary policy, that we should expand and use in major crises. We have called this tool the Monetary Credit Bazooka, or MCB. This powerful tool should only be used in major crises, or to prevent them. The MCB should only be used whenever there is a credible Central Bank and a believable potential economic recovery. The misunderstanding and abuse of the MCB is dangerous. It may lead to a revival of the pedestrian Keynesianism which predicates the expansion of government expenditures and the enlargement of the state. Historically, this has only resulted in hyper inflation and economic chaos. Not to be inflationary MCB has to be only used to finance the recovery of the productive economy in major crisis, and to finance the government only when the latter can show its repayment capacity. Maintaining the Central Bank credibility in a large operation like this is of the foremost importance.

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