Keynes Today

Obregon, Carlos

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KEYNES TODAY

CARLOS OBREGON

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PROLOGUE

When Keynes presented his *General Theory*, the audience in Cambridge University knew that they were listening to the presentation of a book that would change the world forever. Keynes was an intellectual, a mathematician, an economist, a philosopher, a politician, an art lover, an ethical man and a genius. Geniuses are distinguished by their creative imagination, which allows them to see the world from a different angle. Their new perspective, allows all of us to understand and interact with reality in a superior way. Keynes lived a plentiful life. He was a friend of the best philosophical minds of his times, such as Bertrand Russell and Wittgenstein. He was a leader of the brightest economists of his time, like Piero Sraffa and Mrs. Robinson. And he built a new theoretical perspective of economics; defying the best intellects that represented the accepted neoclassical view, such as Hayeck. Keynes' theory like Einstein's physics, or Darwin's evolutionary theory, was guided by the need to explain reality. He was always a policy economist confronting the reality of his time. The world was rapidly changing in Keynes times. He lived the consequences of a rapid globalization brought about by the second industrial revolution, that changed the relative economic position of the dominant countries. Keynes lived the World War I, the 20's hyperinflation, the 30's great depression (1930 GD), and the World War II. In his time, the gold standard collapsed, the British empire saw its final days, and the US became the global leader. His theoretical concerns were guided by the desire to build a better world, in which capitalism could survive and maintain its virtues. Which implied avoiding huge depressions that fostered fascist nationalism, protectionism and military imperialism; all of which, in Keynes' times, were serious threats. To understand Keynes one has to see his thought as a complex proposal that includes a philosophical perspective, a definitive view on globalization and international economics, and macroeconomics as a new tool to fight recessions and to better manage the economic cycle.

For capitalism to survive it is needed both to have a proper global institutional arrangement, and for each nation to have its own means to

recover from its economic maladies without the need to exert commercial or military aggression against other nations. The discussion as to the global institutional arrangement was always a critical concern for Keynes, from his *Economic Consequences of the Peace* published in 1919 to Bretton Woods (BW) in 1944. To understand what governments could do against the malady of depression and unemployment governed Keynes' theoretical thinking since 1913 with the publication of *Indian Currency and Finance*, but he did not fully break out of neoclassical thinking until *The General Theory* in 1936.

Keynes was a genius that changed the way we thought about economics. There was no macroeconomics before him. The governments did not conceive themselves as responsible of maintaining full employment. Before Keynes, neoclassical economics conceived the level of activity of the economy as fully defined by the investment demand – guided by investment opportunities, and the supply of savings – governed by individual intertemporal consumption preferences. Savings and investment were conceptualized as always necessarily equal. And they, together, defined the level of the real interest rate. This was the core of the Neoclassical Capital Theory. Business cycles for this theory were defined in the real economy, and government had no relationship whatsoever with them. Fiscal policy had to do with obtaining resources for the required governmental activities, but nothing to do with the levels of employment or economic activity. And monetary policy's only purpose was to remain neutral, by maintaining the nominal interest equal to the real interest rate. With Keynes everything changed, consumption became a function of income and therefore the level of activity defined the amount of savings; thus, savings and investment are always equal expost, but this equality can happen at different levels of activity. Basically investment defines the income, which in turn sets the level of savings as equal to investment. Therefore, there are several natural rates of interests that define diverse equilibriums of the economic activity; of which only one relates to full employment. What this means is that the government needs to be responsible of maintaining the proper level of employment; and macroeconomics was born.

Since the eighties there has been a strong revival of neoclassical economics. The use of recursive mathematical models assuming rational expectations replicate economies near full employment; which was the case

of most developed economies during the second half of the twentieth century. It was argued that the 1930 GD was a historical curiosum never to happen again, and that Keynes view of the economy was incorrect and theoretically dead. But then, the 2008 global financial crisis occurred (2008 GFC), and the 2020 global pandemic (2020 GP) happened. And the eyes of every policy maker looked back to Keynes and his contributions. The macroeconomic policies adopted in 2020 were basically the ones that Keynes recommended almost one hundred years ago.

Keynes' revolution however, like all of them, was not clear and decisive. He opened up a new view of the world, but whatever it specifically meant has been in debate for almost one hundred years. Revolutions do not consolidate until they blend with the establishment to create a new world. Keynes understood it, and that is why he titled his masterwork *The General Theory*. But he was unsuccessful in the blending. In 2020-21, it is argued in here, we all follow Keynes, but with insufficient theoretical support. This manuscript suggests that contemporary developments in economics in several areas, such as general equilibrium, Game Theory, informational economics, and Institutional Economics provide a road to successfully blend Keynes with traditional and contemporary neoclassical economics. Keynes wrote almost one hundred years ago; in the recent crises it has been necessary to follow his economic advice. But we argue in here, that it is not enough. This book proposes that it is time for new ideas and renovated institutional designs.

INTRODUCTION

The 2020 GP (Global Pandemic), even more than the 2008 GFC (Global Financial Crisis), has been characterized by economic policies that were almost one hundred years ago advocated by Keynes. Thus, there is no question that, contrary to Lucas's famous dictum, Keynes is today well and alive. The 1930 GD (Great Depression) was not after all a curiosum, never to be repeated as the school of rational expectations argued; but one of a series of major economic crises, that can occur at intervals that are unpredictable. From the 1930 GD to the 2008 GFC we had seventy-eight years of relative stability, and from the 2008 GFC to the 2020 GP only twelve years. Keynes was right, and the Neoclassical School was wrong. The study of major economic crises, its causes and what policies to adopt in them, has to be one of the main concerns in economics. Yet, as we will argue, no major serious advances have occurred in this area. Macroeconomics has been for a long time dominated by recursive mathematical models that explain partial economic equilibriums; but which are of no use in major economic crises.

Given the renewed relevance of Keynes in 2021, this book is written to review his thought, the way he was interpreted by his followers, why he was criticized by those that opposed him, and what is the relationship between Keynes' contributions and the ones of other great economists. But it is done from the perspective of the economic problems in 2021 and beyond. Despite diverse references to the historical contributions of Keynes and many other economic thinkers, this is not a book on the history of economic thought. It is a theoretical book, which aims at a critical analysis of today's economic theory and policy. Thus, Keynes is presented from the perspective of the relevance of his thought for 2021 onwards.

Chapter one argues that the policies that have been adopted in 2020 are almost identical to what Keynes would have proposed: huge government expenditures supported by an aggressive monetary policy. The only variant was the use of QE (Quantitative Easing), which however

was very small as compared with the volume of resources channeled through the governments. It describes the policies that the governments around the world have taken to confront the 2020 GP, and compares them with policies adopted in the 2008 GFC. Mostly governments have heavily supported the economic recovery, both with the budget and the budget measures. Their efforts have been possible due to an aggressive expansionary monetary policy, which has bought government debt and allowed the governments to borrow at low interest rates. The amounts involved are enormous. As of September 11, 2020 fiscal actions amounted to $11.7 trillion, or close to 12 percent of global GDP[1]. Half of the fiscal actions consisted of additional spending or forgone revenue; and the other half amounted to liquidity support, including loans, guarantees, and capital injections by the public sector. This second half does not imply a real cost, because in principle it does not impact directly government revenue or expenses. However, it implies an opportunity cost in the sense that the liquidity support could have been used for other purposes, such as promoting a green economy, for example. As for the first half, it is expected that advanced economies will increase their government balance as percentage of GDP to 10.5% average 2020-2021 versus 2.8% average 2014-2019, and the Emerging Markets and Developing Economies to 9.6% average 2020-2021 versus 4.0% average 2014-2019.

Chapter two presents Keynes' main contributions and discusses their relevance today. It spells, from today's perspective, in what Keynes was right and in what he was wrong. Keynes' thought was a complex system which covered three main areas: macroeconomics, international economics and globalization, and his own philosophical perspective about what is capitalism and how human societies should work on it**. As for his philosophical perspective:** Keynes saw capitalism as an economic system which could produce serious major economic crises; but which could always be repaired and maintained alive and well functioning, by adopting the correct institutional policies. **In international economics and globalization:** Keynes defended that the well-functioning of the world's economy requires free trade; but that for it to work properly, a proper global institutional framework is required. Nationalism and high tariffs should be outright refused, because they seriously jeopardize the health of the international economy. In fact, from this perspective

[1]IMF Fiscal Monitor 2020.

Keynes' macroeconomics can be seen as the effort to create institutional mechanisms that could maintain the health of any given national economy. And therefore would prevent the nationalistic temptations to enter a zero sum game with other nations; in which national economic advances are seen as coming from trade or military battles with other nations. **In macroeconomics:** Keynes was the creator of macroeconomics. There are four critical propositions owed to him that are well alive today and are relevant for the future as well. 1) That there are many potential economic equilibriums, and full employment is just one of them; and therefore, it is possible to have major economic crises; 2) That governments can and should fight these major economic crises; 3) That once a major crisis starts, the normal workings of the monetary economy do not longer operate properly, because there are many economic agents with deteriorated balance sheets; a condition that prevents private banks to be able to lend to them. Thus, even drastic increases in liquidity by the central bank would not work. This was Keynes' LPT (Liquidity Preference Theory); which, we will argue, is still very relevant. 4) That investors' expectations may seriously deteriorate once a major crisis starts, and may make the recovery more difficult. This was Keynes' MEC (Marginal Efficiency of Capital), and it is also very relevant today. There were however certain macroeconomic proposals made by Keynes that resulted incorrect, and are no longer relevant. 1) That major economic crises are produced by the volatility of investors' expectations. While it is true that, once a major economic crisis starts, the MEC seriously deteriorates; it is not true, as Keynes argued, that the previous deterioration of the MEC is what produces the major economic crises. 2) That the interest rate is just a monetary phenomenon, and therefore the nominal monetary economy stands decoupled from the real productive economy.

Chapter three discusses the differences between Keynes' initial thought and the ones of his followers. There have been many generations of economic thinkers influenced by Keynes. These new schools developed new theoretical concepts aiming at correcting what they considered wrong in Keynes' original proposal. It is discussed why Hicks rewrote Keynes' macroeconomics as the IS-LM, why the Keynesians lost the battle against the Monetarists, and why the school of rational expectations has been so successful. However, the Keynesians discussing macroeconomics in terms of the IS-LM model were not seen by many

other economists as true followers of Keynes; therefore, they developed new theoretical frameworks to reinterpret Keynes. Among which the most relevant are: The Cambridge Keynesians, the Post-Keynesians, the Macro-Disequilibrium Theories, the Rational Expectations Keynesians, and the Behavioral Economist Keynesians. All of which are presented and discussed in this third chapter.

Chapter four presents Keynes and the Neoclassical School. From the philosophical perspective, there is a clear disagreement. The Neoclassical School sees capitalism as an inherent stable system, in which major economic crises would not be produced; while in Keynes they can occur. Both the 2008 GFC and the 2020 GP have shown that Keynes was right, and the neoclassical economists were wrong. In international economics and globalization: both Keynes and the neoclassical economists were against nationalistic protectionist policies and defended free trade. However, there are clear differences. While Keynes saw major economic crises as an inherent possibility in all the economies, neoclassical economist saw economic crises only as a consequence of mistaken governmental economic policies. Keynes argued that the global economy would only operate properly if it had an adequate institutional framework. Keynes understood that financial crises generate the governments' temptation to impose nationalistic trade restrictive policies – and saw macroinstitutional economic responses as a way out. We will discuss the causes of the financial and economic crises to dispel this controversy. In relationship to macroeconomics: Keynes' initial intention was to develop a general theory that included the neoclassical contributions. But he made it impossible because of the two mistakes he made, mentioned in chapter two: the irrationality of his volatile MEC; and his notion that the interest rate only has monetary determinants. In this manuscript it is argued that, due to new economic theoretical developments in General Equilibrium, Game Theory, Information Theory, and Institutional Economics it is possible to get rid of Keynes' original mistakes; while still being able to explain why major economic crises can happen. In this new context, Keynes can be reinterpreted, in the general equilibrium logic, through non optimal Nash equilibriums and/or through non optimal Pareto general equilibriums due to informational deficiencies. With this perspective, it is suggested that Keynes' main proposals result compatible with rational expectations; and that major economic crises can be seen as a consequence

of unusual major institutional failures. Therefore, it is submitted, that Institutional Economics provides an adequate framework to put together Keynes' proposals and the neoclassical contributions.

Chapter Five introduces a brief note that compares Keynes' philosophical perspectives, and his international economics and globalization views with those of Adam Smith and Karl Marx. The three great economist share the view that the proper workings of capitalism requires free trade. Globalization was correctly seen by all of them as the true cause of prosperity. This point is particularly relevant for 2021 onwards, because today nationalism is threatening again global prosperity. Unbelievable as it seems, the importance of free trade for the prosperity of the global economy is not yet understood by the general public. Even after nearly two and a half centuries of economic thought that has unanimously argued in favor of this point, Brexit was approved in the UK, and Trump was elected in 2016 as a consequence of his proposed protectionist nationalistic policies. In 2020 Trump lost, but still had a very high percentage of the electorate voting for him. Both Keynes and Smith shared the view that the proper workings of capitalism require the right institutional policies. In Smith, institutional policies fostering free trade, globalization and economic freedom in general explained the fast economic growth of countries like England, versus the low economic growth of countries that adopted protectionist nationalistic governmental monopolized policies, like Spain or Portugal. In Keynes, macroinstitutional policies are, as we said, crucial to avoid the temptation of inadequate nationalistic protectionist policies, and a global institutional framework is required for world's free trade to operate properly. Smith writes to solve the problem of economic growth, and Keynes the one of macrostability. Marx also saw globalization as prosperity, but for him the same global nature of capitalism unraveled the true nature of human beings as a specie. And thus unveils the fact that value only comes from labor, and that workers are exploited. Thus, an international proletariat revolution was required and was unstoppable. But even in Marx, it must be emphasized, value creation is global. In the Neoclassical School economic discussions stand by themselves; while in Keynes', Smith's and Marx's philosophical perspectives, economics necessarily implies ethical discussions.

The Epilogue discusses what to do in 2021 and after. It argues that we must create a new institutional global arrangement. That almost one

hundred years have passed since the publication of *The General Theory*, and that it is time to think beyond Keynes. In particular, there is room for a more aggressive independent monetary policy; but it requires new institutions. Moreover, it is emphasized that macroeconomics, even if it were to go beyond Keynes, is not suitable to solve other global economic problems that require special attention of its own, such as: economic growth, underdevelopment, income distribution and poverty. The solution of these problems requires real resources – real savings, as well as global institutional modifications of their own. Monetary and fiscal policies can be used efficiently both for managing the business cycle, and for moving the economy away from the disadvantageous equilibrium produced by a major economic crisis. But they cannot be used to solve any of the other problems mentioned above; because any attempt to print money whenever is not justified by the presence of large unemployed economic resources, will produce rational inflationary expectations. Which in advanced countries will translate into stagflation, and in emerging markets and developing economies into currency devaluations and financial crises.

CHAPTER ONE: IN 2020-21, WE ALL FOLLOW KEYNES

Keynes argued that private markets alone are not suited to efficiently move an economy out of a great depression. He was right. Despite the beautiful technical arguments of the recursive mathematical rational expectations models, which always bring quickly back the economy to the optimal full employment equilibrium, the 2008 GFC and 2020 GP did happen. And in both crises the governments have needed to recur to Keynes' policies – basically huge government deficits financed by the central banks emission of large amounts of new money. The governments' and central banks' response to the 2020 GP has even been more efficient than in the 2008 GFC. Remarkably, despite the magnitude of the 2020 GP crisis the investors' expectations have not worsened, which implies trust in what the governments and central banks are doing. The ACWI global, a Black Rock's indexed global fund, is up 13.6% since one year ago, ¡remarkable![2]. Thus, Keynes was proven right, a timely intervention by governments prevented a deterioration of investors' expectations. The economic costs of the 2020 GP have been high, but they could have been much higher if Keynes' policies had not been adopted.

The economic costs can be divided into three categories: 1) the foregone economic growth; 2) the additional government's expenditures or foregone revenues above the line; 3) the opportunity cost of the liquidity support given, which could be used otherwise to stimulate key sectors of the economy. Costs 2) and 3) represent the cost of Keynes' policies. But without them cost 1), the foregone economic growth, would have been much higher.

[2] Dec 16 2019 to Dec 15 2020.

FOREGONE ECONOMIC GROWTH

One way to understand what is the foregone economic growth associated with the 2020 GP is to compare the expected 2020-2025 economic growth with the one in 2014 -2019[3]. Table 1.1 compares for the world, and diverse regions, the average annual real GDP growth rate for a six-year period before and after both the 2008 GFC and the 2020 GP. Using these numbers, we estimate the total accumulated growth cost of each one of these crises, as the difference between growth six years after the crisis versus the six previous years. The cost in all cases is significantly higher in the 2008 GFC, 9% for the world, versus 4.7% in the 2020 GP. For advanced economies (AE) the numbers are 11.8% and 6.3%; and for emerging markets and developing economies (EM-DE) 10% and 4.3%%[4]. Another way to compare is to divide this foregone economic growth in the six years after the crisis by the average annual economic growth in the six years before the crisis, to express the cost in foregone years of growth. For the world the results are 1.9 years in the 2008 GFC, versus 1.4 years in the 2020 GP. Several results can be highlighted from this table. The first result, is that in general the 2020 GP is less expensive in terms of economic growth than the 2008 GFC. The second result, is that both crises were more severe for AE than for EM-DE. There are two exceptions worth mentioning. Latin America and the Caribbean actually will grow more in 2020 -2025 than in 2014-2019, because it almost did not grow in 2014-2019. And for the EM Asia and the Asian –5 the 2020 GP was more expensive than the 2008 GFC. This reflects the fact that while the 2008 GFC was a Wall Street crisis, the 2020 GP was a main street crisis involving all the countries.

[3] We are using the IMF forecasts.

[4] We are using in here the notation and classification of the IMF since we have obtained the data from this organization.

TABLE 1.1. REAL GDP

	Average	Annual	Growth	Rate
	2002-2007	2008-2013	2014-2019	2020-2025
World	4.8	3.3	3.4	2.6
Adv. Econ	2.6	0.7	2.1	1.1
Euro area	1.9	-0.3	1.8	0.8
G7	2.2	0.6	1.9	0.9
Other AE	4.4	2.5	2.6	1.7
Eur. Union	2.4	0.0	2.2	1.1
EM and DE	7.1	5.4	4.4	3.7
EM Asia	9.0	7.7	6.5	5.0
EM Europe	6.6	2.4	2.4	1.8
ASEAN-5	5.7	5.1	5.1	4.1
LA & Car.	4.0	3.1	0.6	0.9
M E and CA	6.8	3.9	2.7	2.1
SSA	6.2	5.3	3.2	2.8
	Total Growth Cost		Years	Cost
	2008 GFC	2020 GP	2008 GFC	2020 GP
World	9.0	4.7	1.9	1.4
Adv. Econ	11.8	6.3	4.5	3.0
Euro area	14.0	6.4	7.2	3.5
G7	10.2	6.1	4.6	3.2
Other AE	11.4	5.2	2.6	2.0
Eur. Union	15.3	7.0	6.4	3.2
EM and DE	10.0	4.3	1.4	1.0
EM Asia	7.4	8.5	0.8	1.3
EM Europe	26.9	3.4	4.1	1.4
ASEAN-5	3.0	6.0	0.5	1.2
LA & Car.	5.5	-1.8	1.4	-3.0
M E and CA	18.3	3.5	2.7	1.3
SSA	5.4	2.3	0.9	0.7

Source: IMF WEO Data Base 2020.

FISCAL STIMULUS

In the 2008 crisis the governments learnt that their response was too slow, which made the crisis unnecessarily expensive; thus, in the 2020 GP they acted quicker and more decisively. Table 1.2 presents the Government balance over GDP. As it can be seen, expenditures minus revenues increased in annual average 3.4 % for AE in 2008-2009 versus 2002-2007, but in 2020-2021 versus 2014-2019 they are expected to increase 7.8%. This partially explains why the recovery is less costly in the 2020 GP versus the 2008 GFC. The accumulated economic growth cost in 2008- 2013 (versus 2002-2007) was 11.8 % of GDP versus only an accumulated expected economic growth cost in 2020-2025 (versus 2014-2019) of 6.8%; see Table 1.1. 2020 GP smaller growth costs show that it is highly productive to act quickly and decisively. Moreover, because of the additional economic growth obtained due to high initial government deficits, the total accumulated impact in government finances is not necessarily larger. For AE, the total additional accumulated fiscal stimulus (difference in the added government balances of the whole period), in the 2008-2013 period versus 2002-2007 is 19.4 % of GDP; almost identical to the 19.3 % of GDP expected for the period 2020-2025 versus 2014-2019.

TABLE 1.2. GOVERNMENT BALANCE % GDP

	2002 -2007	2008-2009	2010-2013	2014-2019	2020-2021	2022-2025
Adv. Econ	2.7	6.1	5.8	2.8	10.5	3.7
Major AE	3.5	7.2	6.8	3.5	11.9	4.3
EM and DE	0.8	1.4	1.5	4.0	9.6	6.9

	2008	2009	2020	2021
Adv. Econ	3.5	8.7	14.2	6.8
Major AE	4.5	9.9	16.2	7.6
EM and DE	-0.8	3.7	10.4	8.8

Source: IMF WEO data base 2020.

Expenditures minus revenues.

In the case of EM-DE the governments also acted quickly and decisively; expenditures minus revenues increased in annual average 0.7 % in 2008-2009 versus 2002-2007, but 2020-2021 versus 2014-2019 are expected to increase 5.6%[5]. The additional accumulated fiscal stimulus in 2020-2025 versus 2014-2019 is 22.6 % GDP; much higher than the one of 2008 -2013 versus 2002-2007 which was only 4.2%. These numbers reflect the fact that, distinctly from the 2008 GFC, the 2020 GP affected the EM-DE directly.

To finalize this section, it is worth analyzing what happens with the countries that did not respond to the 2020 GP with a proper fiscal stimulus, like Mexico. In order to do this Table 1.3 compares key indicators between Brazil, Chile and Mexico. Brazil had a very high fiscal stimulus over GDP of 16.8% in 2020, versus 8.7% for Chile and only 5.8% for Mexico. The total added up fiscal stimulus for Brazil 2020- 2025 is forecasted to be 46.3%; which is very high, but similar to the one in 2014-2019 in which Brazil had a negative accumulated economic growth due to the lack of credibility in the government. Despite the background of low credibility, by aggressively responding fiscally to the 2020 GP, Brazil is able to have a positive accumulated growth of 5.8%. Chile is expected to have in 2020- 2025 a total fiscal stimulus of 23.4% of GDP; substantially higher than the one it had in 2014-2019 of 13%. Due to this, Chile is able to have an expected accumulated growth of 9.9 %, despite the 2020 GP. Mexico has not responded properly to the crisis; of the three countries, it is the one with less aggregated fiscal stimulus 2020-2025, only 19.3%. And, as a consequence, it has the less accumulated economic growth during the period, only 2.7%. This bad expected result contrasts with the fact that, of the three countries, Mexico had the highest accumulated growth in 2014 -2019.

[5] The corresponding numbers for EM-DE are 0.7% and 5.6%.

TABLE 1.3 LA KEY COUNTRIES COMPARISON

	I	II	II	IV	V
Brazil	46.3	46.3	-2.6	5.8	16.8
Chile	13.0	23.4	12.6	9.9	8.7
Mexico	16.9	19.3	13.4	2.7	5.8

I= % GDP Accumulated fiscal stimulus 2014-2019

II= Same as I, for 2020-2025

III= Accumulated Economic Growth 2014-2019

IV= Same as III, for 2020-2025

V= 2020 Fiscal Stimulus % GDP

THE OPPORTUNITY COST

As of September 11, 2020 global fiscal actions amounted to $11.7 trillion dollars, or close to 12 percent of the world's GDP[6]. Half of the fiscal actions consisted of additional spending or forgone revenue, which we already discussed in the previous section. The other half amounted to liquidity support, including loans, guarantees, and capital injections by the public sector. This second half does not imply a real cost because, in principle, it does not impact directly government revenue or expenses. However, it implies an opportunity cost in the sense that the liquidity support could have been used for other purposes, such as promoting a green economy, for example.

Of the $5,953 global billion dollars that represent above the line stimulus, 41% is explained by the US alone, 24% by the rest of the developed countries presented in Table 1.4, and another 16% by the emerging markets listed in the same table. Thus, 81% is explained by the countries in the table. As GDP % the two cases in the high end are US with 11.8% and Japan with 11.3%. In the low end is Mexico with only 0.6% of GDP.

[6] IMF Fiscal Monitor 2020.

Of the $5,791 billion dollars of liquidity support, 40% is explained only by Germany and Japan. The developed countries in the table 10.4 represent 80%, and the underdeveloped another 8%, for a total of 88%. As GDP % in the high end is Italy with 33% and Germany with 30.8%, followed by Japan with 23.7%. In the low end we find Mexico again with 0.5%

TABLE 1.4 SUMMARY OF COUNTRY FISCAL MEASURES

	Fiscal	GDP %	Liquidity	GDP %
France	134	5.2	402	15.7
Germany	316	8.3	1166	30.8
Italy	91	4.9	610	33.0
Japan	555	11.3	1163	23.7
Korea	55	3.5	164	10.3
Spain	44	3.5	177	14.2
United Kingdom	241	9.2	437	16.6
United States	2449	11.8	510	2.5
Selected Emerging Markets				
Argentina	15	3.9	8	2.1
Brazil	113	8.3	86	6.3
China	707	4.6	198	1.3
India	46	1.8	135	5.2
Indonesia	29	2.7	13	1.2
Mexico	7	0.6	5	0.5
Russia	35	2.4	15	1.0
Global	5,953	5.9	5,791	6.0

Source: Fiscal Monitor 2020.

Table 1.5 decomposes the liquidity support as GDP % in contingent liabilities (guarantees and quasi-fiscal operations) and other categories (equity injections, loans, asset purchase or debt assumptions). As can be seen, most of the liquidity support is in guarantees, followed by quasi-fiscal operations, and only a very minor part in other categories. However, in few countries like Japan, Korea, China, Brazil and Mexico the quasi-fiscal operations are particularly relevant.

TABLE 1.5. LIQUIDITY SUPPORT

	GDP % Liq. Supp.	Contingent Liabilities		Other
		Guarantees	Quasi Fis	
France	15.7	14.8		0.9
Germany	30.8	24.8		6.0
Italy	33.0	32.8		0.2
Japan	23.7	3.0	20.7	
Korea	10.3	3.7	6.6	
Spain	14.2	13.2	0.9	0.1
United Kingdom	16.6	16.5		0.0
United States	2.5	2.2		0.3
Selected Emerging Markets				
Argentina	2.1	2.1		
Brazil	6.3		5.3	1.0
China	1.3	0.4	0.9	
India	5.2	4.5	0.5	0.3
Indonesia	1.2	0.9		0.2
Mexico	0.5		0.3	0.2
Russia	1.0	0.5	0.5	0.1
Global	6.0	4.1	1.4	0.5

Source: Fiscal Monitor 2020.

MONETARY POLICY

The unprecedented fiscal stimulus and liquidity support that we have documented so far was only possible due to an environment of low inflation. Which has been consequence of: 1) the high global productivity due to the ICT revolution, and 2) the confidence gained due to the successful central banks actions in the 2008 GFC. Both have maintained inflationary expectations subdued. Table 1 .6 shows that inflation has been low and it is expected to remain so until 2025.

TABLE 1.6. INFLATION, AVERAGE CONSUMER PRICES

	2019	2020	2021	2022	2023	2024	2025
World	3.5	3.2	3.4	3.2	3.1	3.1	3.2
Adv. Econ.	1.4	0.8	1.6	1.6	1.7	1.8	1.9
EM and DE	5.1	5.0	4.7	4.3	4.2	4.1	4.0

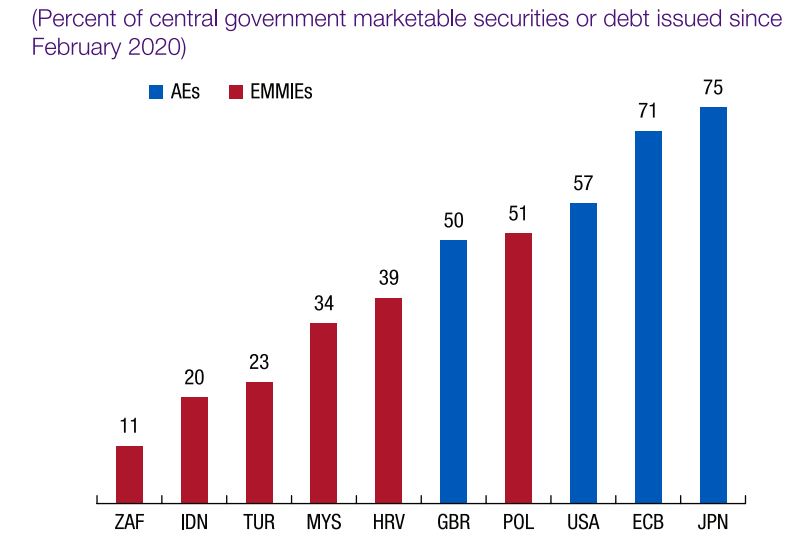
Source: International Monetary Fund, World Economic Outlook Database, October 2020.

In this environment of low inflation and subdued inflationary expectations, central banks have maintained very low interest rates, and in some cases with additional stimulus to the private banks to increase their credit balances that in fact mimic highly negative interest rates. The Fed's funds rate was lowered by 150bp in March to 0-0.25bp. The Bank of England reduced the Bank Rate by 65 basis points to 0.1 percent. Before Covid, the ECB had already the deposit rate at -0.5%. But a negative interest rate has a limit in which it will discourage deposits. Therefore, instead of increasing the negativity of the interest rate the ECB has introduced a dual scheme of interest rates. By decoupling the repo loan rate from the ECB's targeted interest rates, the ECB is actually paying money for the banks to extend credit to the economy, the more they lend the higher the subsidy. Most of the ECB's stimulus has come from lending at subsidizes rates to the banks, the subsidy can be as much as 50bp. The Bank of Japan's main stimulus was lending support through the special funds-supplying operation, and it made purchases of Japanese government securities, commercial paper, corporate bonds, and exchange-traded funds. The government expanded the volume of concessional loan facilities (interest-free without collateral) primarily for micro, small and medium-sized businesses affected by COVID-19 through the Japan Finance Corporation and other institutions. The special funds-supplying operations have been scaled up by expanding the range of eligible counterparties and collateral to private debt (including household debt), as well as by applying a positive interest rate of 0.1 percent to the outstanding balances of current accounts held by financial institutions at the BoJ, that correspond to the amounts outstanding of loans provided through this operation.

The low interest rates have allowed the governments to increase their debts at an acceptable service cost. Moreover, the central banks themselves have increase their balance sheets a lot and have bought a high percentage

of the new debt issued by the governments. Figure 1.1 shows that of the total government debt issued since February 2020 in Japan, 75% was bought by the Japanese central bank. The numbers for other advanced countries are: 71% for the ECB, 57% for US and 50% for Great Britain.

FIGURE 1.1. CENTRAL BANK PURCHASES OF GOVERNMENT DEBT



Sources: Country authorities; US Federal Reserve Economic Data; Haver Analytics; and IMF staff calculations.
Note: Data labels use International Organization for Standardization country codes.
AEs = advanced economies; EMMIEs = emerging market and middle-income economies.
In what follows we will concentrate in the behavior of four Central Banks to describe what has been their role in the 2020 GP.

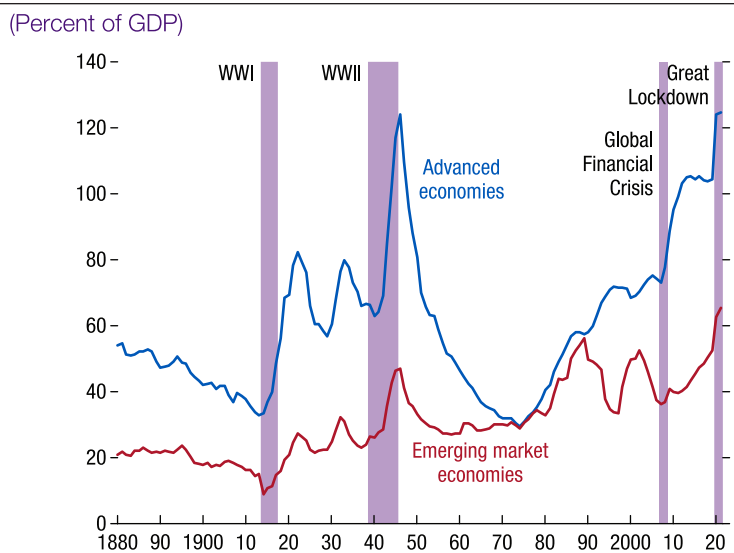
The main central banks of the world have had a huge balance sheet expansion. Amounting to around 6.7 trillion dollars, 2.9 correspond to the Fed, 2.4 to the ECB, 1.1 to the Bank of Japan, and 0.3 to the Bank of England. In addition, about 20 emerging market central banks have deployed asset purchases for the first time. Moreover, the post-2008 regulatory framework has been largely successful, as the global banking system entered the crisis with relatively high capital and liquidity buffers.

In summary: The aggressive economic policy response to the 2020 GP, both fiscal and monetary, has provided a bridge to recovery. The global fiscal

policy response of around 11.7 trillion dollars has provided substantial support to households and firms. Central banks have eased monetary policy across the globe. The balance of the four most important central banks of the world have expanded around 6.7 trillion dollars. As a result of these policy actions, the adverse macro-financial feedback loops that characterized the 2008 GFC have largely been contained. As a consequence, the economic growth costs in the 2020 GP are forecasted to be smaller than the ones in the 2008 GFC.

The above the line fiscal stimulus globally has been around half of the total $11.7 trillion dollars fiscal policy response. And this has implied that in 2020, general government debt as percentage of GDP, in advanced economies has increased to record highs not seen since the World War II, and for emerging markets since the crisis of the eighties; see figure 1.2. And as we have seen, a very high percentage of this increased debt has been financed by the central banks, particularly in advanced economies.

FIGURE 1.2. HISTORICAL PATTERNS OF GENERAL GOVERNMENT DEBT



Sources: IMF, Historical Public Debt Database; IMF, World Economic Outlook database; Maddison Database Project; and IMF staff calculations.
Note: The aggregate public-debt-to-GDP series for advanced economies and emerging market economies is based on a constant sample of 25 and 27 countries, respectively, weighted by GDP in purchasing-power-parity terms. WWI = World War I; WWII = World War II.

It is expected that general government gross and net debt as a % of GDP will remain high, even as far as 2025. For AE net debt as % of GDP jumped from 76% in 2019 to 95% in 2020 and is expected to be 97% in 2025. The numbers for general government gross debt as % of GDP are 104% in 2019, 124% in 2020, and 124% in 2025. For EM-DE we only have data about government gross debt as % of GDP, and the corresponding numbers are 52% in 2019, 61% in 2020, and 69% in 2025. What this scenario means, is that both fiscal and monetary policies will impose huge constraints for the future. In particular, low inflation and low inflationary expectations will be required, so that central banks can maintain low interest rates, and an unserviceable booming of the general government debt can be avoided. This implies that the high productivity of the ICT revolution will be required more than ever, and that free global trade is a must for the healthy recovery of the global economy.

WHAT WOULD HAVE HAPPENED WITHOUT KEYNES' POLICIES?

Almost all the countries in the world followed Keynes' policies with few exceptions, like Mexico. This country is a living example of the negative consequences of refusing to adopt Keynes' policies. Table 1.7 shows that Per Capita GDP is expected to grow a total of 6% in the period 2018-2025 in AE, and 18% in EM-DE, while in Mexico it will lose 5%. And while EM-DE will gain 7% of global share in 2025 versus the one they had in 2018 against the AE which will lose 9%; Mexico will lose more share than even the AE, -14%.

TABLE 1.7. MEXICO'S FUTURE

	GDP PC			Global Share		
	2018	2025	2025/ 2018	2018	2025	2025/ 2018
Adv. Econ.	51262.07	54378.93	1.06	43.54	39.51	0.91
EM and DE.	11037.76	13041.66	1.18	56.46	60.49	1.07
Mexico	20025.50	19117.05	0.95	2.01	1.73	0.86

GDP = Gross Domestic Product Per Capita
Purchasing power parity
2017 international dollars.

Global share in
Purchasing power parity
2017 international dollars.

Source: IMF WEO 2020 Data Base.

What was Mexico's cost of refusing Keynes' policies? About 10 years of Per Capita income lost, on average, by each citizen. How do we get to this calculation? First, since in Per Capita terms Mexico clearly has the potential to grow as much as the average EM and DE, we assume that if it had adopted Keynes' policies, Mexico's forecast should be similar to the average EM and DE. That means that, by 2025, its GDP Per Capita could be forecasted as 1.18 times the one of 2018, instead of the actual IMF forecast of 0.95 times. Second, we add up the differences in each year of the actual 2020 IMF forecast with the alternative forecast and a total of $23,349 dollars Per Capita is obtained. Third, we get the value of the perpetuity annuity of the difference on GDP Per Capita in 2025 of both forecasts which gives the value of $189,522 dollars Per Capita[7]. Fourth, we add the results in two and three and we get $203,870 dollars Per Capita. Fifth, we divide the result in four by the 2018 GDP Per Capita which is equal to $20,026 dollars and we obtain 10.2 years. Thus, it is clear that for EM and DE not adopting Keynes' policies is very expensive.

The cost of not adopting Keynes' policies for AE would have been smaller, but still very high. A rough proxy to give us an idea can be obtained assuming that their expected GDP Per Capita in 2025 behaves like the IMF's forecast for Mexico. Thus, instead of being 1.06 times the one in 2018 as in the IMF forecast, it becomes only 0.95. In this case, and fol-

[7] The difference between both forecasts in 2025 is 4,513 Per Capita GDP dollars. The value of the annuity is obtained using a normalized thirty year US dollar real yield in of 2.5%.

lowing similar calculations as before, the AE's cost of not having adopted Keynes' policies is 4.3 years of Per Capita GDP lost on average per each citizen. Thus, it is clear that we all became followers of Keynes in 2020 because not to do so was extremely costly. To remain fiscally healthy is very expensive, and it is an inadequate economic path. The world at large has done well by being aggressive in the adjustment program at the expense of less healthy public finances.

CONCLUSION

Rational expectations and monetarism cannot explain how it is that global crises like the 2008 GFC and the 2020 GP happen; and the IS-LM model was designed to manage business cycles. Therefore, since none of the other known macroeconomic theories are adequate to understand what to do in a global crisis, after almost one hundred years of deviating from Keynes' thought, macroeconomics has gone back to Keynes' policies. Not do so would have been very expensive.

Keynes' policies are back. But, what about his theory? What happens with the other macroeconomic theories? What do to next? All these relevant questions inspired the writing of this book, which reviews Keynes' theories in the context of 2021 onwards.

CHAPTER TWO: KEYNES' CONTRIBUTIONS AND MISTAKES

Keynes' main macroeconomic theoretical contributions are mostly contained in *The General Theory* and in a few articles written afterwards. However, his macroeconomic theory has to be understood in the context of both Keynes' early works, and his policy proposals all through his life, both of which dispel more clearly some of the issues that further define Keynes' philosophical perspective and his international economics and views on globalization.

Keynes lived through several profound international crises: World War I, the 1920's hyperinflation, the 1930 GD, the growth of populist communist and fascists views in Europe, and the World War II. Therefore, all through his life the global capitalist system was threatened. From a philosophical perspective, Keynes was convinced of the virtues of individual freedom, as it is expressed in a capitalist economy, and he was searching for the best institutional conditions to guarantee its survival. The solution for Keynes was twofold: to establish the proper international economic conditions, and to develop macroeconomic tools to allow each country to be able to confront by itself its economic crises.

In this chapter Keynes' thought is presented, organized around the three key areas mentioned above: his philosophical perspective, his views on international economics and globalization, and his macroeconomics.

KEYNES' PHILOSOPHICAL PERSPECTIVE

Keynes' philosophical perspective is never well defined in any of his works; it has to be constructed from diverse paragraphs in many of them. In *The End of Laissez Faire*, written in 1926, Keynes argues that laissez-faire cannot sustain social order or explain social progress. But this does not mean that protectionism or state socialism are the solution. Keynes believed that indi-

vidual freedom, and the efficiency that it conveys, is one of the critical features that explains the success of capitalism, and that it should be preserved; but he also maintains that private markets are not stable by themselves, and that therefore the discussion about the proper social institutions needed to be established is critical. Keynes wrote: "*The world is not* so governed from above that private and social interest always coincide. It is *not* so managed here below that in practice they coincide. It is *not* a correct deduction from the principles of economics that enlightened self-interest always operates in the public interest. Nor is it true that self-interest generally *is* enlightened; more often individuals acting separately to promote their own ends are too ignorant or too weak to attain even these". "*Many of the greatest economic evils of our time are the fruits of risk, uncertainty, and ignorance…Yet the cure lies outside the operations of individuals…*"[8]. He mentions several examples of the need of social institutions such as: 1) *The deliberate control of the currency and of credit by a central institution*; 2) *The collection and dissemination on a great scale of data relating to the business situation, including the full publicity, by law if necessary, of all business facts which it is useful to know*; 3) *The scale on which it is desirable that the community as a whole should save, the scale on which these savings should go abroad in the form of foreign investments, and whether the present organization of the investment market distributes savings along the most nationally productive channels*; 4) *A national policy about what size of population, whether larger or smaller than at present or the same, is most expedient.*

For Keynes, *laissez-faire* does not work. However, societies must avoid the temptation of the proposals of the opponents of *laissez-faire*: protectionism on one hand, and Marxian socialism on the other. Because these doctrines "*both are examples of poor thinking, of inability to analyze a process and follow it out to its conclusion…of the two, protectionism is at least plausible, and the forces making for its popularity are nothing to wonder at. But Marxian socialism must always remain a portent to the historians of opinion - how a doctrine so illogical and so dull can have exercised so powerful and enduring an influence over the minds of men and, through them, the events of history*"[9]. Keynes saw large recessions and unacceptable levels of unemployment as the cause of unwanted protectionist measures and the possible success of unwelcome socialist authoritarian states. And he understood the task of social intellectuals as defining the institutional framework

[8] Keynes, J.M; 1926 The end of *laissez-faire*. This essay, which was published as a pamphlet by the Hogarth Press in July 1926, was based on the Sidney Ball Lecture given by Keynes at Oxford in November 1924 and on a lecture given by him at the University of Berlin in June 1926.

[9] Keynes, J.M; 1926 The end of *laissez-faire, op.cit.*

that could guarantee full employment, while preserving the virtues of individual freedom. *The General Theory* was to some extent an answer to Keynes' previous concerns. In this book Keynes writes "*But if our central controls succeed in establishing an aggregate volume of output corresponding to full employment as nearly as it is practicable, the classical theory comes into its own again from this point onwards*"[10].

KEYNES' INTERNATIONAL ECONOMICS AND HIS VIEW ON GLOBALIZATION

The Economic Consequences of the Peace was written in 1919, this is the book that made Keynes famous. In it, Keynes argues that for the proper functioning of the global economy an adequate institutional framework is needed. The peace agreements after the World War I, he wrote, established the wrong conditions. He was right. Keynes' argument was that Germany would not be able to pay, mainly because its income had been reduced in three key areas: the industry of iron and coal, the international trade and the tariff and transport system. Keynes argued that debts should have been condoned, to allow the efficient functioning of the international payment system required for the proper workings of the productive plant. As Keynes forecasted, Germany despite imposing an absurdly high inflationary tax could not pay. And France's and Italy's large government deficits, that supposedly would be covered with Germany's payments, ended up in inflationary pressures too. The consequence was the 1920's hyperinflation, which was particularly severe in Germany. To confront the 1920's hyperinflation, central banks drastically reduced the money supply, and to foster national recovery governments aggressively increased tariffs: the consequence was the 1930 GD. Both the 1920's hyperinflation and the 1930 GD were key precedents of fascism in Germany and of World War II. Keynes anticipated what contemporary economics was going to prove with mathematical models: *that a competitive market economy only works properly if it has the adequate institutional arrangement.*

The Economic Consequences of the Peace made Keynes famous, particularly in the US; but it did not have any impact on the economic policy of the

[10] Keynes, J.M; 1936 *The General Theory*, p. 378. First Harbinger Edition, 1964. Harcout, Brace and World , Inc. New York, US.

major developed economies. *The General Theory* solidified Keynes' prestige as an economist and was used to justify what president Roosevelt was already doing with the New Deal; but the truth is that Roosevelt never heard of Keynes and the New Deal does not owe anything to *The General Theory*. However, Keynes' views on globalization and international economics were key for shaping the international monetary system that was established in Bretton Woods (BW). How efficient was BW? And how did it differ from the Gold Standard and the present free floating exchange rates (FFER) monetary system? Table 2.1. shows that the growth record favors BW. The growth during the BW years, 1950 to 1970, was 3% annually. In the Gold Standard years, from 1870 to 1913, the world GDP Per Capita grew only 1.4%. And in the actual FFER system, from 1971 to 1990, it grew 1.5%; this rate of growth actually increased in 1990 to 2016, due to high productivity of the ITC revolution, to 1.9%.

TABLE 2.1 INTERNATIONAL MONETARY SYSTEMS GROWTH RECORD

years	World	
1870-1913	1.38	Gold Standard
1913-1950	0.82	Transition
1950-1971	2.97	Bretton woods
1971-1990	1.53	Flexible Exchange Rates
1990-2016	1.88	Flexible Exchange Rates And ITC
1870-1990	1.51	
1870-2016	1.57	

The main difference is that in BW the global institutions had a well-defined role. The differences between the three monetary regimes are presented in figure 2.1. The Gold Standard had free capital flows and fixed exchange rates and the countries did not have an autonomous monetary policy. BW had also fixed exchange rates but had controlled capital flows and therefore the countries did have an autonomous monetary policy. In today's FFER system countries maintain an autonomous monetary policy, but there are free capital flows and thus exchange rates have to float freely.

FIGURE 2.1 INTERNATIONAL MONETARY SYSTEMS DIFFERENTIAL CHARACTERISTICS

1 Autonomous Monetary Policy	
1a Yes	1b No
2 Capital Flows	
2a Free	*2b Controlled*
1a+2a= Floating exchange rates	Today's system
1a+2b= Fix exchange rates	Bretton Woods
1b+2a= Fix exchange rates	Gold Standard

It is impossible to argue that one monetary system is superior to the others because each one of them confronted different historical conditions, for example despite the superiority of BW in economic growth, one has to take into account that this was due to a large extent to the reconstruction after World War II, which makes the comparison difficult. However, the decisive influence of Keynes' thinking in shaping the adequate global institutions for the global economy to be able to work properly is clear. Keynes had two main concerns that he expressed in his written works. The first one, which directed Keynes' thinking in *The General Theory,* was that countries must have the means to be able to confront by themselves their economic crisis; which meant increasing government expenditures financed largely by central banks money supply increases. Therefore, countries must able to have an autonomous monetary policy. This point was crucial for Keynes, because it implies that each country can take care of its own economic crisis without the need to start a trade war against other nations, which will create chaos in the international economic system. The main difference between the Gold Standard and BW was that in the latter countries did have an autonomous monetary policy, which Keynes considered essential. Since countries can only define two of the three key economic variables, introducing an autonomous monetary policy necessarily meant controlling capital flows. Todays' FFER system has liberated capital flows but, as Keynes recommended before in BW, it has maintained an autonomous monetary policy, that is why the exchange rates have to float freely.

Keynes' second concern, already defended in *The Economic Consequences of the Peace*, was that global institutions must establish the conditions for the international markets to work properly. BW defined a clear role both for the IMF and the World Bank. The first was in charge of approving exceptions to the fixed exchange rates, allowing orderly devaluations accompanied by responsible and solid macroeconomic policies; the second was to financially oversee the reconstruction of Europe. In the FFER system, exchange rates float freely and therefore the role of the IMF has been reduced to merely act as a short-term lender for developing economies, while the World Bank is now only a lender for developing economies, for a very restricted number of projects. However, Keynes' argument in favor of the need of the global institutions to play a central role in the international markets prevails. The 2008 GFC was actually to a large extent a consequence of the regulators' misconception, due to the influence of rational expectations models, that markets work well if left by themselves. The truth is that institutions have always been very relevant. The Gold Standard worked well 1870 to 1913 due to the predominant role played by the British Central Bank. Notice in table 2.1 the poor growth performance of the world in the transition period, 1913-1950, in which there were no leading global institutions – the world's GDP Per Capita grew only 0.8%. Note the parallelism: both the Gold Standard and BW performed well while there was clear leadership–in the first case of England, in the second of the United States; both were shipwrecked when this leadership was questioned and the leading country was asked for gold in kind[11]. In reality, large trading monetary-financial systems never worked as independent, autonomous systems–they were actually managed–, and their good administration required institutional cooperation between the major countries involved. As we said, the Gold Standard in its good time was administered through the short-term loans of the English market and the interventions of the British Central Bank. BW was administered by international agencies under the American leadership. And the attempt of the FFER to drastically reduce institutional surveillance ended up in in the 2008 GFC. Thus, undoubtedly Keynes was right: strong global institutions are required.

[11] In both cases by internal inflation. In the case of England, war inflation made the intended return to the previous pound-gold parity a chimera; in the case of the United States, also Inflation as a result of its expansionary monetary policy.

KEYNES' MACROECONOMICS

Keynes' macroeconomics is mainly contained in his *General Theory*. However, from the beginning of his carrier, Keynes already had contrasting views versus the main neoclassical tradition. And there are also relevant articles written after the *General Theory* which are worth to be revisited. Keynes' macroeconomics starts with the publication in 1913 of *Indian Currency and Finance*. In India, the money supply was defined by loans from England, which were very expensive because they were only needed for short periods. Keynes proposed that the Indian government needed to generate loans in rupias (the Indian currency) for the high season in which loans demand increased substantially. This proposal was already a prelude of Keynes' later views that countries must have own means to confront their crisis and therefore they must have autonomous monetary policy. In 1923 Keynes publishes the *Tract On Monetary Reform*, in which he writes that the main cause of economic disequilibrium is the instability on the standard of value. He argues that the only way to reduce the losses related to risk is solid monetary reforms both nationally and globally. In 1930 he publishes *A Treatise of Money* which is written within the framework of the neoclassical monetary theory (NMT) as represented by Wicksell, but it is already intended to be a critique of the traditional monetary views defended by Fisher and others.

For Wicksell[12]the "natural rate" is the one that equals real savings and real investments in an inter-temporal sense, which is 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 opportunities of investment as foreseen by investors. Thus, the role of the monetary policy is to maintain the "nominal rate" equal to the "natural rate".

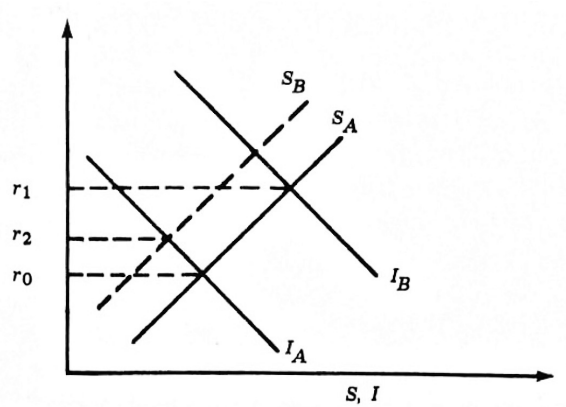
The disequilibrium may have both monetary and real causes. Monetary causes relate to banks intermediating between the supply of savings and the demand for investment. If banking credit is higher than real savings –which means the bank rate is lower than the natural rate, investment is higher than savings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

[12] Mainly in Interest & Prices.

insufficient aggregate demand and deflation. The role of monetary policy is to remain neutral, so that real savings equal real investment and monetary disturbances are avoided. The real causes of disequilibrium relate to parametric changes in the inter-temporal preferences of the saver, or in the investors' planned investment (which among other causes, may be due to an external shock). These real and monetary parametric changes may result in the previous banking rate to be higher or lower that the new natural rate.

Wicksell's adjustment process can be easily appreciated in figure 2.2. To start with let us assume that *r*0 is the natural rate of interest, therefore the central bank rate should also be *r*0. Now let's suppose a real shock (a new technology, a new mine discovery, and so on) that implies that investors wish to invest more. Investment moves from *IA to IB*, therefore the new natural rate is *r*1, if the central bank maintains the interest rate at *r*0 there will be an excess credit demand (aggregate demand) and there will be inflation. Now, as a second example, let us assume that we start with a natural rate equal *r*2, and that there is another real shock, this time in savers preferences, so that they decide to save more. Savings move from *SB to SA*, and the new real natural rate will be equal to *r*0, if the central bank maintains the interest rate at *r*2 there will not be enough credit demand (aggregate demand) and there will be deflation.

FIGURE 2.2 WICKSELL NMT



In Wicksell, there is already a justification for what later would become the preferred monetary policy of the monetarists and the 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, because 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 must avoid a monetary policy that introduces unnecessary fluctuations in nominal GDP. And (2) given real shocks, whether internal or external to the economy, a conservative, but active central bank policy is required.

The most important lesson to be learned from NMT is that money is not an end by itself, the key problem of any economy, at any time, is the real economy.

Following Wicksell, Keynes argued in the *Treatise of Money* that the role of the central bank is to maintain the bank rate equal to the natural rate, which means real savings equal real investment. Thus, Keynes in the *Treatise* is still compatible with Bohn Bawerk's Capital Theory. Keynes' *Treatise* is still in the neoclassical tradition, but it has already differences with 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. Disequilibrium mainly is expressed in the level of prices, although Keynes argues it that can also have short term consequences in the level of employment. *The Treatise*, however, is not a significant departure from the NMT. In fact, Keynes' second fundamental 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 emphasis on the instability of the real economy, particularly due to parametrical shifts in investment – a concept he will use later in the *General Theory*.

In 1936 Keynes published the *General Theory* and, for the first time, there is a clear departure from the NMT. In the *Treatise* there is one possible economic equilibrium defined by real savings and real investment. In the *General Theory*, since consumption is a function of income, investment decisions define the level of income ex-ante, and ex-post the level of income makes savings equal investment. Therefore, diverse investment levels define distinct equilibriums. So, as Patinkin has successfully argued, Keynes' main contribution in the *General Theory* was his theory of the consumption function. Diverse potential equilibriums mean that there is the possibility of an equilibrium with unemployment. Thus, there is room for the government to implement macroeconomic policies to maintain the economy at full employment.

Keynes made three key contributions, and two unwarranted propositions. The first critical contribution was, as mentioned, his theory of the consumption function. As far as this contribution goes, the IS-LM model does incorporate 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 on 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. The MEC is relevant in a major crisis; this is why we listed it as a significant contribution. However, it does not explain the normal functioning of the economy, which is better accom-

plished by IT. Economies are usually close to full employment equilibrium, because markets are efficient and flexible prices make the economy quite homeostatic.

Markets usually operate within a given institutional arrangement, which normally works well. But, when a serious institutional mistake occurs, 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 deteriorate, 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 business cycles.

The second unwarranted proposal in Keynes is found in the chapter in *The General Theory* titled *Sundry Observations 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 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[13], but under his influence, Keynes mistakenly abandons the Neoclassical Capital Theory, and makes the economy hang on pure nominal categories. This approach defined Mrs. Robinson's volatile *"animal spirits"*. With this proposition, Keynes dissociates his theory from the real economy and from the problems of economic growth. 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

[13] See Obregon C; 2018. *Globalization: Misguided Views*. MPRA_paper_85813.pdf. Also available in Amazon.com and in Research Gate.com

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.*

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 today to explain why QE (Quantitative Easing) did work in the 2008 GFC. The *Treatise of Money*, as we said before, is compatible with the NMT, and Keynes did not develop a new monetary theory of his own in his *General Theory*.

What changed Keynes' views between the *Treatise*, published in 1930, and *The General Theory*, published in 1936, was the 1930 GD. Keynes made two major contributions in *The General Theory*. First, as we already said, 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 of explaining 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, later 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 indefensible both theoretically and empirically (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 according to the best available economic model, the school of 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 NMT. The central bank, it 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 interventions of economic institutions such as the Fed and US Treasury[14]. Policies imple-

[14] See Obregon 2011 and 2018. 2011, La crisis financiera mundial: Perspectivas para México y América Latina. Siglo XXI, México. 2018, Globalization: Misguided Views. op.cit

mented to address the crisis, when they finally came, were based on the incorrect theoretical framework, i.e., NMT. 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 case during the 1930 GD, the 2008 GFC and is the case now in the 2020 GP.

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, although he was unable to provide a full answer to what is needed to be done. Keynes argued that monetary policy was inefficient in these cases because of his LPT, and he was right. However, he did not develop an alternative proposal for a new monetary theory, nor concrete policy ideas. We will argue in this book that an extended and modified QE could provide such a 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 another option but to use fiscal policy fully. In the response to the 2020 GP, governments are still relying mainly on fiscal policy. We argue that this is a mistake. Once an extended and modified QE 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 theory from the point of view of what is relevant for economies far away from equilibrium.

Keynes' LPT

The best way to understand Keynes' relevance for today's 2020 GP 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[15]. 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) $Ld=Ld\ (y,Pk,F,NM)$

[15] Minsky, H.P. (1975). *John Maynard Keynes*. Columbia University Press. New York.

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 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 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 Ucould be read as volatile expectations. In our 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 U, 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[16]. 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 likely

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

the route of significantly higher lending rates. But the macroeconomic consequence is similar to the one in the case of regular banks.

Long-term assets owned by the consumer, such as their homes 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 not 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 sheets. In turn, this leads to a reduction in the supply of consumer loans, unleashing a negative loop. Bank credit and rise, and a negative feedback loop is unleashed. That is what happened in 2008. The slow and incorrect actions of policy makers (such as not addressing subprime adjustable-rate mortgage holders when rates started to rise, and allowing Lehman Brothers to fall) were a blow to confidence in policy makers that explains, at least partially, why the US recovery was so slow. In a credit economy[17], monetary policy is not as effective as it is in a traditional macroeconomic model. That is why QE has to be used at the end in large amounts to combat the already very large financial crisis.

The models developed by Minsky, Stiglitz, and Greenwald[18], 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 proposes a more elegant and precise mathematical formulation, but it operates in a similar way to Minsky's[19]. These authors point out that the objective of monetary policy is not but . If rises above the desired equilibrium - if in a recession is contractionary rather than stimulating - the central bank must lower even more and reduce reserve requirements. This task is even more difficult if parallel banking is widespread, as the central bank has little control over it.

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

[18] Greenwald, B., Stiglitz, J.E., (2003): *Towards a New Paradigm in Monetary Economics*. Cambridge University Press. Cambridge.

[19] For a summary of this model see Obregon, C; 2008. *Teorías del Desarrollo Económico*. PUI, México. Available in Research Gate.com

Minsky's model makes an explicit description of the demand for money that is not present in Keynes' work, but which 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[20] 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[21]. 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"[22]. The distinction of Minsky, and Stiglitz and Greenwald, between and is very compatible with Keynes' original thinking in his LPT.

Keynes' MEC

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 LPT and in the MEC. The first maintains *r* too high and/or reduces credit amounts, and the second increases *rd*.

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.

[20] A point Patinkin did not understand

[21] Keynes, quoted in Obregon, 1989, p. 173. *Controversias macroeconómicas contemporáneas* (un tratado sobre la macroeconomía de Keynes en la controversia contemporánea). Trillas, México. Available in Research gate.com

[22] Keynes, quoted in Obregon, 1989, p. 173. op.cit.

With this background in mind, 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 parallel banks, they 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 unnecessarily slow because rdc and rd remain too high. Therefore, if we compare what happened earlier in Japan, with what happened in the US after 2008, the difference is that due to Bernanke's heterodox policies the US was able to influence *r*, which Japan never managed to do; this is why recovery happened faster in the US than in Japan. However, Bernanke's large purchases of assets did not influence *rdc* nor *rd*, that is why US recovery, despite being faster than Japan's, was still slow.

The 2008 GFC began with a bank's credit crisis, consequence of the authorities' mismanagement of the adjustable rate subprime mortgage loans crash. According to 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). Initially 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 becomes inelastic, hindering the central bank's ability to help the economy to recover.

The consequence of the above is that total credit falls, credit/GDP is low and GDP growth is low, along the lines of what happened in the 2008 GFC. In the US, total credit fell 42% in 2008, and was negative in 2009. Credit granted by financial institutions in 2008 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 being able to increase 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 problems similar 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 on the private sector's trust in the institutional capability to engineer and support such a recovery. Keynes himself warned us, that while monetary policy in an environment such as the 1930 GD (and, we may also say, the 2008 GFC) had difficulties in recovering the economy, he was not sure whether fiscal policy could solve the problem either. Fiscal policy has problems of its own: 1) it is influenced by political considerations[23]; (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 at the productive economy are never well focused, because the government lacks the needed understanding of the productive economy, to be able to expediently discern which corporations are viable and which are not[24]; (4) government demand lacks the main virtue of the capitalist system, the transmission of consumer prefer-

[23] In the US, for example, the November 2020 presidential election.

[24] In 2021 this a particularly relevant key point, given the structural changes that the 2020 GP crisis is producing.

ences in an efficient way through the price system. Because of all these problems fiscal policy did not produce a fast recovery after 2008.

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 have been to regain confidence, i.e., raise 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 healthy balance sheets, it was impossible to achieve economic recovery quickly. If they had acted thiswould have recovered. In Minsky's model, would have risen and the credit economy could have been put to work[25]. If early done, the 2008 GFC could have been avoided. Furthermore, it could have been done cheaply. Delays only worsened the balance sheets and increased 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 appeared sustainable and capable to solve the crisis.

The new monetary policy 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 to reduce the amounts needed and to prevent further deterioration of rd and *rdc.* A large monetary package directed to the productive economy, and a proper fiscal policy, both announced early in the crisis, could have anticipated the deterioration in the balance sheets of the economic agents and could have avoided 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 fiscal policy ef-

[25] 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.

forts. The proper communication to regain consumer confidence is a task that the government can do efficiently, but to be credible there have to be real policies of recovery, for which the new monetary policy proposed in here might be very useful. The new monetary theory here advocated consists, in short, in arguing that QE can go much further than it has in the past. The goal of the central banks should be the management of the whole relationship between money and the real economy, which includes: inflation, productivity, economic growth, and employment. The productive economy must the main concern 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. And all of the above, as we will argue in the next chapter, will require the creation of new institutions.

In summary: 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 NMT. 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 important 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 inquiry into: 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 yet been fully incorporated

in Monetary Theory. These advances include the fields of Institutional Economics, General Equilibrium Theory, and Behavioral Economics. This discussion is the subject of the next chapter.

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 the role of irrationality in decision making. However, rigidities with flexible markets 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. And 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*.

CONCLUSION

Keynes' thought is a complex system which can be better comprehended by linking his philosophical perspective, his views on globalization and on international economics, and his macroeconomics. He was convinced that capitalism was the best system to preserve individual liberties and to foster economic growth; thus all his work aims at preserving the capitalist system. He understood that capitalist markets do not work well if they are left alone to operate by themselves – that they need a proper institutional arrangement. He saw that trade wars between countries were very destructive, and he dedicated his life to construct an international system which could allow the productive economy to operate well. This required for each country to be able to take care of its own economic crisis. Therefore, he thought countries must have an autonomous monetary policy. But a monetary policy by itself would not be successful because of the LPT, thus central banks must finance government deficits. An ordered international financial and monetary system in which each country was

capable to confront its own economic crisis was Keynes' goal. Like all the geniuses, he was instinctively right. Macroeconomics was born and major crises, as we have seen in the 2008 GFC and in the 2020 GP, do require Keynes' policies.

But like with most of the geniuses, Keynes' revolution was only partially successful. He had a main problem. Accepting Sraffa's proposal that the interest rate was only a pure nominal phenomenon implied the view that major economic crises are the outcome of nominal volatile investors' expectations. This is unacceptable for several reasons. First, long periods in which the economy is close to full employment equilibrium are left unexplained. Second, it separates macroeconomic thinking from growth theory and the real economy. Third, it makes it impossible to discuss what an economic equilibrium looks like and whether or not an unemployment equilibrium is possible. Because of all of the above, Keynes was reinterpreted in the IS-LM version that ended up in the rational expectations models. And his main contributions were lost in the economic literature for decades. It is only until 2008 that Keynes was resuscitated, but as we will see Behavioral Economics again brings back the mistaken idea that investors' expectations are volatile and are the main cause of economic crisis. We need to go beyond Keynes to integrate properly his contributions with the main thinking in the NMT. Something that the IS-LM did not do well, but that given recent developments in Information Economics, General Equilibrium Theory, Institutional Economics and Game Theory, could be done.

CHAPTER THREE: KEYNES AND KEYNESIANS

As we said earlier, intellectual revolutions do not consolidate until they fully integrate with the accepted established ideas. Keynes himself was well aware of this need. It is clear that he was searching for an integration of his revolutionary thinking with the NMT, and that is why he called his magna contribution *The General Theory*. Keynes argued that there was a neutral-optimal interest rate which is the one compatible with full employment and insisted that if the economy could be managed as to achieve full employment, then the virtues of saving attributed by the Neoclassical School were correct. But he insisted that the dynamics of the system is given by volatile investors' expectations and that therefore, for the system to achieve full employment, it has to be managed. Keynes wrote: "*If there is any such rate of interest, which is unique and significant, it must be the rate which we might term the* ***neutral rate*** *of interest, namely, the natural rate in the above sense which is consistent with* ***full*** *employment, given the other parameters of the system; although this rate might be better described, perhaps, as the* ***optimum rate****.*"[26] "*If the interest rate were so governed as to maintain continuous full employment, Virtue will resume her sway; – the rate of capital accumulation would depend on the weakness of the propensity to consume. Thus, once again, the tribute that classical economists pay to her is due to their concealed assumption that the rate of interest is so governed.*"[27] "*If the traditional theory is thus interpreted, there is little or nothing in its practical conclusions to which we need take exception.*"[28]

But he was not successful in achieving the integration with the NMT, because as we said before it is not clear what distinguishes major crises from normal times. And normal times are ill explained by Keynes' theory. Because, if authorities are invariably capable to manage the volatile investors' expectations, then major crises would not occur – and they do; on the other hand, if they are not capable, then major crises would hap-

[26] Keynes, General Theory, op.cit. p. 243

[27] Idem, p. 112.

[28] Idem, p. 243.

pen very often – and this is not the case, either. Moreover, by describing the interest rate as a nominal event Keynes disengaged himself from the Neoclassical Capital Theory; and therefore made the integration with the traditional school impossible.

It was then needed to integrate Keynes' thought with the NMT and this was the task that Hicks pursued with the IS-LM model. In this model Keynes' LPT is replaced by Tobin's LT (Liquidity Theory), and Keynes' MEC by Hicks' IT (Investment Theory). LT and IT are defined as functions of the interest rate and the model becomes endogenous and compatible with the main tradition. The IS-LM Model was successfully used to manage the business cycles in the post war era up to the seventies. But in such a model, the Keynesian position was indefensible. Once getting rid of the LPT and the MEC, to explain disequilibriums Keynesians had to recur to unacceptable price rigidities or ad hoc assumptions that were not backed up by the empirical data of the main economies in the fifties and sixties, which maintained a near full employment equilibrium. In fact, after the 1930 GD no major global economic crisis happened until the 2008 GFC. The Keynesian – Monetarist controversy within the IS-LM model was won by the monetarists; and the consequence of an endogenous mathematical model was fully realized in the recursive mathematical models of rational expectations which maintain the economy always near full employment equilibrium. In this context, business cycles were explained either by stochastic shocks or by short lived Keynesian rigidities. But then the 2008 GFC happened, and Keynes was resuscitated, mainly by behavioral economist which went back to the notion of irrational volatile investors' expectations, without solving the main theoretical problem that Keynes had from the beginning – the integration of his revolutionary thinking with the main tradition. During all this period, outside of the main discussion, there were other schools of Keynesians that through different ways were trying to maintain alive Keynes' thought or to reinterpret it.

Cambridge Keynesians maintained alive the notion of "animal spirits" and the need for government intervention to regulate them. By disengaging from the traditional capital theory, Keynes left his thought unconnected from economic growth theory, and the interpretations of the Cambridge Keynesians in developing countries tried unsuccessfully to fill this gap. They were not successful in influencing the main economic thinking in the advanced economies, but did have an impact in the economic

policy of certain developing economies which, misinterpreting Keynes' original thought, tried to substitute government investments for private sector investments and recurred to governmental deficits – they were not successful and ended up in financial crises.

Poskeynesians looked for alternatives to reinterpret Keynes through several routes to explain disequilibrium such as: a) the specific characteristics of a money economy; b) the consequences of an uncertain future that cannot be known probabilistically; c) resuscitating Keynes' LPT. In the first group we have, for example, thinkers like Clower and Leijonhufvud. In the second, thinkers like Shackle and Davidson. In the third, thinkers like Minsky. While providing highly relevant contributions, Poskeynesians were not able to integrate Keynes' thought with the main tradition, and since the main developed economies remained near full employment equilibrium, they were set aside as irrelevant.

Macrodisequilibrium theorists focused on price rigidities to explain disequilibrium. Which however resulted short lived, and while useful to explain the business cycle were not adequate to explain major crises

POSKEYNESIANS

Clower and Leijonhuvfud

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, move far away from it. Clower's failures at the microeconomic level are always there, therefore they cannot explain the actual dichotomy in the real world. Clower's microeconomic foundations however, were influential in the General Equilibrium literature later on. But, at its best, such microeconomic foundations may explain short term fluctuations associated with the business cycle, but never a long lasting major crisis.

Leijonhufvud used *The Treatise* and went back to Wicksell's NMT. In his formulation there are real and monetary shocks, but the economy always maintains itself in a corridor near full employment. He uses NMT 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*, which as we have argued was one of the key contributions of Keynes; and (2) he does not explain what is the source of drastic changes in the MEC, that may produce large crises; which as we already argued, is also missing in Keynes' work.

Shackle, Minsky, and Davidson

Shackle, Minsky, and Davidson, in opposition to Leijonhufvud, insisted that the uncertainty about the future has its main impact on the economy through Keynes' LPT, and therefore, it is a theoretical mistake to remove it. Davidson criticizes the use of General Equilibrium Theory used by Clower and Leijonhufvud, because in this framework there is no money. The problem with this second group of thinkers, 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, it becomes 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 LPT 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 of this group of economists is that unemployment is a consequence of rigidities, either in salaries or in prices. It is a long tradition that we find in mathematical models of several economists such as Malinvaud, Bennasy, Grandmont, Hahn and others. The main problem of these models is that they 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. None of these models is able to explain economies far away from full employment equilibrium. Rigidities of any sort are normally short lived in flexible markets; and Hahn's conjectures were never convincing, and 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 NMT. 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 expectations models with Keynesian rigidities. Both of which were used to explain short term cyclical fluctuations near full employment equilibrium. This explains Lucas' dictum that Keynes was dead, and that the 1930 GD would never happen again, given the tools at hand that contemporary economics offered. But 2008 happened, and the NMT had no explanation; because theoretically it was not supposed to have happened.

When human beings cannot explain something, they often turn to irrational explanations. The official explanation of the 2008 GFC by the economics profession, which we have argued is wrong[29], resorted to the

[29] Akerlof, G.A., Shiller, R.J. (2009). Animal Spirits: How Human Psychology Drives the Economy, and Why It Matters for Global Capitalism. Princeton University Press. Princeton, New Jersey.

irrationality of economic agents in the US real estate market. The crash of this market was signaled as the cause of the crisis.

It is interesting to note here the revival of Keynes' irrational expectations within the school of 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 major crises 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 they are not on and off irrational/rational. 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"*[30]. For them, the understanding of the main drivers of the economy *"lie somewhat outside the traditional boundaries of economic research, in the realm of psychology…"*[31]. 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"*[32]. 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"*[33]. But we may ask again, what produces all these changes that they allude to?

For them, confidence is more than just a 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 acts according to what she trusts to be true.*"[34]. "*confidence – implying behavior that goes beyond a rational approach to decision mak-*

[30] Idem. p. vii

[31] Idem. *p. viii.*

[32] Idem. *p. xi*

[33] Idem. *p. 4*

[34] Idem. p. 12

ing – indicates why it plays a major role in macroeconomics"[35]. 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*"[36]. And again, it is never explained why confidence comes and goes. Remarkably, how is it that it only "goes" in certain rare occasions such as 1930, 2008 and 2020, but not at other times?

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

They also discuss the corruption in corporate America before the 2008 crisis, and argue that it was one of the elements that caused the crisis. Recessions, they argued, always involve corruption scandals. They describe Milken's junk bonds, the Enron case, 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*"[37]. There are several problems with introducing corruption as an element producing economic crisis. First: Japan, Korea and China have grown quite efficiently despite widespread corruption. Of these countries, only Japan entered a major crisis. If corruption produces major economic crises, Korea and China should have had one already. Second: the major corruption events actually happened after the banking crisis in 2008 had already started, not before it. As we have argued elsewhere, the 2008 crisis was not a real estate crisis, but a banking and credit crisis[38]. Therefore, the corruption that could have happened in real estate before was irrelevant. Third, most non-performing mortgages came about after the beginning of the banking crisis, as a consequence of the rise in interest

[35] Idem. p. 13

[36] Idem. p. 14

[37] Idem. p. 39

[38] See Obregon 2011 and 2018. 2011, *La crisis financiera mundial: Perspectivas para México y América Latina*. Siglo XXI, México. 2018 *Globalization: Misguided Views*. op.cit

rates, and were related to ALT A loans and not to subprime loans[39]. 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. Nobody willingly shoots himself in the foot; banks did not either. Akerlof's and Shiller's argument that corruption causes major economic crises is neither theoretically nor factually defensible.

These authors also 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 their job correctly. Finally, in deep depressions, 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*"[40]. 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 in our 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 tools of any given society. Stories found in conceptual systems are not irrational and do not exhibit whimsical, abrupt changes. They have a

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

[40] Animal Spirits, op. cit. p. 55

rational survival bond with reality, which is required for evolutionary and economic subsistence. Stories may end up being wrong ex-post. But ex-ante, at the time they are constructed they are always rational, and compatible with the all available facts. Such facts may be read either in an optimistic or negativist mood. But the mood is neither only irrational. It depends on real events that are changing the economic agents' confidence in the institutional arrangement in question. A gold-mining boom at first sight may seem a phantasy, something irrational; but it happens 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, which produce 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 GFC

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 estate boom which eventually had to crash, aa 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*"[41]. Due to *"animal spirits"* "*it appears that people had acquired a strong intuitive feeling that home prices everywhere can only go up*"[42]. 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*"[43]. 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*

[41] *Animal Spirits*, p. 149. Op.cit.

[42] Idem. p. 150

[43] Idem. p. 152

psychological correlates"[44]. And "*In this atmosphere it was easy for mortgage lenders to justify loosing their own lending standards*"[45].

The problem with these authors' argument is that major economic crises arise 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 does have 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 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. Doing so, they can be either optimistic or pessimistic, but there is always a real basis for their views. In *Irrational Exuberance*, Shiller argued that the stock market boom in the mid-1990s was fueled by "*the story*" of the advent and explosion of the internet. Ex-post, we can analyze how optimistic or pessimistic the story ultimately proved to be. But the phenomenon of the commercial expansion of the internet was of course a real story. People who believed in this story chose to invest in companies that benefited from the so called ICT revolution (Information, Communications and Technology), and many made a fortune. Today the largest companies in the US stock market are those who best exploited the ICT revolution.

Given real world uncertainty, people have to create stories, but they do so based on the best available information. 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.

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[44] Idem. p. 155

[45] Idem. p. 155

In the 2000's, prices in real estate in US increased partially due to a long economic boom, which had increased substantially the consumer's wealth, and partially to the fact that stock prices had become expensive while real estate was still reasonably priced[46]. Thus, relative to other assets, fundamentals correctly indicated buying real estate. However, 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 originate initially in Europe[47]. 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 precisely the inverse of the conventional narrative: the real estate crash did not produce the banking crisis, but rather 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 why the early boom happened in the adjustable rate subprime real estate market in US, 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. MBS were so attractive, that banks kept 75% of them in their books. With the collapse of the subprime real estate market, it became very difficult to value the MBS containing these loans; and 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 an across the board 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 ir-

[46] Obregon 2011 and 2018, op.cit.

[47] Obregón 2011 and 2018, op.cit.

rationality to explain it. These reasons also explain why it did happen initially in the US, and not in Europe[48].

The crisis was not contained in time, because inadequate institutional policies were implemented; which 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. In a credit economy, confidence 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 much lower, the implementation easier and the policy more effective. Because authorities waited too long to intervene, 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 based on 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 will be able to cope with future internal or external systemic economic shocks, and that therefore the future will largely 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 major mistake in coping with a significant internal or external shock, people will quite rationally extrapolate that there will be future trouble – a concern that can become widespread.

[48] For a more detailed explanation of the 2008 crisis, see chapter three in Obregón 2018, Globalization: Misguided Views, op. cit

In such an environment, economic agents turn more conservative, as it happened in 2008. This rational adjustment of expectations determined 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 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*[49].

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

[49] Obregón 2011 and 2018, op.cit.

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 summary, it is difficult to explain the 2008 GFC as the result of irrational mistrust, money illusion, corruption, stories, or insolvent consumers. 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 managed with probabilities, the institutional arrangement has to be working properly, so that internal and external shocks do not change much the normal course of the economy. However, if there is a huge institutional mistake, future uncertainty can no longer be managed, economic agents become conservative[50]. 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 manage uncertainty by themselves 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 rational as the school of Rational Expectations assumes; 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 have seen, he is not correct; none of the elements he mentions caused the crisis. Nudges would not have helped.

[50] An increase in , , and .

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 enter 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; which 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

As we said before, the main reason that Keynes' thought was reinterpreted by Hicks through the IS-LM model was that Keynes' volatile MEC as the cause of major crises was not convincing. If investors are irrational, major crises should happen all the time, and they do not. Hicks reintegrated Keynes to the traditional NMT. The consequence was that the model became endogenous, and finally rational expectations showed, through partial equilibrium recursive mathematical models, that economies are highly homeostatic and always maintain a near full employment equilibrium. Keynesians writing in the IS-LM framework lost the battle. And Keynesians writing outside the main tradition could not solve Keynes' original problem either. The Cambridge Keynesians and Leijonhuvfud maintained the volatile MEC of Keynes. Clower and the macroeconomics of disequilibrium introduced short term microeconomic failures and price rigidities that are unable to explain long lasting major crises. Minsky successfully rescues Keynes' LPT and its relevance to explain why after a major crisis occurs monetary policy does not work, and together with Davidson and Shackle made future uncertainty the cause of major crises. But again, future uncertainty is always there and major crises happen rarely. Therefore, none of them could solve the dilemma that Keynes himself

could not resolve – a theory that could explain both economies regularly near full employment equilibrium as well as major economic crises. 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 NMT – that adequately explained economies near full employment equilibrium. Good enough for stable developed economies from 1950 to 2008. However, contemporary NMT cannot explain major economic crises. According to this theory, the 2008 GFC and the 2020 GP should not have happened. Since 2008 did happen, behavioral macroeconomics rescued Keynes' original irrational investors; but it encountered the same problem that Keynes had from the beginning, and that was behind Hicks creation of the IS-LM model in the first place. Irrational "animal spirits" cannot explain major economic crises, because they are always there. Economic agents are assumed to be always irrational, yet major crisis only happen in rare occasions. A better understanding of what actually happened in the 2008 GFC helps us see 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 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 related to future consumption and investment plans, and a major economic crisis occurs.

CHAPTER FOUR: KEYNES AND THE NEOCLASSICAL SCHOOL

Keynes was right, major crises do occur, but his explanation of why they happen was based upon volatile irrational investors' expectations. Which, as we have been saying, is very unconvincing for two reasons. First, if investors are irrational they are always so, however major crises only happen rarely. Second, if investors are irrational, an economy near full employment equilibrium most of the time cannot be explained. The Neoclassical School was right that a solid microeconomic theory of an economic equilibrium was needed, and they were very successful in creating one, but then they ended up being unable to explain major crises. Keynes had the right insights, but he lacked an appropriate microeconomic mathematical model on which to base his macroeconomic insights. One of the arguments of this chapter is that, despite the limitations of the mathematical models developed by the Neoclassical School, they were very useful to precise what are the microeconomic sources of major economic crises. Outside of macroeconomics there had been significant developments in several key areas such as General Equilibrium Theory, information theory, Game Theory and Institutional Economics. The main mathematical discovery of these developments is that there can be multi-equilibriums. There are a large set of inefficient Pareto equilibriums and of Nash equilibriums.

Any economy may be both near full employment or far away from it. We do not need to discuss the special features of a monetary economy; a real economy presents multiple equilibriums. These equilibriums are not short lived, because they are not produced by unexpected microeconomic failures or price rigidities. They are a normal characteristic of an information guided economy, in which institutions provide the required permanent conditions to be able to operate today, despite the uncertainty related to the future. In this light Keynes' insights can be integrated with the NMT. As Mervyn King has argued, that there is uncertainty does not mean that economic agents are irrational. In this chapter we review the

development of neoclassical thinking and how it relates to Keynes'. Our conclusion is that both have to be integrated to have an adequate perspective on how real economies actually work, and why despite the fact that they are regularly near full employment equilibrium, occasionally major economic crises can happen.

THE NEOCLASSICAL CONTRIBUTION

Adam Smith's main discovery was that free markets do matter; they guide technology – they generate economic growth. The main difference in the economic success between the US and the failed USSR was that the US did have large free middle class markets. The USSR had high education, frontier science and technology, and a large population which represented a large market; but despite that, the GDP Per Capita in the USSR 1950-2000 grew less than in Africa[51]. The USSR did not have a large middle class markets. Technology in the USSR was guided by military and space goals, bureaucratically decided by the government. Instead, in the US it was guided by the dynamic changing preferences of a large middle class. Therefore, to understand price dynamics, and how economic markets actually do work, was an important intellectual task. To which the neoclassical intellectual tradition, because of the endogenous characteristics of their economic model, was particularly well suited. To understand and describe price dynamics in a large free market is the main contribution of the Neoclassical School. Because of the endogeny of the model, it was possible to define mathematical conditions to replicate market behavior; and as a consequence, the Neoclassical School created the only economic paradigm that can be truly used as a reference to understand economic markets. Even critics of the Neoclassical School recognize that this paradigm has been extremely useful. In this chapter we will argue that, thanks to the technology developed by the Neoclassical School, today it is possible to fully understand the implications of Keynes' insights.

Keynes 'volatile investors' expectations are unsustainable, as we have been arguing, because the developed economies would not have been

[51] See Obregon 2018, op.cit.

able to stay most of the time near full employment equilibrium, as they did 1950 to 2008. The whole notion of economic disequilibrium does not take us very far away – because we know that economies are for the most part near equilibrium. Neither irrational investors, nor the unique characteristics of a money economy, nor the uncertainty of the future are good answers to explain large economic crises, because all these factors are there all the time and large economic crises happen only rarely. The mathematics of chaos theory would not help either, because the truth is that the large economic crises happen at non-forecastable diverse lapses of time and are due to distinct causes in each occasion. To explain equilibrium, we need rational economic agents. Not necessarily as rational as the assumptions made in some neoclassical models for mathematical convenience. But rational enough to differentiate their selfish interests and express them in the market; so that Smith's explanation of market behavior and economic growth prevails.

Price Keynesian rigidities and/or endogenous real stochastic shocks may be used to explain business cycles around the equilibrium; but major economic crises need an explanation that has to be found outside of the permanent characteristics of the economic agents – it has to be based on unexpected large mistakes of the institutional arrangement. There are today recent developments in four fields of economics that allow the reconstruction of Keynes' insights in an economy with rational economic agents: General Equilibrium Theory, Information Economics, Game Theory and Institutional Economics. Each one of these advances would not have been possible without the mathematical neoclassical paradigm. Understanding the limitations of this paradigm gave a main impulse to the economic knowledge in each one of these four fields.

WELFARE ECONOMICS AND GENERAL EQUILIBRIUM THEORY

The story of Welfare Economics lasted a century. It starts in the first decades of the twentieth century with the publications of Pigou's books on welfare in 1912 and 1920, and ends with the publication of *The Idea of Justice* in 2009 by Nobel laureate Amartya Sen. There were four attempts

to show that markets do maximize social economic welfare. In the first attempt, Marshall and Pigou proposed that an egalitarian society maximizes social economic welfare. It failed due to the recognition that we cannot measure utility in a cardinal way, and therefore we cannot compare the marginal utility derived from the income of different individuals, and we cannot affirm that an egalitarian distribution of income maximizes welfare[52]. In the second attempt, Kaldor argues that economists should make recommendations only based on efficiency, because if inequalities are created, the winners can always compensate the losers. This argument also failed because Nobel laureate Paul Samuelson showed that the only way we can be sure that a bundle of goods B is better than a bundle of goods A is in the case where, for all possible welfare distributions, B is preferred to A. And, like he demonstrates, the above condition is satisfied only in the extreme case, and without economic interest, in which B has more of each good than A (assuming there is no disutility). This conclusion shows conclusively that there is no real efficiency rule. Any efficient solution depends upon the given distribution of resources[53]. In the third

[52] **First attempt**: Jevons pointed out that the labor-value theory could not be applied to things that lack value; for him, utility arises in things because of its relation to human needs. In the works of Jevons, Menger and Walras, marginal utility becomes the essential element of consumer behavior and they find a rule to transform subjective value into measurable quantities. Wicksteed transformed the Utilitarianism of Jevons into a scale of preferences and analyzed the utilization of resources to the maximum for a certain purpose. Menger, on the other hand, developed his theory in terms of needs and not in terms of pleasure, such as Jevons. For Pigou, economics was a science because it dealt with measurable amounts of satisfaction. Marshall and Pigou accepted the law of incremental marginal utility and assumed that different people obtain the same satisfaction from the same income; under this assumption, an egalitarian society would maximize social welfare.

The first attempt fails: Marshall's and Pigou's conclusion was shown as invalid in view of the fact that satisfactions cannot be added and, therefore, we have to use an ordinal ranking and not a cardinal number. Since we cannot measure utility in a cardinal way, we cannot compare the marginal utility derived from the income of different individuals and, therefore, we cannot affirm that an egalitarian distribution of income maximizes welfare.

[53] **Second attempt**: Pareto and Barone presuppose independence between the different satisfactions of people and the absence of external economies and diseconomies; with this frame of reference, it is possible to separate efficiency from equity – ie justice considerations, which is known as the Pareto principle. Kaldor considered that the economist should be in favor of any change that improves the efficiency of the system, because if inequalities are created, the winners can always compensate the losers. Hicks, like Kaldor, argues that economists should make recommendations only based on efficiency, since the gains and losses are random at the individual level.

Second attempt fails: Three criticisms were made to Kaldor: 1) it is not always possible to measure efficiency (Scitovsky); 2) the consumer surplus used by Kaldor, based on partial

attempt, Bergson and Samuelson introduced a Social Welfare Function that does not depend upon the distribution of resources, it is only the social aggregate of individual preferences. But Arrow shows that, if one or more individuals have a non linear order in their preferences, the social preferences could be not transitive and therefore the Social Welfare Function could not be built[54]. In the fourth attempt, Sen argues that

equilibrium, can give wrong efficiency results (Samuelson), and 3) compensatory payments are not always politically feasible. Little criticized Hicks and pointed out that some economic changes can cause large changes in the distribution of income; he observed that we cannot expect these to be compensated in the future.

It is particularly relevant to understand Scitovsky's criticism of Kaldor, through what was known as the Scitovsky paradox. This says, that having shown that a position B is more efficient than a position A -according to the criterion of Kaldor and Hicks-, using the same criterion it can be shown that after the community has adopted position B, very well A can become a preferred position for B. The reason for the paradox is that there is a reciprocal relationship between the social valuation of the bundle of goods and their distribution.

Samuelson showed that, even in those cases in which the Scitovsky paradox does not occur, we do not have a criterion to define the optimal solution. Since once it is understood that the preference judgments about the bundles of goods A and B are different in the case of the two distinct distributions, which correspond to positions A and B: it follows immediately, that that there is a need to understand what happens when there are other distributions: because A and B are not the only feasible ones. Due to the above, Samuelson concludes that the only way we can be sure that B is better than A is in the case where, for all possible welfare distributions, B is preferred to A. And, like Samuelson demonstrates, the above condition is satisfied only in the extreme case, and without economic interest, in which B has more of each good than A (assuming there is no disutility). This conclusion shows that there is no real efficiency rule.

[54] **Third attempt**: Faced with the impossibility of making economic policy recommendations based solely on efficiency, Bergson introduced the notion of a complete Social Welfare Function, which adds the social preferences of individuals and can take into account external factors, so that the economist can forget about the problems associated with distribution. Samuelson gave an elegant exposition of the mechanism by which social welfare is maximized in the tangency between the Social Welfare Function and the production function that optimizes the use of resources.

Third attempt fails: However, Arrow showed that it is not always possible to add the social preferences of individuals, so that we cannot always build a curve of social welfare without falling into contradiction. The argument of Arrow can be easily understood, if we imagine a community composed of three people: a, b and c, which have to choose between three possible policies: 1, 2 and 3. Let us suppose that the order of preference of each person is the following: a-1p2, 2p3, 1p3; b-2p3, 3p1, 2p1; c-3p1, 1p2, 3p2 (p denotes "prefer"). If we assign each person an equal weight and try to build a social welfare function, based on the preferences of the majority; we find two votes for each of the following preferences: 1p2, 2p3 and 3p1. As can be seen, this system is incongruent and has no solution. The results of Arrow are generated basically because the individual c does not show a linear order in his preferences, but this is perfectly valid in reality: for example, an individual may prefer a communist country to a socialist country and at the same time prefer a capitalist country to a socialist country.

individuals have moral values that give a solid base to establish a social choice that could be the foundation of a social welfare function. Sen's Moral Economics attempted to find the solution to the welfare maximization problem by re-defining the nature of man. Sen's solution, however, requires absolute external ethical values, which the individual economic agents can use as a reference. But, as we argued elsewhere[55], humans are not evolutionarily made to be able to achieve such external universal truths. "Social choices" are welcome, but are by definition embedded in the conceptual system and the institutional arrangement of a given society- something that Sen never fully recognizes, even though he seems to get close to it with his partial orderings. So we are back to the notion that markets cannot be shown to maximize social economic welfare, because social choice will always be relative to a specific conceptual system and its corresponding institutional arrangement. The fact is that there is not one, but a set of economic equilibriums, many of which are sub-optimal, and can be characterized by unemployment and/or underdevelopment; and social choice will not be enough to move these equilibriums to the optimum – which in any case is relative.

General Equilibrium Theory had important repercussions for welfare economics[56].

Conclusion: The controversy over welfare economics clearly showed that, as Harrod said, we cannot talk significantly about efficiency and optimal allocation of resources unless we have a market. And the choice of the market as a method of valuation is in itself a value judgment, since prices imply a given distribution of resources.

Arrow's impossibility theorem put an end to the very long term quest of Neoclassical Economics to show that markets optimize social economic welfare; it was technically proven that they do not. In order to evaluate social economic welfare, we need judgments, external to the market, which is what Sen proposes later on.

[55] Obregon, C. La ética y la justicia. PUI. Available in Amazon.com and in Research gate.com

[56] The general equilibrium model has been very useful to reinforce some of the approaches to welfare economics and to understand them more precisely. In particular, the two fundamental theorems of welfare economics are derived from the general equilibrium model. The first of these theorems states that the process of assigning a market equilibrium is Pareto efficient (It is said that an allocation of resources is Pareto efficient if there is no possible redistribution that can improve the situation of one person without deteriorating the situation of another). This result, which is very general and does not require any assumption of convexity, is also very important because it emulates mathematically and allows to explain "the invisible hand" of Adam Smith. This result is the axis of the justification of the importance of the price system as an efficient system of transmission of consumer preferences, a mechanism that, as we have argued, is central to understanding the rise of Western Capitalism. However, remember our discussion about welfare economics: this result implies a given distribution of resources (and

However, it is not possible to demonstrate a unique optimum equilibrium without the use of a set of strong assumptions[57]. The

in general a given institutional arrangement), which is implicit in the prices that manifest themselves in the market. So the success of the market as a transmitter of information in the West cannot be exported to other cultures without basic considerations about the institutions in those cultures; for example, the presence or not of a middle class, the legal system, the possibility of coalitions, and so on. The real world is characterized by Nash and information multi-equilibriums and to design an adequate institutional arrangement is a key problem to take into consideration. And in a multi-equilibrium world, the pareto optimality of the first theorem does not hold. Despite the above, this first theorem is not only an impressive result, but one of great importance for the economic science in general.

The second fundamental theorem of welfare economics states that, if an efficient Pareto allocation is found, then it will always correspond to a competitive equilibrium characterized by a defined set of prices and a redistribution of resources. This result implies that any redistribution of goods that one wishes to carry out, can always be done efficiently through the market, through a redistribution of resources. Mathematically, this result requires the assumption of technology and convex preferences. Note that the redistribution of resources cannot only be politically impracticable, but can physically involve the redistribution of human capital, which cannot be done. Despite these impediments, there is an important message in this second theorem, because it implies that if the distribution of income is achieved by, for example, a tax (or benefit) from a single exhibition, then the desired redistribution of welfare can be achieved without sacrificing the efficiency of the market. The theorem has relevant implications. On the one hand, it is a natural defender of the importance of using the market and taking efficiency into account, since it tells us that the market can always be used; on the other hand, it makes it perfectly clear that the market cannot solve equity problems and that these must be addressed directly via the redistribution of income. This message is important in terms of resisting both the temptation to distort efficiency in order to achieve equity, and the temptation to argue that equity must be sacrificed for the sake of efficiency. In practice, however, the redistributions that would be required do not seem to be politically attractive in many cases, so that considerations are always made between equity and efficiency, and it is not uncommon for non-Pareto solutions to be established.

[57] Walras, also made scarcity the essence of value and forged a process by virtue of which by means of "tantonement" the market moves towards equilibrium. Walras studied the general equilibrium by counting equations and unknowns, and using the Walrasian auctioneer; however, this method does not tell us anything about the existence, uniqueness or stability of the equilibrium.

In the general equilibrium of Leontief, one can prove the existence and uniqueness of the equilibrium, but not the stability of the primal and dual problem at the same time. In a neoclassical general equilibrium with trials (that is, where there are no inventories or transactions are not executed unless they are correct; so that implicitly there is a Walrasian auctioneer); stability can be proved given certain assumptions, such as the theorem of weak revealed preferences (which implies that the aggregate demand excess function behaves as a function of excess demand of a particular individual) or the substitution assumption among all the goods (this implies that the price increase in a good , keeping all other prices constant, increases the excess demand on all other goods). Stability in neoclassical models without trials, and where there are inventories, requires the introduction of new assumptions about the nature of the exchange system (see, for example, Intrilligator, 1971, chapter 9, and Varian, 1984, chapter 6).

relaxation of these assumptions leads to imperfect competition models, information models, and Game Theory models in which it is possible to find systems with multiple equilibriums of which many are non-optimal, and even explosive situations without solution. Multiple equilibrium models show that the equilibrium obtained depends to a large extent on the institutions that are assumed. General Equilibrium Theory explained successfully how market behavior transmits information from the individual to the society; but, it was unsuccessful to prove the existence and stability of a unique Pareto efficient equilibrium.

GAME THEORY

Game Theory has shown that there are multi-equilibriums, and that many of them are not Pareto optimal – they are Nash equilibriums. Nine Nobel Prize winners have had very relevant contributions in Game Theory: Harsanyl, Nash and Selten (1994), Aumann and Schelling (2005), Hurwicz, Maskin and Myerson (2007) and Tirole (2014). The main message is that once the game is set, it defines the conditions under which economic agents operate – basically none of them knowing what the other economic agents will do. And since there are no coordinating agencies, many of the economic decisions are not globally optimal – because they are optimized conditioned upon what economic agent A thinks other economic agents will do. Therefore, such decisions in fact, may produce many diverse suboptimal equilibriums.

Notice that even informing the participants that it is possible to achieve a Pareto optimal solution will not help, because the fact of the matter is that they cannot communicate with the other participant, or participants, to be able to establish a pact of no aggression and/of cooperation to the common goal of reaching the Pareto optimal equilibrium. And even if they can communicate, they need to be able to trust what the other participant, or participants, said he/they will do; in many cases, knowing that not complying with the committed behavior will bring extra benefits that can be substantial. Given the game, agent A does not know what Agent B (or other agents) will do; and a movement of A towards the Pareto

equilibrium, may end up putting him in a worse position than where he started, if B decides not to cooperate – this can easily be shown in the Prisoners' Dilemma.

There is a close relationship between the game, the institutional arrangement, the set of information, and the uncertainty as to the future. Both the wrong game, and the improper set of information, can be seen as the equivalent of having the inadequate institutional arrangement. And the uncertainty as to the future may also be seen as the lack of confidence in the institutional arrangement to manage properly future events.

Tirole (1996)[58], is a good example of what occurs in the real world. He shows that both a corrupt economy and a non-corrupt economy have stable equilibriums. In a non-corrupt economy, the optimal individual strategy is to be no-corrupt; but, in a corrupt economy it is to be corrupt. That is why both equilibriums are stable. Notice that the equilibrium has little to do with the individual's preferences. Even if we assume that all the individuals in the corrupt economy would rather live in a non-corrupt economy, the corrupt economy will persist as long as there are no institutional features (including market prices – because markets are in itself an institution) that allow the individuals to act in a non-corrupt manner. This example can be extrapolated to full employment or to the right development path; almost all, if not all, of the individuals rather have full employment and proper economic development, yet their individuals' optimal behavior may not take them there. Institutional interventions are required.

Game Theory, like Neo-Institutionalism, and Information Economics, focuses on the "settings" – that define the game; and not on the individual characteristics of the economic agents, as Neoclassical Economics, Behavioral Economics, and Sen's economics do. Even strong rational agents, in the wrong game, will produce suboptimal equilibriums.

John Nash received the Nobel Prize in Economics in 1994. Nash showed that there are many equilibriums that are not Pareto optimal and that are stable. Which means that markets do not necessarily optimize, and that there are many possible equilibrium outcomes. What defines the final economic equilibrium? In Game Theory, which is the field in which Nash worked, "the settings of the game".

[58] See footnote 62.

This changes drastically the neoclassical conclusion that given the set of endowments, the technology, and the preferences of many individuals, a unique general economic equilibrium could be obtained. The result that one unique stable equilibrium does not exist is fundamental. It means that a generation of economists has been taught macroeconomics in a misleading way. There is not any theoretical reason to argue, as the school of Rational Expectations did, that the economy will remain stable at a full employment equilibrium: so it is not surprising that in the real world it did not, and that we have had the 2008 GFC and the 2020 GP.

The "settings of the game" in Game Theory could be conceptualized, to some extent, as corresponding to the "information set" used in Information Economics, field in which Nobel Prize winner Joseph E. Stiglitz, among others, have shown that there are multi-equilibriums, which may correspond to unemployment or underdevelopment stable equilibriums. Another way in which one could conceptualize the "setting of the game" is as corresponding with an "institutional arrangement".

INFORMATION ECONOMICS

Information Economics' success can be appreciated in the fact that it has produced four Nobel laureates: Mirrless and Vickrey, 1996; and Spence and Stiglitz, 2001[59]. Information Economics represents a strong critique to the vision of the economy of the free market of neoclassical theorists, according to which neither the institutions nor history matter. For the free market neoclassical economists, given the distribution of income, which is assumed not to be a problem to be solved by economic theory, equilibrium is basically determined by the fundamental forces of preferences, technology and endowments. On the other hand, information theorists argue that information and coordination problems may impose limits on economic possibilities, which are as real as technology or any of the other fundamental forces.

[59] Akerlof also won in 2001 the Nobel prize due to his contributions in Information Economics; but, given also his relevant contributions in Behavioral Macroeconomics, we have included him in the group of Nobel laureates in Behavioral Economics.

Information Economics focuses on understanding the causes of "coordination failures" due to which the neoclassical equilibrium is not obtained. This literature shows the possibilities of multiple equilibriums, in which one or several of them can be sub-optimal; and, nevertheless, the markets, and in general even the existing institutions, may be insufficient to move the economy from the sub-optimal equilibrium to an optimal neoclassical one[60]. In addition, the sub-optimal equilibrium can create path dependence[61]. And temporary shocks can have long-term consequences, there is hysteresis[62].

The models used in the study of the information economy are dynamic, either with continuous or discrete decision variables. In some cases, the economic actors are identical; in others, they differ in their benefit functions (payoff); and in others, they differ in their strategy sets.

The inefficiencies of information give rise to a large set of economic externalities, that cannot be resolved through private arrangements, such as: 1) information; 2) group reputation effects; 3) effects of agglomeration; 4) spillovers of knowledge, and 5) pecuniary. The sequence is that there are multiple Pareto equilibriums that can be ranked according to their degree of efficiency; one of these equilibriums is superior to all the others in the sense that it is better for all, but the other inferior equilibriums exist, with their corresponding vector of prices, that do not move the system out of the inferior equilibrium. Information Economics has been

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[60] Arnott and Stiglitz, 1991, Kranton, 1996, North, 1994. Arnott, R., Stiglitz, J.E. (1991). "Moral Hazard and Nonmarket Institution: Dysfunctional Crowding Out or Peer Monitoring?", American Economic Review 81-1, pp. 179-190. Kranton, R.E. (1996). "Reciprocal Exchange: A Self-Sustaining System", American Economic Review 86-4, pp. 830-851. North, D.C. (1994): "Economic Performance Through Time", American Economic Review 84, pp. 359-368. Alfred Nobel Memorial Prize, Lecture in Economic Science.

[61] Engerman and Sokoloff, 1997, Hoff, 1994, Mookherjee and Debraj, 1999. Engerman, S.L., y Sokoloff, K.L. (1997): "Factor Endowments, Institutions, and Differential Paths of Growth Among New World Economies: A View from Economic Historians of the United States", in Haber, S. (ed.): How Latin America Fell Behind: Essays on the Economic Histories of Brazil and México, 1800-1914, Stanford University Press, Stanford, pp. 260-304. Hoff, K. (1994): "The Second Theorem of the Second Best", Journal of Public Economics 54, pp. 223-242. Mookherjee, D., Debraj, R. (1999): Contractual Structure and Wealth Accumulation, Boston University, inedited manuscript.

[62] Tirole, J. (1996). "A Theory of Collective Reputations (with Applications to the Persistence of Corruption and to Firm Quality)", Review of Economic Studies 63-1, pp. 1-22.

applied to diverse economic problems, among them, financial crises[63], and underdevelopment[64].

There is a very close relationship between an insufficient information set, the inadequate institutional arrangement, and the uncertainty regarding the future. Knight and Keynes explored the consequences of uncertainty on obtaining economic equilibrium and on the determination of employment levels, but none of these authors managed to properly formalize their thinking. Theorists of underdevelopment argued for a long time that it was due to development traps such as low industrialization, low research and inappropriate institutions; but they did not formalize their thinking either. The great contribution of the Information Economy is that it formalizes: 1) that the economic equilibrium depends on the institutional arrangement; and 2) that the growth path of a given economy also depends on the institutional arrangement. A critical message is that, today, market prices and institutions may not deliver neither the desired economic equilibrium nor the required long term growth path.

Information Economics argues that, whatever institutional interventions have to be done, they must be analyzed in a dynamic path. Information Economics proved that even with strong rationality assumptions, markets do not necessarily produce either full employment or the desired growth path.

The success of Information Economics produced a renewed interest in Keynes' macroeconomics. This can be seen in Greenwald and Stiglitz (2003)[65], which is more or less a formal presentation of Minsky's model of a credit economy, which in turn was based on Keynes' LPT. But then, 2008 GFC made the revival much stronger. Because reality showed, in a dramatic way, both that Lucas was wrong in saying that Keynes was

[63] Greenwald, B., Stiglitz, J.E., (2003): Towards a New Paradigm in Monetary Economics. Cambridge University Press. Cambridge.

[64] Hoff, 2000; Hoff and Stiglitz, 2002. Hoff, K. (2000): "Beyond Rosenstein-Rodan: The Modern Theory of Coordination Problems in Development", in Pleskovic, B. (ed.): Proceedings of the XII Annual World Bank Conference on Development Economics, World Bank, Washington. Hoff, K., Stiglitz, J.E. (2002): "Modern Economic Theory and Development", in Meier, G.M., and Stiglitz, J.E. (eds.): Frontiers of Development Economics. The Future in Perspective, 3rd ed., World Bank/Oxford University Press, Washington, pp. 389-485.

[65] Greenwald, B., Stiglitz, J.E., (2003): Towards a New Paradigm in Monetary Economics. Cambridge University Press. Cambridge.

dead, and that the school of Rational Expectations' claim that the markets will always maintain developed economies near full employment equilibrium was seriously mistaken.

Keynes' thought may be reconstructed with economic agents as rational; but still, even being rational, they cannot foresee a future that does not exist. Therefore, if institutions make mistakes that show them as incapable, confidence in the institutional ability to deal with future unknown events may deteriorate rapidly. There are two channels through which such lack of confidence impacts the economy. The first one is described by the LPT, which basically says that banks confronted with a deterioration in the balance sheet of the economic agents will raise the banking lending rate, and that this rate will become inelastic (it will not respond) to changes in the central bank rate. Therefore, traditional monetary policy will not be successful. Bernanke's policy of buying directly private sector debt, was an explicit recognition that there was in fact a liquidity preference phenomenon in the 2008 crisis, and that traditional monetary policy influencing the central bank rate was not going to be successful. The second channel is described the MEC, which says that the lack of confidence will force investors to increase the discount rate of future investment returns. Notice that not only investors are affected by the lack of confidence, but also consumers of durable consumer goods, who should also increase their rate of discount. This second phenomenon explains why consumer confidence took so long to recover in the US after the 2008 GFC[66]. Notice that the MEC is not the cause of the crisis, because investors' expectations are not irrationally volatile, economic agents are rational. Yet, the lack of confidence in the future behavior of the institutions may increase the MEC.

The revival of Keynes' thought is explicitly recognized in Mervyn King's latest book, *The End of Alchemy (2016)*, in which he calls Keynes' uncertainty - *radical uncertainty*; and argues that it has an enormous relevance to understand the real economy and the financial markets. King has explicitly argued that radical uncertainty does not mean that economic agents are irrational[67]. On the other hand, Akerlof's and Shiller's book

[66] Keynes never discusses this second phenomenon, but it could be argued that it is implicit in his consumption function, in which consumption is a function only of today' income. See the section on Behavioral Macroeconomics.

[67] Mervyn King was the Governor of the Bank of England 2003-2013.

on *Animal Spirits* (2009), revives Keynes' thought based upon Behavioral Economics, therefore they continue assuming irrational economic agents, and blame their volatile expectations as the cause of the 2008 GFC [68].

In Keynes, reconstructed with rational economic agents, as in Neo-Institutionalism, Information Theory and Game Theory, markets are unable to reach the optimal equilibrium due to "setting failures", and not to the lack of rationality of the economic agents assumed in Behavioral Economics.

INSTITUTIONAL ECONOMICS

Both Neo-Institutionalism and Behavioral Economics argued that the contemporary neoclassical vision of how the economy works is wrong, and they both agree that institutions are needed. However, their vision of the economic dynamics of the social system is diametrically opposed. Neo-Institutionalism focused its analysis on the institutions; while Behavioral Economics focused on the limitations of the individual. For Neo-Institutionalism the analysis of social dynamics and economic equilibrium starts with the institutional arrangement, the individual economic agent is always a given datum. The individual is always creative, and ultimately he is the source of economic progress; but progress is a function of whether or not the institutional arrangement is the proper one. A proper institutional arrangement is one that allows individual creativity to be expressed. On the other hand, for Behavioral Economics the individual economic agent cannot always identify what his real interest is, and institutions are needed to help him. For Neo-Institutionalism, proper institutions are required; but not to guide the individual, just to let him express his creativity. For Behavioral Economist the individual has to be guided, and institutions are responsible to guide him so that he arrives at proper solutions. For Neo- Institutionalism the individual is a given datum and there is nothing wrong with him, economic problems such as underdevelopment arise due to improper institutions. For Behavioral Economics individuals have to be guided and institutions must decide

[68] See Obregon, C. 2018. Beyond Behavioral Economics, University Editions. Available in Amazon.com and in Research Gate.com

what is best for them – because even though the individual is given a choice, it is predictable what choice he will take depending upon how the institution frames the question or the circumstance.

Neo-Institutionalism has been influential to such a degree, that it could be said that nowadays the thesis according to which the market is delimited by an institutional arrangement is generally accepted. This is reflected in the fact that several neo-institutional economists have received the Nobel prize: Coase (1991), Fogel and North (1993) and Olstrom and Williamson (2009). In spite of this, it is still not clear what is meant by "institutional arrangement" and there is discussion about this[69].

In general, Neo-Institutionalism has been predominantly influenced by the analysis and study of the institutions of Western economies. The vision of institutions is the consequence of the microeconomic analysis of transaction costs and property rights, and the development of contract theory. Coase's proposal[70] that Neoclassical Economics without friction does not correspond to the real economy -which is characterized by transaction costs (costs of searching and obtaining information, costs of negotiating and deciding, and costs of monitoring and make contracts effective) - led to important changes in the study of the industrial organization in the contributions of Alchian, Williamson and others.

In this friction economy, the system of property rights defines the incentives of economic agents. North, for example, makes a historical analysis of the consequences of different systems of property rights. In this type of economy, asymmetric information problems as well as incentives are central, and contract theory becomes essential for the analysis. The agent's theory studies the information problems between the contractors (Fama, Alchian, Demsetz, Stiglitz and Holmstrom), while the relational and incomplete contracts theory studies the information problems between the contractors and an interested third party, a judge for example (Macaulay, McNeil, Williamson and Alchian).

The historical roots of the thought of Neo-Institutionalism are in the North American institutional thought of Commons. This author defined

[69] Obregón, C; 2008. *Institucionalismo y desarrollo.* Pensamiento Universitario Iberoamericano (PUI), México. Available in Amazon.com and in Research Gate.com

[70] Coase, R.H. (1937). "The Nature of the Firm", Economica 4, pp. 386-405. In Stigler, G.J., y Boulding, K.E. (eds.): *Readings in Price Theory*, Richard D. Irwin, Homewood, 1952.

the institution as the "collective action in control of individual action"[71]. Commons placed a special emphasis on the study of the transaction as a transfer of ownership. It is notable that there is no influence of Veblen's thinking in the New-Institutionalism, and this is particularly due to the vision of this new school, which considers history and institutions only from the point of view of the institutional arrangement that characterizes Western societies; so that a broader and more general historical point of view, like Veblen's, was left aside. More on this point, below.

In fact, the idea that markets work under uncertainty and lack of information, and that, therefore, economic decisions depend upon an institutional arrangement, has a long tradition in economic thought. Even though this idea never managed to dominate mainstream economics, it was always defended by various economists throughout the history of economic thought. In this tradition one can point out[72], among other authors, Smith, Malthus, Marshall, Keynes, Knight, Marx, Schumpeter, Veblen and Boulding.

Neo-Institutionalism is a great contribution to economic thinking, since uncertainty and lack of information make institutions essential. Neo-Institutionalism has allowed a new vision of the "harmony" of Adam Smith. Coase, Alchian, Williamson, North and others have had a great influence on contemporary economists. The most recent growth models explain the non-neoclassical convergence, based on institutions. The Information Economy finds in the institutions the explanation of the possibilities of multi-equilibriums. Sen's Moral Economy sees in the establishment of institutions -for example, democracy or individual freedom- the path towards economic progress.

Despite its great successes, Neo-Institutionalism is far from being an integrated discipline with a precise, unique vision. There are important contradictions, for example, Williamson versus North. At one extreme, Neo-Institutionalism has adherents who consider it an extension of the neoclassical model[73], which should be expanded and include more restric-

[71] Commons, 1934, p.69. *Institutional Economics: Its Place in Political Economy*, University of Wisconsin Press, Madison/MacMillan, New York.

[72] Obregón, C; 1984. *De La Filosofia a la Economia*, Trillas, Mexico. Available in Research Gate.com

[73] Dahlman, 1979.

tions. At the other extreme, some other exponents of Neo-Institutionalism consider the new paradigm as antithetical to the neoclassical model and incompatible with it[74]. There is not a well-integrated view, of general acceptance, that we can call the Neo-Institutionalism model of the economy, which could constitute a true alternative to the well developed neoclassical model. However, Neo-Institutionalism clearly delimits the neoclassical perspective, sometimes even reaching opposite conclusions: for example, in anti-oligopoly regulation and the auction of public monopolies.

Neo-Institutionalism shares with most of the other new schools the conviction that underdevelopment is the result of the absence of the institutions that the West has. For this school, the Western individual's creativity is the motor that generates historical change; and progress is generated by establishing institutions that adequately motivate respect for private property, democracy, and law and order in general. The problem with this vision is that it leaves aside the study and understanding of the historical evolution of other societies, which do not consider the individual as a central figure in their social dynamics[75].

From the point of view of economic policy, Neo-Institutionalism allows to understand problems such as the firm, oligopolies and others, for which it has been very useful. However, in regards to the international policy of patent protection, the case of its importance for global development has been exaggerated by some exponents of this school. Rodrik has pointed out that such a protection is not always justified from the point of view of the interests of the underdeveloped countries[76].

North's contribution on the resilience of informal institutions allows to explain why in certain cases the export of Western institutions to underdeveloped countries does not work properly (this is the historical experience of India, or Mexico); and this in itself was a great contribution. But what North does not explain are the strengths of these informal traditional institutions that, mixed with heterodox new formal institutions,

[74] Furubotn, E.G., and Richter, R. (2003). Institutions and Economic Theory. The Contribution of the New Institutional Economics, University of Michigan Press, Ann Arbor.

[75] This topic is developed with breadth in Obregón, C; 2008 *Globalización y subdesarrollo.* PUI, México. Available in Amazon.com and in Research Gate.

[76] Rodrik, D; 1999, p.148. *The New Global Economy and Developing Countries: Making Openness* Work, John Hopkins University Press, Baltimore.

have produced economic success stories in countries like China, and other Asian countries, that never fully adopted the Western institutions[77].

Neo-Institutionalism showed that economic development is a function of the institutional arrangement; but it failed to prove that Western institutions are indispensable for such development, nor that the establishment of Western institutions in underdeveloped countries promotes economic development.

It is convenient to establish the main difference between Neo-Institutionalism and traditional Institutionalism, particularly in the works of Veblen and Boulding. In Veblen, as in North's Neo-Institutionalism, an institution includes both the conceptual system of values and the actual institutions that implement it. But there are two key differences, one that in our opinion favors North and another that favors Veblen. In Veblen,

[77] Rodrik's represents a more advanced view than North's, since he recognizes the importance of the strength of domestic institutions to stimulate development. But nevertheless, Rodrik insists in conceiving the institutions of other countries as a transition to the optimal institutions, which are the Western ones; and to explain their success stories based on these institutions, i.e., respect for private property and democracy. (Rodrik's proposals are presented more extensively in Obregon, 2008 Teorías Del Desarrollo, op.cit.) The reality is that Asia developed mostly without democracy and that in China respect for individual rights is very limited, and of course there is no democracy. These societies are competitors of the West, not their followers; they have adopted the minimum necessary from the West to integrate globally and compete, but basically they continue to be societies with values and institutions that are very different from those of the West. Openly acknowledging these differences is relevant, and changes our focus on the problem of underdevelopment; Obregón, C; *Institucionalismo y Desarrollo* 2008, and *Globalizacion y Subdesarrollo* are widely dedicated to this analysis (both available in Amazon.com and in Researh Gate.com. The new schools of economics, like the previous ones, have not dealt with the negative consequences of seeing development as a natural process. In particular, the vision that development is a process that occurs naturally once the appropriate institutions (and policies) are implemented, has diverted the attention of economists, both of the new and old schools, from the analysis of two central subjects: 1) the study of how development could be generated from the current institutional conditions of the underdeveloped countries and from their own, specific history, and 2) the understanding of the possibilities and development consequences of reordering the international institutional arrangement that defines the relationship between developed and underdeveloped countries. The thinking of the new schools, even though it represents a great advance over the old ones, continues to be influenced by the predominant epistemology in economic thought, that of the economy of reproduction. This epistemology conceives economic development only as a natural consequence of individual economic freedom – which supposedly produced progress and accumulation of capital; and has restricted the analysis of underdevelopment to identify the missing Western institutions in the underdeveloped countries that impede individual economic freedom. This epistemological position has precluded the analysis of other routes to development, like the one followed by China and other Asian countries.

like previously in Marx, social change happens only as a consequence of technological change; North introduces the social change that happens because of social intentional design, a key feature of contemporary societies. But what favors Veblen is that, while the free individual is a given datum in North, in Veblen it is a historical product. Thus, in Veblen we can understand the historical genesis of the free economic man. It becomes very clear thanks to Veblen, that the free expression of the individual's selfishness in large markets is a particular institutional characteristic of contemporary Western societies. Historically the individual is not always the agent of change in Veblen; while he is clearly so in North.

In the case of Boulding, he pointed out that the economic relation through the market is just but one of the three key relations of the individual with the society; beyond the Economic System, there is an Integrative System and a Power System. This contribution of Boulding is central, because it clarifies that man's behavior changes depending upon the system in which he interacts with society. He may behave selfishly in large economic markets, and at the same time be altruistic and cooperative within the Integrative System. Moreover, if we put together Veblen's and Boulding's contributions, we can see that there is a historical dynamic of the three social systems. And therefore, the interaction of the individual with society in each one of the three systems is distinct in diverse societies, and in different points in time for the same society. All this means that there is not a unique "human nature". There are basic evolutionary traits of humans, but how they are expressed depends upon the specific historical institutional arrangement. Our nature as "humans" cannot just be found through empirical laboratory findings in a particular society and at a given point in time – mainly because such findings already imply a given institutional arrangement. Human behavior cannot be disentangled from the institutions that are influencing it. An individual economic agent just does not exist by itself. The laboratory findings are very useful, but they have to be related to what we know from other social disciplines, in an evolutionary and historical institutional perspective.

Take for example the finding of Behavioral Economics that, in the Dictator's Game, people display altruistic behavior. Voluntarily 74% of participant dictators divide money equally with the other participant; which, Behavioral Economics argues, is an empirical demonstration that "humans" are not rational selfish calculators maximizing their personal

well-being. But, 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, as displayed in the Dictator's Game and others.

The Integrative System and the Power System are a fundamental part of the economy. At the beginning of the XX Century, governments in developed economies accounted for only around 10% of GDP; today they explain 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%[78]. Individuals living in developed economies experience a world where social cooperation is a reality, that is why they readily display cooperative and altruistic behavior. That, however, does not mean that they will behave altruistically in a large competitive market, in these markets in fact it has been shown empirically that they behave selfishly.

Internationally there is a very weak integrative system, therefore it should be expected that humans will not behave altruistically, and this is the case. While the integrative system represents around 36% in a DE, the international aid from DE to EE is only around 0.2% of the World's GDP.

THE RECONCILIATION BETWEEN KEYNES AND THE NEOCLASSICAL SCHOOL

Traditionally, Keynes' assumption of volatile investors' expectations made it impossible to reconcile Keynes' macroeconomic insights with the main stream. The dilemma has been between: 1) the route taken by Keynes, the

[78] These calculations are not precise because available data do not allow it. But they are good enough proxies. For calculations on government size and social expenditures see Obregón, C; 2018 *Globalization: Misguided Views*. MPRA_paper_85813.pdf which uses OECD data. Military expenditures can be found in CIA world factbook – www.indexmundi.com, which are updated up to January 1, 2018. Military expenditures are around 2.5% of GDP. The Power System includes military expenditures plus other enforcing agencies on which no hard data can be found, but we estimate that they do not add up to more than 1.5% of GDP.

Cambridge Keynesians, and Behavioral Economics Keynesians. Which leads to the acceptance of irrational economic agents with volatile expectations as the explanation of major economic crises. But then, one is unable to explain why such irrational economic agents do not produce frequent major crises; or 2) the route of the main tradition, the IS-LM model, and Rational Expectations. Which assumes rational economic agents to explain why regularly the economy is near full employment equilibrium. But cannot explain major economic crises. We have argued that, given the recent developments in General Equilibrium Theory, Game Theory, Information Economics and Institutional Economics, there is a third route that allows to reconcile Keynes with the main neoclassical tradition, and that explains both major economic crises and why the economy regularly stays near to full employment. In this third route, economic agents are rational, but economic transactions require information, and there is uncertainty as to an unknown future that cannot be replaced by probabilistic models. "The settings" required to transact with less than perfect information in an uncertain world are provided by the institutional arrangement, which defines the "game" – i.e. the conditions – under which the economic agents transact.

In normal times, there are all sort of frictions that explain economic business cycles around the full employment equilibrium. Among others, these include: short term Keynesian type rigidities, technological shocks, temporary problems in the 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 may come from particular temporary individual behavioral irrationalities, minor institutional changes and 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 stochastic shocks which usually are absorbed both by institutional new policies and/or by price flexibility in the markets. All these processes are complex and imprecise, and they induce all sorts of relative minor fluctuations whether in real output, in prices, or in the level of employment. But normally, the economy stays in a corridor near full employment[79].

In rare occasions however, economies move to a far-away equilibrium. But since there are only two shock absorbers: flexible market prices,

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

and institutional 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 2008 GFC indicates that this is the case. The 1930 GD was also caused by huge institutional mistakes. In this case, by a severe contractionary monetary policy, and an unwarranted increase in trade tariffs that produced a draconian reduction in international trade. In the current 2020 GP, US authorities have adopted more timely economic policies. However, they largely relied on fiscal policies. As a consequence, large amounts of free money have been misdirected, and the recession is likely to be deeper and longer than what the underlying shock justified.

In summary: major crises happen due to large unwarranted institutional mistakes which occur occasionally.

Traditional economics has been trapped in a vision of social dynamics defined exclusively by the individual agent. The discussion had centered on whether humans are rational and selfish as contemplated in the contemporary neoclassical economics, or irrational and volatile like in Behavioral Economics and in Keynes. By focusing only on the individual agent, traditional economic theory has become unable to explain major economic crises. This is because if the individual agent is rational and selfish, then markets work and are flexible, and the economy should be in the full employment equilibrium corridor all the time; and if the individual agent is irrational, then she/he is so all the time, and major economic crises should be much more frequent. Since the economic agent's characteristics (whichever they are) are always the same, something else has to change, something has to be different, to explain the two distinct realities of the economy. What is different, as we have been emphasizing, is the institutions, which in normal times operate well, but occasionally make huge mistakes.

The 1930 GD, for example, cannot be explained without understanding the consequences of the use of power in World War I. The latter resulted in inadequate peace settlements which implied excessive transfers from losers to winners, which could not be fulfilled[80]. The losers printed large amounts of money (as an inflationary tax) in an attempt to extract

[80] This was Keynes' thesis in *The Economic Consequences of the Peace*.

resources from their economies to fund the transfers committed to the winners. Despite this effort, in the end losers were not able to fulfill their 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 global money supply caused the hyperinflation of the 1920's, which was the main precedent of the drastically contractionary policy adopted later on – one of the main causes of the 1930 GD. Furthermore, both war and hyperinflation exacerbated 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 1930 GD the grave institutional mistakes were the all around contractionary monetary policy, and an increase in 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 then became relevant.

As we have discussed before, 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[81].

To explain reality, we need to realize that markets work within an institutional arrangement. This arrangement usually works reasonably well because its task is to guarantee the survival and reproduction of society. It mostly maintains the economy in the full-employment corridor. How-

[81] In the Dictator's 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 50-50, and in the punishment stage 81% choose to punish an unfair allocator. In public good games, the standard traditional economic prediction that no one will cooperate turns out to be wrong; on average, people will cooperate half their stakes to the public good. These results, Behavioral Economics argue, are 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's Game and others in developed countries.

ever, due to its complexity, institutions occasionally make huge mistakes, and the economy moves to a far-away equilibrium.

CONCLUSION

It has been clearly established that the attempt to find one unique stable optimum equilibrium has failed. What are the implications of this failure? Since the "setting" – whether a "game", "an information set", or an "institutional arrangement" – defines partially the final equilibrium to be obtained, it follows that the microeconomic foundations of macroeconomics must take the setting into consideration. However, despite the fact that markets do not achieve one unique optimal stable equilibrium, they do transmit very efficiently the information about individual preferences – which is fundamental for economic growth. Therefore, it is true that there is no market solution without an institutional arrangement of reference; but, it is also true that institutions cannot substitute the markets. Thus, any macroeconomic policy has to be related to three issues: 1) market's microeconomic efficiency; 2) a proper institutional arrangement – which among other things defines the fiscal and monetary policies; and 3) the economic growth model.

Each one of the schools reviewed in this chapter have found that the microeconomic interactions between economic agents critically depend on the settings under which such interactions happen. Game Theory showed that there are many non Pareto equilibriums which depend upon the settings of the game. Information Economics obtained multiequilibriums which are a function of the diverse information sets. And Institutional Economics explains why an economy may be away from full employment equilibrium, and how the equilibrium obtained is a function of the institutional arrangement. Despite the fact that each one of these schools has its own technical method and that they do not strictly relate to each other; conceptually there is a close relation between all of them. Uncertainty can be seen as lack of trust in the institutional capacity to deal with the future economic problems. Insufficient information can be reinterpreted as the consequence of inadequate institutions capable to guarantee the required flow of information. The "setting of the game"

in Game Theory could be understood as representing an institutional arrangement. Therefore, a simple way to summarize all the findings of these diverse schools is to say that the microeconomic interaction between economic agents is substantially influenced by the institutional arrangement in which it occurs[82].

In this chapter we showed that due to recent developments in General Equilibrium Theory, Game Theory, Information Economics and Institutional Economics Keynes' macroeconomic insights can be made compatible with traditional neoclassical microeconomic theory.

[82] There is a connecting point between institutionalism and the schools which explain microeconomics based on the individual. This particular interesting result of Institutional Economics is due to North. He discusses the relevance of social engineering. In Veblen, like previously in Marx, social change happens only through technological change. Social engineering in North incorporates individual creativity in the process of social change.

CHAPTER FIVE: A BRIEF NOTE ON KEYNES, SMITH AND MARX

Smith, Marx and Keynes focused on very different socioeconomic problems. Smith wanted to understand the sources of economic growth; that is why he titled his economic book *The Wealth of Nations*. Marx was concerned with social justice; for him it was critical to understand capitalism as a structurally unjust system, that is why his main book was *Das Kapital*. Keynes was concerned with explaining how to confront major economic crises; he argued that the neoclassical case of a fully employed economy was only one of the several macroeconomic possibilities, that is why the title of *The General Theory*. Because they were concerned with different problems, each one of these economists offered solutions which were never discussed by the others. Both Marx and Keynes thought that the problem of economic growth was inherently solved by capitalism, thus they accepted Smith's conclusions. However, as we will discuss later on, while no doubt Smith's conclusions are still valid for global capitalism, they are not necessarily so for specific country or regional cases. The problem of underdevelopment cannot be addressed from Smith's perspective. Both Keynes and Marx saw crises in capitalism as immanent; but for the first, they could be institutionally resolved, while for the second they necessarily would destroy the system.

For both Smith and Marx, there was a natural tendency for the rate of profits of capital to decline. But for Smith, technological development, consequence of large free markets, prevents such a fall; while for Marx the limited value created by the labor force, versus the rapid growth of constant (fixed) capital, will inevitably drive the rate of profits further down, so capitalism will have to collapse. For Smith, individual selfishness was a positive social force; for Marx, it was the seed that would destroy capitalism, because individual selfishness contradicts the true essence of man as *species being*. Keynes argued that, if the government can maintain the economy near full employment, the view of Smith was right; while Marx's proposal did not make any sense to him.

Both Smith and Marx were trained as philosophers and their economics was part of their broader philosophical framework. Keynes had some exposure to philosophy, but never fully developed a social philosophy of his own.

Keynes did not have any specific contributions in growth theory or in the theory of justice. Keynes never held the view that economic growth could be obtained through incurring in government deficits, and he left the problem of social justice out of his institutional analysis. He focused on the need to implement the adequate institutions to allow both individual freedom to flourish, and for the countries to be able to confront their economic crises, without the need to establish trade wars against others.

In this chapter we will present three sections. In the first one, we will review Smith's contributions in the light of the contemporary theories in Economic Growth. Emphasis will be made on the fact that neither Smith nor Keynes had anything to say about economic development. The neoclassical view on underdevelopment, we will argue, is mistaken, and it actually does not follow from Smith's proposals. And the Cambridge Keynesians' view of underdevelopment is also wrong, and does not represent Keynes' views. The solution for underdevelopment requires specific economic growth policies that were never studied neither by Smith or by Keynes.

In the second section, we present Marx's ideas in the context of the contemporary theories of income distribution and poverty. Marx's epistemological assumption about human's capabilities to access immutable essential truths about the future destiny of humans in history, is unsustainable in the light of contemporary neurobiology and social sciences discoveries, which have shown that access to essential truths of any kind is impossible[83]. However, his claim that free markets do not necessarily produce social justice remains valid. It is argued in here that income distribution policies and antipoverty programs do work, and are required and very welcome. But they work much better if there is a proper policy for economic growth. There is nothing in Keynes that can contribute to the analysis of social justice, but clearly maintaining the economy near full employment equilibrium is indis-

[83] Carlos Obregon, 2014., La ética y la justicia, op.cit.

pensable to be able to achieve it. Economic crises seriously exacerbate inequality and poverty.

Finally, in the third section we discuss the philosophical and ethical consequences of the economic systems envisioned by these three great thinkers, in the light of recent developments in social sciences and neurobiology. It is argued that Smith's ethics has been misrepresented by the Neoclassical School, and that consequentialism does not follow from Smith's proposals. Neither Utilitarianism, Liberalism or Radical Egoism are compatible with Smith's ethics. Keynes did not have an ethics of his own, but from his early lectures on Moore, he had the insight that Utilitarianism was not acceptable. His insight was right. With the contemporary discovery of the existence of multi-equilibriums, it has become clear that there is not a unique way to evaluate the ethical consequence of an action. Marx's communal ethics had the wrong epistemological assumptions; the individual cannot be "integrated into the species" and the relationship between the individual and the community is never fully accomplished. However, Marx was right in arguing that individualism lacked the ethical communal aspects that necessarily have to be taken into account in a social ethic.

SMITH VERSUS CONTEMPORARY THEORIES OF ECONOMIC GROWTH

The best way to start a discussion on economic growth is to refer to Solow's growth model. It inspired a generation of unsuccessful economic growth models, like the Communist Model, and the Import Substitution Model. Solow was wrong: higher savings do not necessarily imply higher economic growth. However, despite its many limitations, as Samuelson once told me, in one thing Solow was right: there is no growth without savings. The lack of understanding of this specific point gave rise to the economic growth models of the Cambridge Keynesians. Which were based on governmental deficits, that had catastrophic results and led to severe financial crises in emerging markets.

Why higher Savings Do Not Necessarily Mean Higher Economic Growth[84]

The key to why savings do not necessarily mean higher economic growth is technology. Smith was right in that the way out of the classical stationary state was technological development, as consequence of the enlargement of the market. Technology is actually the clue for economic growth. However, this is only true if we are considering developed economies with free markets and large middle classes. The technological frontier is defined in the free developed Western economies, and in their case certainly higher savings do translate into higher economic growth. But in a closed developing economy, savings may be invested in production processes that use obsolete technology, leading to a spurious economic growth. Because, as soon as these economies open up to trade in the world economy, large parts of the infrastructure based on obsolete technology collapses – since it is uncompetitive in relation to the global frontier technology. This is what explains the economic crisis of the USSR during 1990-2000, which caused the USSR to grow in Per Capita terms less than Africa during 1950-2000. It explains why almost one third of East Germany collapsed due to the unification with West Germany. And it also explains the poor economic performance of Latin America versus Asia.

Savings only translate into long lasting economic growth when they are used to invest in frontier technology. This has been the key of the Asian economic success. In order to be able to export to the West, these countries underwent the discipline of investing in frontier technology. While the USSR and Latin America invested in obsolete technology.

The most recent endogenous economic growth models do explain technology as consequence of other factors, such as science, learning by doing, research and development, and education and labor quality; and they are correct, all these elements do explain technological development. But they do not change the fact that investing in obsolete technology does not produce long lasting economic growth. The USSR is the best example: it had high education and high quality labor, it had research and development and learning by doing, and it had frontier science – yet

[84] For a careful description of the role of frontier technology in diverse models of economic growth see Obregon 2018, Globalization Misguided Views, op.cit

it did not produce long lasting economic growth. Why? Because even though the USSR did have frontier technology, it only had it in military and space technology. The rest of the economy had obsolete technology; because the USSR lacked a large middle class market whose changing preferences produce rapid technological development. As I have argued elsewhere, the key factor that produced a long lasting enlargement of the market in the West was the endogenous growth of the middle class. This is what made the West so successful and what also explains the Asian success, because the latter exports to the West's middle class and therefore needs to use frontier technology.

Why Real Savings Are Necessary to Promote Economic Growth

As we have been arguing, Keynes was wrong, the dynamics of the economic system cannot be explained by irrational volatile investors' expectations. Investors are rational, as we clearly learned with the stagflation phenomenon. Any attempt by the governments to create large deficits which according to a rational expectations' long term model result unwarranted (in simple words, that are not payable through the recovery of economic growth) will produce stagflation in the developed economies, and financial crises in the underdeveloped ones. The economies are real. The Neoclassical Capital Theory does work in the long run. There is a real potential growth of an economy, which does depend upon the economic growth model adopted, but to be successful it has to be based on real rational economic basis. The success of Asia is due to clear economic growth programs, that involved industrial development and exporting to the West. Thus, higher savings did translate into high economic growth. But they were real savings channeled to frontier technology. The only country that developed recurring to government deficits was Korea, and it borrowed based upon export projects capable of providing the country with the hard currency needed to repay. Latin America borrowed for inward looking industrial projects with obsolete technology, and this path defined its long term incapacity to pay back its debt. Rational investors, with free capital flows, immediately penalize countries for not having a proper long term economic growth model and they cause financial cri-

ses. The main problem of the Cambridge Keynesians' economic growth models based upon large government deficits was that they never understood that savings are only productive in the long term if they invested in frontier technology, and that investors are rational.

MARX VERSUS CONTEMPORARY THEORIES OF INCOME DISTRIBUTION AND POVERTY

For Marx, the declining rate of profit was explained in labor value terms, since value only comes from labor and constant capital grows rapidly in relationship to labor; that implies that value over constant capital has to diminish. Marx was wrong: the main determinant of the rate of profit is technology, which means that labor becomes more and more productive, and there is no reason for the rate of profit to decline. Moreover, the international proletariat revolution he announced never happened. In both World Wars proletariats and capitalists fought together against other nations. Capitalism has flourished in developed economies and the announced communist society never arrived. However, despite the fact that Marx was wrong, he has been one of the most influential thinkers of the last two centuries. Communism was adopted in the USSR, China, and Cuba, and has been influential in many developing societies. One thing that Marx got right is that capitalism is not necessarily a just system. The concern with justice has been guiding key portions of the literature in income distribution and poverty.

As for income distribution, Piketty's recent work has opened up again the discussion on this topic. He argued that capitalism necessarily concentrates income, a thesis which I have shown elsewhere to be wrong[85]. But although it does not happen necessarily, it is true that since the eighties there has been an income concentration in many developed economies. Moreover, despite Piketty's and others' claim that the between countries income distribution is improving – this is only true largely because of China. The real world's drama in income distribution is still the huge and growing gap between rich and poor countries. In any case, leaving

[85] Obregon, C. 2015. *Piketty is Wrong*. Available in Amazon.com and also in Research gate.com

aside the fine points in the income distribution controversy, what is very clear is that the question about justice is highly relevant in contemporary capitalism. Human rights, and humanism in general, is far from being accepted globally. Only about twenty percent of the population lives in the Western world, for the other eighty percent humanism is still mostly a chimera. Not only does humanism not operate in the countries that constitute eighty percent of the population; but the twenty percent living in countries that enforce human rights do not want to truly acknowledge those rights for the inhabitants of the remaining eighty percent. This is clear when one discusses the world's poverty problem. International aid to poor countries is extremely low, only 0.2% percent of global GDP.

Thus, Smith was right in that the declining rate of profit was not going to happen in capitalism; and that technological development will keep the system alive and growing fast. But Marx was right in that justice is not guaranteed in capitalism. Achieving it requires a very decisive institutional effort. Justice has been partially achieved in the developed countries, because poverty has almost been eliminated and the income distribution in the last one hundred years has favored the middle class, understood as the ninety poorest percent of the population, despite the income concentration that has occurred since the eighties[86]. This has been achieved by means of the growing participation of the governments in the economy, that in developed economies has grown from around ten percent of GDP to forty percent. In developing economies, governments have not grown as much and the middle class has been less powerful. Thus there are still huge concerns about the fairness of the within income distribution in these countries. And, as we have been saying, the between country global income distribution is unacceptably bad. As for extreme poverty, it has declined globally; but in some countries and regions it is still growing up in absolute terms. Marx was wrong, the world in not headed towards an international revolution of the proletariat that will bring about the new global communist society; but he was right in that global capitalism is still a very unjust system, far away from delivering the humanism that it proclaims.

[86] Idem.

SOCIAL ETHICS[87]

The young Keynes was exposed to *Principia Ethica*, in which Moore argued against Utilitarianism. For Moore, things were not good because they produce pleasure, they were good because they were intrinsically good. They were objective facts about value. The goodness of things can be understood through reason; but goodness can only be appreciated in its organic unity – it cannot be intellectually broken into small components. Moore's ethics was for Keynes a clear partner of his economic findings, which pointed out that economies do not have a unique maximum equilibrium, but several. And although Keynes was not a philosopher, and never developed an ethical theory of his own; he was right in this insight. Utilitarianism requires to be able to evaluate social utility, and for this, markets are required; but if there is not a unique maximum equilibrium, then there is not one unique way to evaluate social utility but several, each one corresponding to a different equilibrium. The failure of Welfare Economics and General Equilibrium Theory in showing the existence of a unique, stable, optimal equilibrium leaves ethical consequentialism without support. Because there is just not one unique way to measure the consequences. This is not only a problem for Utilitarianism, but also for the other two ethical schools that required the measurement of consequences: Liberalism and Radical Egoism. Liberalism argues that, as long as individuals respect the basic natural rights of other individuals, any action they choose to take is moral in nature—because individual selfishness, it argued, has social benefits. Radical Egoism is an extreme form of Liberalism, which proposes that it is moral for each individual to optimize his or her own selfish well-being, because this is the true way to maximize social well-being. Neither of these two schools of ethics can be defended in the presence of multi-equilibria. Take as a simple example Tyrole's corrupt economy, in which it is in each individual's benefit to behave corruptly; clearly, individual action neither promotes the social benefit as argued by Liberalism, nor maximizes social well being as defended by Radical Egoism. Because there are many possible non optimal Paretian and Nash equilibriums, there is not one unique way to translate individual selfish actions into the common good. Thus, it is necessary to discuss under which institutional conditions individual selfishness may

[87] Obregon, C. 2014. La etica y la justicia. op. cit.

become socially beneficial. Keynes had a good insight, one of the main tasks of institutions is to maintain the economy near full employment; unemployment and financial crises do create human misery and injustices. But Keynes' insight is not enough. Once the relevance of institutions is understood, it becomes clear that there is not only one unique full employment equilibrium. Full employment can be achieved in the presence of diverse income distributions, with distinct levels of poverty and even with different economic growth paths. We mentioned economic growth because it is the best and easiest way to eradicate poverty, and to alleviate the living conditions of those less privileged in the income distribution. Specific income distribution and poverty elimination programs are needed and do produce the desired results; but they only work well if they are associated with an adequate economic growth program[88].

Social ethics has been under discussion by economists. There are only three groups of economists that have approached directly the question of social ethics. Smith, Marx and the Neoclassical School. The Neoclassical School is represented by the three ethical schools mentioned before: Utilitarianism, Liberalism and Radical Egoism; none of which provides an adequate solution once the presence of multi-equilibriums is recognized. Marx's ethics was based on his labor value theory, which was not correct. The most interesting ethical contribution from the point of view of Institutional Economics (which today recognizes multiequilibria) is Adam Smith's.

For Smith there was a double ethical judgment to be made by the society and by the individual. Individual freedom to act should only be allowed when both the society and the individual consider that his actions do not damage others. If the society considers that the individual's actions will harm others, it must sanction the individual and prevent him from executing the action. If the individual considers that his actions will harm others, he must restrain himself. In the *Wealth of Nations*, Smith argues that economic freedom does not harm others because large free markets promote technological development, and therefore economic growth, which is socially beneficial; and for the most part he was right. But, in any specific situation, the ethical judgment has to be done again. For example, the neoclassical economic growth proposal that free markets were going to promote economic growth in developing economies was

[88] See Obregon, C. 2020. Three Lessons from Economists That Policy Makers Should Never Forget. University Editions. Available in Amazon.com and in Research Gate.com

wrong, as the Mexican example has shown. Due to the ICT revolution (Information, Communications, Technology) capital did not mostly flow to the countries that adopted the neoclassical model of economic growth like Mexico, but to those like China which adopted the Asian Growth Model and offered better conditions for the geographically fragmented production required by the ICT revolution[89]. Individual freedom always has to be evaluated within an institutional context that includes the economic growth model, income distribution polices, antipoverty programs and so on. Furthermore, for the individual there are communal ethical duties, beyond the exercise of individual freedom. Besides the economic system, as Boulding argued, there is an integrative system and a power system, and the individual also relates to society through these two other systems. Thus, social ethics goes beyond the realm of economics. Sen has argued that the question of justice requires rational ethical judgments, which may not be accepted universally and may differ between cultures; however, he maintains that there is always enough common ground to achieve improvements in social global justice. I have argued that there are no neurobiological basis to argue in favor of Sen's rational ethical judgments, and that value judgment are always institutionally, culturally and historically bounded[90]. But what is not under discussion is that there are ethical judgments that bind a society together, that go well beyond the economic relationships between the individuals.

[89] Obregon, 2018. Globalization Misguided Views. Op.cit.

[90] See Obregon, 2014. La ética y la justicia, op.cit.

EPILOGUE: BEYOND KEYNES; 2021 AND AFTER

Keynes was a genius who changed forever the way we look at economics. He initiated macroeconomics, and the understanding of the possibility of several economic equilibriums. He made, as we have been saying, several fundamental contributions. The critical one is his theory of the consumption function, that allowed him to understand the possibility of several equilibriums. There are however two other very important contributions that have not been well understood by the traditional school, his LPT and his MEC. The first one explains, as we have seen in a Minsky model, why the monetary policy by itself is not effective in moving the economy away from a significant economic crisis. The second one explains why even a fiscal policy may encounter problems. As we have seen, the reason these two contributions were not incorporated into the IS-LM model is that, while they are useful to explain what happens once a major crisis stars, they cannot explain why an economy is usually near full employment equilibrium. By emphasizing that the dynamics of the economy was defined by the volatile MEC, Keynes made it impossible to explain economies near equilibrium. Keynes' view of irrational investors and his nominal interest rate disconnected Keynes' economics from the dynamics of the real economy, and left the Neoclassical Capital Theory without use. All this meant that Keynes could not explain economies near equilibrium, nor long term economic growth. Because of this, both the LPT and the MEC were left out of the IS-LM. The problem is that the IS-LM became an endogenous model which naturally conduced to the recursive mathematical models of rational expectations that maintain the economies near equilibrium, but that cannot explain major economic crises. Moreover, although Keynes was wrong in assuming that the origin of the crises was the volatile MEC, once a major crisis occurs both the MEC and the LPT are very useful theoretical tools that must be used. In 2020 most countries adopted Keynes' policies, but without a proper theory. As we argued, Keynes failed in his ambition that his theory constituted *The General Theory,* capable of integrating his thought with the traditional

thinking, but this project continues to be an important theoretical task. We have suggested that one way to go about this is to reinterpret Keynes in the light of the most recent developments in General Equilibrium Theory, information theory, Game Theory and Institutional Economics. Doing so allows the integration of Keynes' thought with the one of the main tradition. The interest rate is no longer nominal as in Keynes, but real as in the main tradition, and therefore the theory is connected with the Neoclassical Capital Theory and with economic growth theory. Investors are no longer irrational as in Keynes, but rational as in the main tradition. But non- probabilistic uncertainty, information inefficiencies, and the possibility of games in a general equilibrium determination means, as in Keynes, the possibility of multi-equilibriums; some corresponding to less than full employment and others to underdevelopment. In fact, there is more than one possible full employment equilibrium. Markets by themselves do not define alone the economic equilibrium, which is also influenced by the institutional arrangement. Institutions actually allow economic agents to operate in a world with lack of information, with non probabilistic uncertainty and with potential games between the economic participants. They provide the field in which markets can operate. Usually institutions do not make major mistakes and thus the economies remain near full employment equilibrium. But eventually, in rare occasions, when institutions do make a major mistake the investors' confidence deteriorates; and we enter Keynes' world. But the cause of major economic crises is not nominal volatile irrational investors as Keynes suggested, but major institutional mistakes which produce the deterioration of the confidence of the investors. Not only investors' confidence deteriorates as in Keynes, but also the consumers', thus long term consumption behaves as investment does in Keynes' world. The MEC goes down, and as the crisis advances the balance sheets of the economic agents deteriorate – and Keynes' LPT becomes relevant.

In 2020 almost all countries followed Keynes' policies. And to a large extent this is fine, because in a major crisis economies enter a "Keynes' World". But there are some concerns that have not been clearly resolved, and which looking forward become very relevant. In what follows we will discuss some of them.

First, the high level of governmental deficits will be only compatible with macroeconomic stability if interest rates remain very low. Which is

needed for governments to be able to serve their huge accumulated debt. This will force monetary policy to remain accommodative. But that will only be possible if inflation remains low, which in turn requires high global productivity, so that labor costs do not increase, causing inflation. And this global productivity depends upon the ICT revolution which requires free trade and good commercial relations between China and the US. There is a close connection between the real economy and the nominal economy, that has to be closely watched by policy makers. Any major commercial mistake in the real economy that may jeopardize the ICT revolution can seriously deteriorate global productivity, and bring back inflation, which in turn will make the financial situation of the governments unsustainable. Investors are rational. If according to a rational expectations model (taking into account the long term potential growth of the economy) it becomes evident that governments cannot serve their debts, stagflation will be the consequence in major economies and financial crises in the developing ones.

Second, once we understand that markets do not define the economic equilibrium alone, and that the institutional arrangement plays a major role, it is natural to ask if today's institutional arrangement is the proper one to face major economic crises. Keynes argued that monetary policy by itself could not solve a major economic crisis because of the LPT; and because of this, he recommended the fiscal policy as the only way out. But he himself understood that governments are not always able to properly influence the MEC through restoring confidence. Governments are not always credible. Given rational investors, Keynes' concern becomes even more relevant, because unless the government's program is truly viable, government expenditures will not substantially influence the real economy, and will rather translate into stagflation or economic crises. Therefore, it is natural to ask if there is an alternative institutional arrangement, such that the huge financial support given to the economies could be channeled with better success to restore investors' and consumers' confidence. Elsewhere, I have argued that the creation of an institute whose only task would be to channel these huge financial resources to the productive economy seems to be a preferred institutional arrangement[91]. The specialized institute could define more properly than the government to whom the financial resource should be given. This is not the place to expand this proposal. But what must be clear is that there is a need to

[91] Obregon, C. 2020. New Economics. University Editions. Available in Research Gate.

rethink the institutional arrangement that we have to confront major economic crises. Just as central banks were in their moment an institutional innovation, it is now time to further innovate our institutional arrangement to enable it to better confront major economic crises. Quantitative Easing already showed its potential in the 2008 GFC; and although to a lesser extent, it was also used in the 2020 GP. Quantitative Easing was a successful institutional innovation, but we must continue innovating. The institute I have proposed is an interesting possibility in this direction.

Third and final, in the neoclassical tradition monetary policy's only purpose was to accommodate the nominal conditions to the circumstances of the real economy, through equalizing the nominal rate to the real rate of interest (which had real investment and real savings as its determinants). After Keynes, macroeconomics – both monetary and fiscal policy – became accepted as a mechanism to manage the business cycles. And the 2008 GFC and the 2020 GP have made clear the need to use macroeconomics also to manage major financial crises. But it must be clear that macroeconomic tools have their own limits, they are only useful in economies where real resources are unemployed, and only to bring back the economy to full employment. Any attempt, as the Cambridge Keynesians proposed, to use macroeconomic tools to stimulate growth is unwise and will fail because investors are rational. Thus, whenever the governments grow their debts and the central banks their balance sheets beyond what is required to maintain full employment, they will trigger inflationary expectations. Macroeconomics (even if it were to go beyond Keynes as proposed with the creation of a new institution to disburse the new financial resources) is not suitable to solve other global economic problems that require special attention such as: economic growth, underdevelopment, income distribution and poverty. The solution of these problems requires real resources – real savings, as well as global institutional modifications of their own[92]. Monetary and fiscal policies cannot be used to solve any of the problems mentioned before; because as we already said any attempt to print money whenever is not justified by the presence of large unemployed economic resources, will produce rational inflationary expectations. Which in advanced countries will translate into stagflation, and in emerging markets and developing economies into currency devaluations and financial crises.

[92] Idem.

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