Today's Problems: In The Minds of The Great Economists

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In The Minds of The Great Economists

by

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INTRODUCTION[1]

Whenever most people think today about economics, they imagine a very dull discipline, highly mathematical and quantitative, and unrelated to philosophical concerns. Economics is seen as an inhumane discipline, centered around numbers, and far away from people's everyday needs. It is surprising that a discipline that started in the writings of a philosopher specialized in ethics, ended up with such an image. In this book we will write the history of economic thought as it relates to today's most pressing problems, and we will emphasize the critical connection that exists between what may seem cold, unrealistic mathematical economic models, and the quality of everyday life of any citizen of the planet earth. Economics started as a concern with economic growth and the benefits that it produces for most of the population. Adam Smith, a professor of ethics at Glasgow, England, asked himself the question of what the determinants of the rapid growth of England were, versus the slow growth of Spain and Portugal, despite the wealth that gold and species historically gave to the two latter countries. His answer gave rise to economics and changed forever the life of humans in the planet. Economic freedom was what explained England's success. From then on, economists would analyze and study the role of free markets in fostering human prosperity. The unheard capacity of capitalism to increase global production, meant the possibility of abundant food and better living conditions, which ended the famines that characterized the first fifteen centuries of European history.

In year one after Christ, the world's global population was only 226 million people; and in the year 1500 it was still only 438 million[2], which meant an annual rate of growth of only .04%. In capitalism, from 1500 to 2010, the annual rate of growth of the population drastically increased

[1] This book was originally the idea of Oscar Garza in a mutual conversation. I would like to thank him both for the idea and for his careful reading and comments of this manuscript. I would also like to thank Dorothea Schael for her detailed comments, which have been very useful.

[2] Population and GDP Per capita data for year one and 1500 comes from Maddison Project 2010, available at https://www.rug.nl/ggdc/historicaldevelopment/maddison/releases/maddison-project-database-2020?lang=en. This data set includes data sets for 2010, 2013, 2018 and 2020. All of them are relevant because they include distinct periods for different variables.

twelve-fold to 0.5%; therefore, by 2010 the world's population was 6,814 million[3]. Economic progress meant the possibility of the population to grow. It meant the possibility of saving lives and increasing the population of the human species. Economics is not just about dull numbers, rather it is about the possibility to survive and to have a better quality of life. Despite the rapid increase in the population, the GDP Per capita in 2010 was $7,814 dollars[4], 13.8 times higher than in 1500; while the one in 1500 was only 1.2 times higher than the one in year one after Christ. As we mentioned, in capitalism the annual rate of growth of the population was 12 times higher than during the 1-1500 period, and the rate of growth of the GDP Per capita was 40 times higher. Economics is about studying and analyzing the economic system; the economic system in which a person lives makes a huge difference in their quality of life.

Capitalism's prosperity is undeniable, and the relevance of free markets – i.e., largely unrestricted – is unquestionable, but they are not the whole explanation of the success of capitalism. A contemporary answer to the initial question raised by Adam Smith necessarily recognizes the institutional complexity behind the success of capitalism. The understanding of such an institutional complexity is critical to explain why underdevelopment, poverty, economic distribution, economic stability, and the problems associated with globalization have not been solved by the fast economic growth that characterizes capitalism.

Thus, on the one side economic growth has been fantastic, and the notion of individual economic freedom and freely operating – largely unrestricted – markets is changing our everyday lives to an unimaginable degree, that is not always appreciated. We will argue, for example, that free individual economic choices are behind the digital revolution that is transforming our contemporary world daily. But on the other side, the world at large is extremely unregulated and inefficient. While the institutional arrangement of the main capitalist countries has worked very well and has fostered a "healthy" capitalism inside them (with huge differences between diverse countries), at the global level, and in the developing countries, the institutional arrangement has not worked well.

The world as a whole in most indicators looks very much like a developing economy, and not at all as a developed one. While in the high-income countries in 2017, the GDP Per capita in constant 2017 international dollars was $48,403, in the world as a whole it was almost one third

[3] Population data from Maddison Project 2020, op.cit.

[4] Data from Maddison Project 2013, op.cit.

of this level – only $16,253, which was an amount similar to the one of the developing region of Latin America & Caribbean: $16,291. And the world looks even less developed than the Latin America & Caribbean region in other development indicators. Extreme poverty in the high-income countries, measured as poverty headcount ratio at $1.90 constant 2011 international dollars a day, was in 2017 almost fully eliminated being only 0.7%; however, it was 3.8% in the Latin America & Caribbean region and was 9.3% in the world. And in the high-income countries the infant mortality rate, per 1000 live births, was in 2017 only 4.4%, while it was 14.7% in the Latin America & Caribbean region and 29.8% in the world. In the same year, only 16% of the world's population was living in high income countries.[5]

To understand why capitalism is so successful in creating global wealth but has been unable to solve underdevelopment and international poverty, as well as critical global problems like international crime, deterioration of the environment and so on, we have to go beyond markets as the determinants of the actual economic equilibrium; we need to understand how the institutional arrangement influences this equilibrium. Differences in the institutional arrangement are behind the economic success of capitalism in developed Western countries, and the failures at the global level and in the developing economies.

Dull mathematical models have been critical to understand not only the extreme efficiency of markets to transmit price information and their key role in economic success, but also how institutions are determinant for the quality of the final economic equilibrium to be obtained. The history of economic thought is therefore the common tale of two distinct and opposite stories: the first one is the enormous success of capitalism in creating global wealth, and the second is its failure to deal with underdevelopment, poverty, other global economic issues, and global governance. There has been a historical tension between the two opposite stories, with some economists on one extreme arguing that markets by themselves optimize the economic equilibrium - the neoclassical model- while others in the opposite extreme defending that good institutions can substitute the markets - the communist model. As we will see, both extremes are incorrect, the economic equilibrium is defined by both the markets and the institutional arrangement working together. In the real world, economic success has only happened in two historical occasions, and only a limited number of countries have become developed. There have been only two

[5] Data from database: World Development Indicators Last Updated: 03/19/2021.

economic models that were able to create economic developed countries: the Occidental Growth Model, and the Asian Growth Model. And these two models have used both the strength of free markets and the required proper institutional arrangement.

In this book we will discuss the contributions of the great economists in history, paying particular attention to the two stories previously mentioned.

Chapter one presents the problem of economic growth and discusses Adam Smith's contributions. The key for economic growth is technological development, and this occurs mainly as a consequence of the enlargement of the market; Smith's main contribution was to understand this critical point. Adam Smith is called the father of "liberalism and the defense of free markets". But as we will see, he always considered the markets as only one of the components of a broader ethical relation between human beings. Moreover, we will argue that the enlargement of the markets was not only consequence of free individualism, but also and primordially of the growing consumption of a middle class, which shaped the frontier of technology. Hence, behind the success of Western capitalism we find the institution of democracy and the creation of a powerful middle class along with the liberalization of markets. However, with the West already developed, the size of the developing countries' middle class becomes irrelevant[6]. Since the frontier technology is already defined in the West's markets, the expansion of local markets that is unrelated to the global markets only fosters obsolete technology, which is incapable to compete with the West's frontier technology. This is the critical distinction between the success of the Asian Model and the failure of the Communist Model[7].

Smith's answer to what generates economic growth was satisfactory and accepted by almost everyone. Moreover, the fast economic growth of capitalism was already happening and was considered unstoppable. Therefore, with the main problem of economic growth "solved", economics moved on to the questions of value creation, distribution, and comparative advantage with the publication of David Ricardo's Principles in 1817. Ricardo's quest to solve the problems of value creation and distribution through the labor value theory was unsuccessful, as will be ex-

[6] Unless they consume international products produced with frontier technology.

[7] The Asian Model exports to the Western middle class and therefore it is guided by frontier technology, while the Communist Model is inward looking and therefore it is guided by obsolete technology.

plained in chapter two. Ricardo's comparative advantage was an advance in relationship to Smith's, he showed that relative comparative advantage is enough to stimulate trade. Chapter two presents the ICT Revolution which began in the late eighties and has transformed the economics of the world. The fragmentation of the production process in diverse countries by large multinationals has rendered Ricardo's countries' comparative advantage somewhat irrelevant, as the economy of the world becomes dominated by the production chains of the ICT Revolution.

The third chapter discusses global health and Malthus. The classical economists since Adam Smith were concerned with what is known as the Stationary State, characterized by zero profits and a subsistence salary. Malthus, for example, was concerned that population growth would pressure society towards the Stationary State. As the population grows, more and more marginally low productive land is incorporated, and the rent in the more productive lands goes up; this process drives capitalists' profits to zero and salaries to the subsistence level. The key element to avoid the Stationary State is technological development, that is why it was a critical element in Smith's thinking. One of the unexpected consequences of capitalism has been that technological advances impacted positively vaccines development, something we have being observing recently with the fast discovery of the Covid 19 vaccines. Vaccines are responsible, to a large extent, for the rapid growth of the world's population. Thus, health policies and economic growth are related issues.

The question of distribution was raised by the classical economists but was seen as a consequence of the natural tendencies of the economy towards the Stationary State and of technological development; for Marx, however, distribution became a question of social justice. He envisioned humans as a species, which creates value together and therefore he argued that the value created belongs to everybody. While this extreme view has not been accepted in the West's developed countries, it has been clearly influential. Today around forty percent of the GDP in advanced nations is under the government's control; and social justice has become a clear policy objective in these nations: social expenditures over GDP amount to nearly twenty-five percent. Chapter four presents economic justice and Marx.

The success of capitalism in expanding wealth depends, to a large extent, as we mentioned, on the expansion of the market due to the changing preferences of a growing middle class. The transmission of these preferences through the price mechanism in a free market is therefore a critical

efficiency issue in economics. Neoclassical economists have been highly successful in building conceptual-mathematical models that mimic and explain the way markets work to transmit price information. These abstract models have been especially useful not only to understand how markets work, but also to define their institutional requirements, and therefore the dependence of the economic equilibrium on the institutional arrangement. Efficiency and Neoclassical Economics is presented in chapter five.

Until the 1930 GD (Great Depression), economists conceived the economic system as self regulated, and economic cycles as natural and inevitable. But the magnitude of the 1930 GD forced governments to intervene. The theoretical justification of such interventions was developed by Keynes. Since the 1980's, the predominant School of Rational Expectations convinced the economic profession that the 1930 GD was a historical curiosum, never to happen again. As we have learned, they were wrong; we have had both the 2008 GFC (Global Financial Crisis) and the 2020 GP (Global Pandemic), therefore the question of economic crises and what to do about them remains extremely relevant. Chapter six is about economic crises and Keynes.

Bretton Woods created for the first time an acceptable global institutional arrangement, under which the governments of the developed economies intervened to maintain economic stability; and they were very successful. Economic theory focused during the postwar period on the question of economic stability. After a long controversy between Keynesians and Monetarists, the latter emerged as victorious giving rise to the revival of the Neoclassical School's conception of a mostly auto-regulated economy, well described by the School of Rational Expectations. But the attempt of the governments to abandon their role in guaranteeing economic stability was not successful, giving rise to the 2008 GFC. Chapter seven present economic stability and postwar economics.

The failure of the neoclassical revival to deliver economic stability creates the need for a distinct and broader economic paradigm, capable to explain both economic efficiency and how economic crises are generated. Fortunately, as we mentioned before, the same mathematical models that were built to understand neoclassical efficiency guide us to the understanding of the critical role played by the institutional arrangement in the determination of the final economic equilibrium. Chapter eight presents the contemporary theoretical developments that are candidates for the creation of such a new paradigm. Recent advances in equilibrium theory, Game Theory, information theory and institutional economics are discussed.

Chapter nine presents the main theoretical and policy issues that will characterize economics in the twentieth first century. At the policy level, the central question will be the extent to which Keynesian policies will be capable to bring back economic stability without creating inflationary pressures and the revival of stagflationary rational expectations. At the theoretical level, the key question is whether or not the actual institutional arrangement is the adequate one or not. This issue will be raised both at the national level of the developed nations and at the international level of the world.

Following the thoughts presented in chapter nine, the epilogue discusses economics and the global social order. It is argued that given the new globalism created by the ICT Revolution, a new global institutional arrangement will be required. While underdevelopment and international poverty in the past were clearly problems of the developing economies, the 2020 GP has shown that developing economies are interconnected with the developed world. The twentieth first century promises to be extremely important in the generation on new economic theories and policies that will substantially enrich the history of economic thought.

The history of economic thought involves great controversies about many issues such as: economic efficiency, economic growth, economic distribution, the role of institutions, economic stability, the economics of health and population growth, economic development, economic justice and so on. Despite the heated controversies, there have been important advances that have improved substantially the quality of life of human beings. In this book we will present the history of economic thought from the perspective of todays' main economic problems, and a clear distinction will be made between what is still controversial and what have been solid advances, that can be considered beyond controversy.

CHAPTER ONE: ECONOMIC GROWTH AND ADAM SMITH

The discussion about economic growth entails the questions of: does growth happen naturally, as the consequence of free markets, or does it require a specific institutional arrangement? Can institutions substitute markets and produce economic growth? Could distribution efforts to enlarge the middle class create growth? Would economic growth guarantee, or not, an adequate income distribution? Is economic growth absolutely required to improve the standards of living of the population, or can they be improved through distribution efforts? In a nutshell, the discussion wants to clarify the causes and consequences of economic growth.

As mentioned above, economic growth accelerated substantially after 1500. The world's annual rate of growth of GDP Per Capita was only .013% from year 1 after Christ to 1500, and it increased almost four times to .051% from 1500 to 1820. It is in this high growth economic growth environment that the classical economists wrote their contributions. In particular, in 1500 -1820, the Netherlands and the UK were growing at 0.276% and 0.273% respectively, more than twice as fast as Portugal and Spain, which were growing at 0.132 despite the fact that they owned the oriental species trade and the gold trade. The same was happening with the US, which was growing twice as fast as Mexico, despite the fact that Mexico had gold: 0.359% and 0.181% respectively[8]. Adam Smith was the first economist concerned with the question of economic growth. And in the *Wealth of Nations*[9] he convincingly shows that the reason Holland and particularly the UK were growing much faster was free markets. Thus, he became famous for defending "free markets and the invisible hand". This was a key contribution, that would guide most of the economic thinking of future generations. Smith was right, economic growth is due to technological change that is consequence of the enlargement of the

[8] All the data from Maddison 2010. Available at https://www.rug.nl/ggdc/historicaldevelopment/maddison/releases/maddison-database-2010

[9] Smith, A. (1776): *An Inquiry into the Nature and Causes of the Wealth of Nations,* Methuen & Co., London, 1904; ed.: Edwin Cannan. *The Wealth of Nations,* The Modern Library, New York, 1965.

market. But, as we mentioned in the introduction, Smith was a professor of ethics, and before *The Wealth of Nations* – recognized as the beginning of formal economics, he had written *The Theory of Moral Sentiments*[10] in which he describes in detail the full ethical relationship between an individual and the society. And, as Smith himself suggests, one must take both contributions into account to fully understand his social thought. As we will see, Smith was truly an institutionalist who had in mind economics as only one of the elements that define the ethical relation between the individual and the society.

For Smith, there are mainly two sources of ethical knowledge: reason, as in Locke and Kant, guided by the impartial spectator, which is God; and sentiments, guided by the practice of ethical actions, like in Hume. And since the individual may always be biased by his self interest, there is a need for a social understanding of what is ethical or not, as in Locke and Rousseau. There is in Smith a dual ethical judgment about an individual action: the judgment of the individual, and the judgment of the society. If the individual evaluates that the action does not damage others or the society at large, it is ethical, and he/she is free to do it. If the individual evaluates that the action does damage others or the society at large, it is unethical, and he/she should not do it. But since the individual may be biased by his interests the society also needs to evaluate the action. If the society evaluates that the action does not damage others or the society at large, it is ethical, and the society should allow the individual to do it. If the society evaluates that the action does damage others or the society at large, it is unethical, and society must prevent the individual from doing it. Thus, ethical actions are only those which are both judged by the individual and the society as actions that do not damage others or the society at large. Therefore, for Smith free markets are ethical, and should be allowed by the society if it can be shown that they do not harm anybody or the society at large.

Smith understood that England was growing faster due to free markets, while Spain and Portugal, despite their possessions of gold and species, were growing at a slower rate because they were bureaucratic nations. Economic growth is ethical because it benefits the society at large; but it must be proven that it does not harm others[11]. Moreover, for Smith, economic relations are not the only ones in a society. What Smith was

[10] Smith, A. (1759): *The Theory of Moral Sentiments,* A. Millar, London, 6a ed.: 1790.

[11] Curiously enough, a requirement related to Rawls' dictum that inequalities must be allowed only if they are for the benefit of the less privileged members of society.

defending was that economic growth requires free markets – which does not mean at all that they do not need a proper institutional arrangement, this delimiting the notion of their condition of "free. After more than two hundred years of economic science, Smith's main contribution still holds: proper economic growth cannot be obtained without free markets. But a proper institutional arrangement is also required.

There are at least two key contributions from Adam Smith. The first one is to understand the relevance of the economic and exchange system for the rapid growth of capitalism. The second one is to establish that the ultimate principle that must guide the relationship between the individual and the society is ethics. The first contribution is well recognized and has been key in the development of the neoclassical economics. The second one is less understood, but equally important.

As for the first contribution, free markets are fundamental for economic growth because the enlargement of the market is what fosters technological development. The shoes for a king are handmade, and thus technological development cannot happen; but shoes for a middle class are produced massively, making technological development more likely. This simple idea is critical in Smith's thought, and as we we will see, it explains why the US has succeeded, while the USSR collapsed. The price mechanism in free markets is an extremely powerful mechanism to transmit the changing preferences of an enlarged middle class. To understand the relevance of free enlarged markets was a key contribution of Smith, and the detailed study of the price mechanism would be later on an important contribution of the Neoclassical School (as we will see in chapter five).

The second contribution can be better understood in the light of Kenneth Boulding's framework[12]. This author has characterized the relationship between the individual and the society as defined by three large, interactive social systems: the integrative system (which includes social values and ethics), the economic and exchange system (mainly defined by free markets), and the power system (based on the use of force).

Smith's thought in the *Wealth of Nations* has to be understood in the light of the *Theory of Moral Sentiments*. His contribution contained in the first book is that the economic and exchange system should be allowed to operate more freely because it generates economic growth, which is in generally good for the society; not that it should not be guided by the integrative system. The integrative system the one which is in charge of

[12] *Collected Papers of Kenneth Boulding. Boulder Colorado: Associated Press, 1971.*

establishing the social rules for the other two systems to operate. Both books are congruent with each other, once we contemplate Adam Smith for what he was, an institutionalist.

Capitalism's faster economic growth improved the living conditions and had a huge impact on the rate of growth of the population, particularly in the century in which the classical economists wrote. From 1500 to 1700 the world's rate of growth of the population was only 0.16%, and from 1700 to 1820 it almost tripled to 0.46%. In England, where it was already high, it almost doubled; despite the huge migration to the US, it went from 0.39% to 0.76%; and in the US it went from -0.355 to an unbelievable 1.94%[13]. Therefore, the classical economists were concerned with the rapid population growth. They developed the concept of what is known as the Stationary State (for a more detailed description see chapter three), which meant that profits would go to zero and salaries to subsistence levels due to the reduction in land productivity, as more and more land is required to produce crops, given the fast growth of the population. Each economist proposed a different mechanism to avoid the Stationary State: Malthus argued in favor of population controls, Ricardo defended the need of increasing imports, and Smith pointed out the need for rapid technological change. Since technological change relates to the enlargement of the market, Smith proposes free markets. Real economics history has shown that the three mechanisms mentioned before have worked well, but the most powerful of them has been technological change. Since technological change depends upon the enlargement of the market, it follows that it is necessary to give more independence to the economic and exchange system, which was Smith's proposal.

But even economic relations are seen by Smith as social relations. His command labor value theory points out that the value of an economic good reflects the capacity of its owner to demand the social work of others. The value of an economic good is defined by its capacity to command the labor of others in the direction that the owner of such economic good desires. Thus, an economic relationship is a social relation (a point that Ricardo misses, but Marx and institutional economics rescue, although with a different perspective in each case). Economic wealth provides social power. A further reason for the economic and exchange system to be under the guidance of the integrative system. Any economic relationship has to be ethical – this is clearly the right way to read Smith. Smith already foresaw

[13] This contrasts with Spain and Mexico which respectively rates of growth for the two periods mention were: Spain (0.13, 0.28), Mexico (-0.26, 0.318).

what was going to be one of the main characteristics of modern capitalism: that the economic and exchange system competes for prevalence not only with the integrative system, but also with the power system.

In summary: for Smith what is needed is to avoid the Stationary State, consequence of the fast growth of the population; and for that, rapid technological change is required, which in turn means that the enlargement of the markets is a must, and therefore more independence must be given to the economic and exchange system. But because economic power commands others, it must be regulated by the integrative system; because for Smith the fundamental relationship between the individual and the society is ethical.

Once we understand Smith as an institutionalist, his thought becomes relevant not only for the Neoclassical School, but also for institutional economics. In what follows we will discuss the main economic growth models that have existed and their characteristics; and we will discuss how the ones that succeeded, required both free markets and a proper institutional arrangement.

MODELS OF ECONOMIC GROWTH

In the history of the world only two groups of countries have been able to become developed: a selected group of Western countries, and a defined group of Asian countries. Therefore, there are only two models of economic growth that have been successful: the Occidental and the Asian. The first one, as Smith taught us, is basically consequence of the fast technological development due to the enlargement of the market; the second one, in addition to the previous factor, is also the outcome of the model of economic growth deliberately chosen. These two models have in common that their rapid technological change has been guided by the changing preferences of an enlarged international middle class market. There have been several counterexamples of countries that implemented the wrong model of economic growth, and failed to develop, like the USSR, Eastern Europe, Latin America and Africa. The main failed models of economic growth are: the Communist, the Neoclassical, and the Import Substitution Model. What the failed models have in common is the use of an inward-looking, obsolete technology. We will analyze first the two successful models of economic growth, and then the failed ones.

SUCCESSFUL MODELS OF ECONOMIC GROWTH

The Occidental Growth Model

Western capitalism has clearly been successful, not only did the West grow much faster in the last centuries than never before, but: 1) it created the conditions for the technological development that has risen the rate of growth of all the regions of the world; 2) it allowed for the success of the Asian Growth Model, which is based on exports to the Western middle class.

The Occidental Model is capitalism. And it is especially important to realize that, before capitalism, the prevailing productive systems were characterized by extreme poverty. If we use the poverty line of $3.20 2011 PPP International Dollars a day from the World Bank (which includes out of pocket health expenditures); the world on average was poor until 1820, when it was above the poverty line for the first time[14]. In 1500, Western Europe was already above the poverty line by 14%, and the rest of the regions were below the poverty line. Why was Western Europe already ahead in 1500? In the year 1000, according to Maddison 2009, Western Europe had an income Per Capita like the one of Africa and Japan, and below the one of Egypt, China and the World average. But around the year 1300, global commerce started to increase rapidly, and Western Europe benefited from its geographical position, and so by 1500 it was already ahead.

Why did the West develop first, and why was it so successful? What Smith taught us is that technological development is a consequence of the enlargement of the market. And that technological development is what produces economic growth. Therefore, if Smith was right, in 1500 Europe must have had the largest competitive market, and that is why the Occidental Model happened to be the first successful one. In fact, that is the case. Europe had the largest market in 1500. Around the year 1500 Europe was richer than other world regions, and it was geographically very well positioned for the new global trade (to the East, Asia, and to the West, the Americas).

In 1500, there were four competitive cultures: the Chinese, the Arabic – represented by the 15 west Asian countries as defined by Maddison –, the European – represented by the 12 richest European countries –, and

[14] Annual GDP poverty is 1168 (3.20*365). Own calculations based on Maddison 2009 and Maddison Project 2013 and 2020.

the Hindu. Table 1.1 shows the market richness of each of these cultures in 1500, considering geographical distance, which being important today, was decisive then[15]. Europe had by far the richest market of the world, it was more than five times better positioned than China, which was the second richest culture. Not only GDP was higher in Europe, especially in Italy whose bankers financed a large part of the maritime adventures that established the global trade of species and gold, but its territory was much smaller. Therefore, despite having only half the population than China, the European market was bigger and more concentrated. China's GDP Per Capita was very close to subsistence levels, and it lacked enough of a surplus to develop a true market. Europe instead had a GDP Per Capita 50% above subsistence levels, which created a true potential market.

TABLE 1.1. 1500 WORLD RELATIVE MARKET RICHNESS

	Population %[1]	*GDP per capita*[2]	*Market %*[3]	*Territory %*[4]	*Market richness index 3/4*[5]
Europe 12	17.3	797	54.0	12.8	4.22
China	36.9	600	31.1	43.4	0.72
West Asian countries 15	6.4	590	4.6	28.3	0.16
India	39.4	550	10.3	15.6	0.66

Source: Angus Maddison 2009, see Table 1.1.

[1] Population of each region as percentage of the sum of all. These regions together represented 63.6% of the total world population.

[2] GDP per capita of each region. The world average was 566. Together, these regions represented 69% of the world GDP. Very important note is that Italy had 1100 GDP per capita.

[3] Percentage of the market that each region has from the market they conform as a whole. Market is defined as GDP per capita minus 528 dollars. This amount represents the average between the 3.10 poverty line and the 1.90 extreme poverty line of the World Bank. But, since both are expressed in 2011 PPP international dollars, we have to convert the average into 1990 PPP International dollars as defined by Maddison. The idea of subtracting the 528 dollars is that they represent almost subsistence level. Thus, the market size that counts for development is GDP per capita minus 528 dollars.

[4] Percentage of the common territory of each region. Together, they represent 14.8% of the world's territory.

[5] Measure market richness comes from dividing market percentage by territory percentage.

There are four lessons to be learnt from the Occidental Growth Model. The first is that, before capitalism, there was only poverty; and the population almost did not grow, because it did not have enough food, shelter and

[15] Data from Maddison 2009.

basic sanitary conditions. Simply put, economic growth is what guarantees human life, without it, people die. Therefore economic growth is, without a doubt, the name of the game in economics – the best way to eliminate extreme poverty and guarantee survival. The second lesson is that the Occidental Model is just what is generally known as capitalism, and its main difference with other modes of production is the globalization of the production process. Before capitalism, globalization meant the conquest/colonization of other regions by military means and the accumulation of riches by tributes of war and political dominance, but the production process was not truly globalized. And finally, the third lesson is that what distinguishes the Occidental Model is the mass consumption of the middle class, which allows for mass production and fast technological development. Thus, together with the globalization of the production process, there is also a globalization of consumption. This is what provides capitalism with its intrinsic engine of growth and prevents the collapse that doomed previous empires. In the old empires, the cost of controlling and administrating centrally the vast territories grew exponentially with the increase in its extension, and at one point it became higher than the fruits of conquest, which only grew linearly. In other words, as war was fought farther and farther away, the costs became impossible to be repaid. In capitalism, economic growth does not require military conquest, it occurs because of the growing consumption of the middle class. Military confrontations happen frequently in capitalism, because of the conflicting interests of the nation states, and there are also military conquests of foreign regions – but economic growth mainly develops at the center of capitalism, due to the consumption of the middle class. The fourth lesson is that the Asian Growth Model was successful, but it is a dependent model, in the sense that it grows exporting to the middle class of the West. The consumption of this middle class then, is not only the explanation of the success of the Occidental Growth Model, but also of the Asian Growth Model.

Capitalism and democracy were born together in the West. Democracy gave capitalism its own motor engine. The political triumph of the middle class had as a consequence mass production, which is the key to technological innovation, and therefore for economic growth. As table 1.2 shows Europe 30, plus the Western Offshots (US, Canada, Australia and New Zealand) plus 7 Eastern Europe[16] explain most of the growth of the world's market from 1500 to 1950[17]. In 1500 these countries accounted for 32% of the global middle class'

[16] Following Maddison's classification.

[17] Defined as ((GDP PPP 1990 per capita of the world – the GDP per capita of Africa)*world population), see footnote table 4.4.

market; by 1950, they represented 94%. Therefore, this group of countries could develop an endogenous growth – independent of the rest of the world; sustained precisely by the growth of the mass consumption of their internal regional middle class. No other previous empire could have achieved such a market expansion in an endogenous manner for 450 consecutive years, as these countries did. In the previous periods of history, empires needed new conquered territories to expand. Capitalism can expand itself endogenously, by virtue of the growth of the mass consumption of its middle class.

TABLE 1.2. THE MIDDLE CLASS GROWTH[1]

Year:	*1500*	*1820*	*1870*	*1913*	*1950*	*1990*	*2008*
Middle class percentage market	0.32	0.53	0.81	0.83	0.94	0.70	0.50
Middle class population percentage world	16.72	19.34	22.51	25.2	22.54	15.18	13.21
Middle class GDP per capita / world GDP per capita	1.25	1.64	2.11	2.35	2.84	3.59	3.11
Middle class GDP / world GDP	20.93	28.44	47.57	59.26	60.67	49.24	40.54
Middle class GDP per capita	706	1091	1838	3585	5995	18482	23654
World GDP per capita	566	666	870	1524	2111	5150	7614
World GDP per capita without the middle class	538	564	589	830	981	2764	5173
Africa GDP per capita	414	420	500	637	889	1425	1780
		GDP per capita annual growth rate %					
		1500-1820	*1820-1870*	*1870-1913*	*1913-1950*	*1950-1990*	*1990-2008*
Annual growth rate of middle class GDP per capita percentage		0.14	1.05	1.57	1.40	2.85	1.38
Annual growth rate of world GDP per capita without middle class percentage		0.10	0.09	0.80	0.45	2.62	3.54

Source: Maddison original series 2009. See Table 1.1.

[1] Methodology: 1) Europe 30 + Western Offshoots + Eastern Europe represent the middle class. As the table shows, this group of countries have had between them an endogenous growth, aside the rest of the world; sustained precisely by the growth in the mass consumption of its middle class. 2) Market is defined as GDP per capita –GDP per capita in Africa (because this represents middle class consumption) multiplied by the population size. 3) The table shows the enormous growth of the middle class in the selected group of countries for 450 years. 4) We have included in this table Eastern Europe because from a very long historical perspective it was part of the European market.

Between 1500 and 1820, Western Europe grew at an annual rate of 0.14%, the US at 0.36% and LA at 0.16%, while China and India did not grow, Japan grew at 0.09% and the World at 0.05%. The world's population starts growing in the period 1500 to 1820, and it is not until 1820 to 1870 that both the population and the GDP Per Capita grow significantly. Clearly the way out of poverty is economic growth, and the only productive system that has been able to grow at a considerable speed is capitalism. What is new in capitalism? Mainly, that the process of production gets globalized. The Americas and the East get interconnected through Europe. 1820 to 1870 India does not grow; Japan and China grew very little; and Europe, the Western Offshoots and LA grew rapidly. From 1870 to 1913 the situation is similar, except that Japan also grew fast. From 1913 to 1950 the same is true. Again, during the second half of the last century, 1950 to 1990, Europe grows fast and we had the Japanese growth miracle, as well as the rapid grow of other East Asian countries. And finally, from 1990 to 2018 we see China's and India's growth.

The Occidental Growth Model is still well and alive. Between the years 1950 – 2016, the West grew like the world average, which meant that its GDP Per Capita more than quadrupled during the period, only Asia did better. However, there are substantial differences between Western countries. Saving ratios ranged from 14% to 32% in 1960 – 1990 and from 15.0% to 34% in 1990 – 2018. And external balances went from highly positive to significantly negative. Exports of all the countries increased substantially 1990 -2018 vs 1960 – 1990, which reflects the ICT Revolution[18]. GDP growth was generally close to the world's or higher in 1960 – 1990, and lower than the world's in 1990 – 2018. The West has grown less than the world during the ICT Revolution due to the success of the Asian Model[19].

The success of the Occidental Model is undeniable. Many explanations for this phenomenon have been offered. The most well accepted versions are based on any one of these following factors or its combinations: entrepreneurial capitalists (Schumpeter, North), free markets (Smith, Neoclassical School), higher savings (Solow), scientific development, higher education (Lucas), learning by doing (Arrow), research and development (Acemoglu and Robinson), and proper institutions (North, Acemoglu and Robinson and others). All these elements play a role in the

[18] The ICT Revolution refers to the Information, Communications and Office Technology rapid changes that occur in the world economy since the late eighties. A detailed description of the ICT Revolution is provided in chapter two.

[19] All these data are presented with detail in Obregon 2018 op.cit.

success of the Occidental Model, but as we have argued elsewhere, and we will document further below, different combinations of the previous eight elements were present in failed models of economic growth. What clearly distinguishes the Occidental Model from others is the rise of the middle class that provides an endogenous engine of growth. In previous works, I have defined a middle class as one that satisfies two conditions: 1) it has political presence, and it defies the high class for the political control of the country; and 2) it consumes economic goods and services that are produced with the world's frontier technology.

THE ASIAN GROWTH MODEL

The first observation to be made is that the Occidental Growth Model required around 100 years to increase its GDP Per Capita from around $2,400 2011 PPP International Dollars (China's 1990 level) to around $12,600 (China's 2016 level); while the Asian Model accomplished the same in only around 29 years[20]. The previous growth of the West changed the global conditions and enabled the fast Asian success; Asia has developed exporting to the middle class in the West, using the West's frontier technology.

The consequence has been an impressive reduction in global poverty, mainly due to the economic growth that is happening in the successful Asian countries. In less than thirty years between 14% to 18% of the world's population has overcome poverty due to the Asian Growth Model[21].

Some influential economists that have questioned whether an Asian Growth Model exists[22]. However, if we consider that China took 28 years to grow from $2,379 (2011 PPP International Dollars) in1990, to $12,569 in 2018, we might ask: how many years did other countries invest to achieve the same results? Did other Asian countries require a similar number of years? Has a group of Asian countries clustered and differentiated themselves from other countries? Clearly, there is an Asian Growth Model, the Asian countries took an average of 29 years to develop. And they clearly cluster and differentiate themselves from LA's

[20] See Obregon, 2018 op.cit

[21] Obregon, C., 2021. *Poverty and Discrimination*. University Editions. Amazon.com. Also available in Research gate.com.

[22] The World Bank in 1992 argued that it did not.

average of 100 years; the West's record of 100 years and other countries' average of 90 years.

There are two main phases in the Asian model. The first one, 1950/1990 was dominated by Japan, which by 1968 had achieved the level of Per Capita income that China has today. Other countries that achieved earlier today's level of Per Capita income in China are Singapore (1976,) Hong Kong (1979), Taiwan (1987), and Korea (1990). Malaysia and Taiwan achieved it in the second phase, 1994 and 2008, respectively. The first phase was characterized by cheaper local national production of computer chips, cars and other industrial goods. The second phase was dominated by the ICT Revolution, which fragmented production amongst many countries (chapter 2).

The Asian Growth Model is specific to each country, but has some elements in common[23]:

1) A powerful regulatory State that guides the model. 2) Flexible planning involving the private sector, with a high degree of autonomy for companies. 3) The private sector establishes clear commitments and is of paramount importance in the definition of the model. 4) The model is based on exports; production is oriented to compete in the global market. 5) High internal savings. 6) Cutting-edge foreign technology. 7) A learning process that promotes local technology to be competitive with the outside world. 8) Although exports are the basic axis of the Asian Growth Model, at the same time the growth of the domestic market is efficiently defended, through a) regulations that–- without being tariffs–hinder the growth of imports, and b) an undervalued exchange rate. 9) A national agreement that reinforces the historical social belonging of each nation, through the commitment to unite to compete with the outside world. The agreement is for economic growth, in the understanding that the only way to achieve this is by competing head-to-head with the developed world, that is why it is so important to export to it. 10) In all cases, there is an acute awareness about the necessity of learning from and negotiating with the West, but always with the aim of competing with it. 11) In all cases, the competitive model strengthened and used traditional local institutions, while creating new ones oriented to global competition. 12) The central objective is to guarantee economic growth at the national level.

The Asian Growth Model provided the real world with a new, powerful explanation for development, one that had not been foreseen by the theorists of economic development. It was based on high savings, while

[23] Obregon, 2018. op. cit.

orienting the economy towards trade, and it recognized the relevance of the institutional arrangement. The institutional arrangement, however, did not conform to the West's. It recognized the need to integrate the economy to the global market, but it did this basically by promoting exports and restricting imports. It recognized the need of high savings but argued that they have to be much higher than the West's. In a very surprising lesson, imposed upon us by economic reality, we learned with this model that development happens when the poor countries save for the rich countries to consume, and not like previous theory told us, when the rich save to lend to the poor, for the latter to have capital to develop.

During the first phase, 1950 – 1990, the Asian country with the highest savings rate was Japan. Following the Asian Growth Model with the characteristics listed above, Japan's strategy was simple: save a lot, compete in global exports of manufactures, and specialize in high frontier technology exports. The idea was to compete economically in the global markets head-to-head with the US economy. The strategy was successful. In 1990 Japan had almost the same share in manufacture exports as the US, a high share of exports of Machinery and Equipment (M and E) and even a higher relative share in M and E exports to developed economies. The average exports over GDP 1960 - 1990 were 11.19% in Japan vs only 6.87% in US; the average Savings over GDP in the same period was 35.18% for Japan vs 22.58% for US. GDP Per Capita annual growth rate for Japan was 5.87% vs 2.24% for US. In 1950 GDP Per Capita in Japan was 40 % of the US, in 1990 it had doubled to 80%[24]. The Asian Growth Model did work. But not only for Japan, it also benefited other countries. While the average World growth rate 1960 -1990 was 2.28%, very similar to the one of the US, Korea's was 5.98%, Hong Kong's 4.93%, Singapore's 4.73%, Thailand's 4.43%, Malaysia' s 3.02%; and even China, that only adopted these policies from 1980 onwards, averaged a growth rate of 3.35%. In many ways Japan influenced Korea's growth; Hong Kong developed due to the trade between China and the rest of the world; and Singapore, Thailand, and Malaysia benefited from the increasingly higher wage rate in North Asia. But to a large extent, the key for their success was that all these countries followed the Asian Growth Model.

To fully understand what happened in the second phase, we must recall that the ICT Revolution made the "Neoclassical Quality", that is, Western institutions in a given country, irrelevant (Mexico had a good "Neoclassical Quality"). The only thing companies cared about became

[24] Maddison, 2018.

which country offered better conditions for the segment of production they were going to place offshore. Mexico was in a good position to compete due to the Free Trade Agreement with US signed at the beginning of the 90's, but China offered even better conditions. Thus, considerably more capital went to China. Large amounts of foreign investment, huge national savings, and the existence of an industrial plan, meant that China soon was able to transfer frontier technology efficiently to its own companies, on a large scale. By clearly understanding the opportunities that the ICT Revolution offered, China adopted the transformations required and following the Asian Growth Model, it was able to become an economic powerhouse.

China used the Asian Growth Model and followed a specific industrial strategy, based upon high savings, high exports, and a positive external balance. Therefore, China accumulated huge reserves. In a first stage, it protected its local industries through restricting imports, and in a second stage –after joining the WTO in 2001–, its industries were protected by maintaining high tariffs (that were allowed by the WTO to late-comers) and by an undervalued currency. China's model recognized the fact that economic growth requires large internal savings, anticipating that the FDI (Foreign Direct Investment) would not be enough. Instead, Mexico followed the neoclassical economic model, and assumed that its low internal savings could be compensated with FDI, which did not happen. FDI in Mexico was limited to the lines that added value to the international chains due to the ICT Revolution and the NAFTA agreement with US, it could not substitute the lack of internal savings. Thus, although Mexico had free markets, free trade, a free-floating exchange rate, and – at least from the mid-90s onwards – macroeconomic stability, that were supposed to attract the FDI, the latter never arrived in the amounts predicted by neoclassical theory. Finally, even though Mexico managed to have a trade surplus with the US, it had an even higher deficit with the rest of the world. Therefore, Mexico was unable to develop a truly competitive national industry.

In general, conceptual terms, in any growth model, there are three main sources of economic growth: 1) Exports, 2) Import Substitution, and 3) Infrastructure and local value-added chain projects. China used efficiently the three sources of growth. 2) and 3) can be complementary sources of economic growth when 1) is working properly. However, 2) and 3) cannot work for themselves, as the failure of the communist and the import substitution models have showed. The decisive importance of 1) is that focusing on exports is the only strategy that allows the transfer of the frontier technology that, in turn, guides investments in 2) and 3).

Of course, all three strategies for economic growth require investments, and since external savings were not enough, for the reasons we have been mentioning, internal savings became the key to be able to enter the ICT Revolution with a proper Asian Growth Model.

Although this model can explain the success of Asian countries, Japan was not successful in the second phase of the Asian Growth model, that is, between 1990 and 2018. Japan made two mistakes. First, it did not increase its internal savings rate, instead savings/GDP went down from 35.18% in 1960 – 1990 to only 24.05% in 1990-2018. China instead increased it aggressively from 32.99% to 47.53%, as also did all the other Asian countries that grew fast in this period. None of them had a 1990-2018 average savings ratio lower than 28%. The new levels of savings were the key for these countries to be able to adapt to the ICT Revolution. Second, before the ICT Revolution, Japan had offered a good combination of relatively low wages, as compared with the West's, and solid institutions; but once the ICT Revolution happened, Japan's wage rate became too high to compete with the new incoming countries. Japan would have needed to enter the ICT Revolution with very high savings, as the other successful Asian countries did, and as a mature country it would also have needed to increase substantially its offshore production. The ICT Revolution favored new trade chains that necessarily increased substantially the Trade/ GDP proportion. Exports over GDP almost doubled in the world 1990-2018 versus 1960-1990. Exports over GDP increased substantially for all the other successful Asian countries, but they did not in Japan. Even India, that followed its own growth program, with key differences from the Asian Growth model, had a higher Savings/GDP average 1990-2018 than Japan, and also higher Exports/GDP. The consequence was that Japan's growth was only 0.9% on average between 1990-2018, while none of the other successful countries grew less than 2.7%. The leaders of course were China, which grew 8.81% and Korea which grew 5.98%.

The ICT Revolution also explains the success of India, that during 1990 – 2018 achieved a growth rate of 4.7%. India followed in part the Asian Growth Model, it also increased savings/GDP to 31.4% and exports/GDP to 20.62%. As well, its global share of manufacture exports increased from 0.52% to 1.75%. But India relied on its own peculiar strengths. Particularly, a large English-speaking population which enabled it to participate in the boom in offshore services, specifically outsourcing, that was brought about by the new transmission of information capabilities, consequence of the ICT Revolution.

During the years 1990 – 2018 the combination of the ICT Revolution + the Asian Model worked best for China, but it also worked very well for other countries with much higher salaries, whose sustained growth rates were truly remarkable: Korea 4.2%, Singapore 3.44%, Hong Kong 2.73%, Thailand 3.44%, and Malaysia 3.57%. This denies the myth that China was more successful than Mexico because of its very low wages.

In the last 68 years we have seen several Asian countries become developed: today, the populations of Japan, Singapore, Korea and Hong Kong enjoy the highest available standard of living. Others have improved their GDP income a lot: China, Thailand, Malaysia. The Asian Growth model worked very well, indeed.

The Asian Growth Model has been extremely successful in reducing poverty, but we should remind ourselves that it is a dependent growth model which requires to export to the international middle class (mostly defined by the developed Western countries' middle class) and this implies: 1) That it it has the limitation of the absolute size of the imports of the international middle class, that is why in terms of the world's economic growth, it is desirable to increase the size of the global middle class, something the Asian Growth Model up to now has not done very well. Increased consumption of products with world's frontier technology has been limited in most successful Asian countries. 2) It requires high internal savings and therefore may not be feasible for medium-sized or small poor countries.

FAILED MODELS OF ECONOMIC GROWTH

The Communist Model

The failure of the communist model can be appreciated in the collapse of the USSR, the unsatisfactory economic growth of Eastern Europe, and the low growth of Cuba. In the period 2016/1950 the USSR[25] grew 0.76 the world's growth, 2000/1950 Eastern Europe grew 0.68 the world's growth, and 2015/1950 Cuba only achieved 0.60 the world's growth.

[25] The USSR was dismantled at the end of the eighties, however Maddison and his followers continue reporting statistical data for the countries that formerly constituted the USSR.

The most interesting case is the USSR, because it had won the Second World War, it had a large market, technology in the frontier, high education, and high savings. So, we need to explain why during 1950-2000 the USSR only grew 0.80, equivalent to the growth of Africa.[26]

The Communist Model's failure has to do with two theoretical misconceptions. The first one is the Marxist belief in a long-term declining profit rate, which meant that capitalism was doomed. The idea was very simple: since value comes from labor, when capital grows, with labor growing less than capital, value over capital has to decline - therefore there will be a declining rate of profits. An associated idea was that capitalism is condemned to have under- consumption crises, since labor cannot consume enough, because it does not receive the full value that it has aggregated. In contrast, in a communist society, it was reasoned, since theoretically there is no exploitation, workers are supposed to receive the full value that they aggregate, and then there will be no under-consumption. Moreover, capital can accumulate without limits because profits going down in a communist society is not a problem. Therefore, the Marxist recipe for growth was to accumulate capital. The accumulation of capital was supposed to be the engine of growth. And this Marxist theoretical position was reinforced by a second theoretical misconception. The second theoretical misconception was Solow's Neoclassical model of economic growth. This model argued that higher savings equal higher investment and therefore more rapid growth. Following these two theoretical misconceptions, the USSR accumulated capital through a high saving rate, but it did not grow.

The collapse of the USSR was not only unexpected from a theoretical standpoint, but it was also a political surprise. The URSS thought that it was very wealthy, and the West also thought so. Why was everybody wrong? Because without the existence of market prices, the national accounts cannot reflect the true state of the economy. The USSR 1990/1950 grew as much as the US, 2.24% in annual terms (0.98 the World's growth), but then the collapse came in 1990; and within a decade, the USSR had destroyed all the growth benefits of the previous four decades. And this happened despite the fact that the USSR, after the collapse, followed the advice of the best Western economists.

There are three main reasons for the USSR's collapse. 1) Its excessive spending in a) military armament, b) its imperialistic endeavors and c) its space adventure; did not leave much for the rest of the economy. 2) Given the process of industrialization, the USSR had to put an extra

[26] Even though Africa grew only 0.69 the World's growth.

burden on the agricultural sector – i.e., it transferred huge resources from the agricultural sector to the industrial sector. 3) The industrial sector did not trade with the West; therefore, it did not have the West's frontier technology. Moreover, there did not exist a demanding middle class market in the USSR; the USSR market was only around 20% the size of the West's. Therefore, the industry in the USSR did not develop with the technology that was raising at the world's frontier. The USSR only had frontier technology in its space endeavor; because even military production was not competitive with the one of the US, as the bad performance of the Russian military armament in the Iran war has shown.

The Cold War was a mistake for the USSR, since it isolated its economy, which was much smaller than the West's, and could not possibly compete with it. The USSR concentrated in competing with the West in military equipment, and in space exploration, which was too expensive. Industrializing at the expense of the agricultural sector required growing food imports. And leaving aside the world's frontier technology in the industry sector meant that industrial exports to the West were not viable. The model just did not work. Finally, it had to collapse. Two events precipitated the collapse: 1) Given the USSR's dependence on oil exports, the most relevant event that accelerated the collapse was the oil crisis of the mid eighties, and 2) Ronald Reagan directly defied the imperialistic endeavors of the USSR, all around the world, forcing the USSR to increase spending in this area. Moreover, Reagan launched the Star Wars defense project, which gave impulse to new military technology to stop nuclear missiles, which again compelled the USSR to increase its military expenditures.

But the main reason behind the USSR's collapse was that not all savings produce the same *quality* of growth. Savings ex-post are by definition equal to investment; and they are certainly required for growth. But they only produce proper growth if investment is truly productive, which only happens if the investments are related to the world's frontier technology. The USSR isolated itself and grew with technology that was permanently obsolete by Western standards. When it opened up to the West in the 90's, a large part of the economic infrastructure collapsed, because it could not compete with the West's technology.

The USSR increased savings, privileged industrialization at the expense of the agricultural sector, and oriented its efforts to be competitive in military armament and space technology. But it did not have the industrial technology at the frontier that the West had, which attuned to the changing preferences of a large middle-class market. Markets are essen-

tial, without them an economy does not work properly. The middle-classes' growing demand provided the West with an internal motor of growth, that the USSR did not have. And given the size of the West's economy, world's frontier technology was defined in the West. The USSR, by isolating itself, did not have access to frontier technology.

The lessons to be taken from the USSR collapse are: that capital accumulation is not enough, an economy has to open up and compete in the global market, and has to have flexible local markets, so that prices are accurate and national accounts can reflect the true state of the economy. The USSR was a large market, but not large enough to compete with the West. In 1990 the value of the West's market was 5.1 times the USSR market[27]. Moreover, the West's was an open, flexible and competitive market, and the USSR's was not – it did not have any chance to succeed. And, when the USSR finally had to open up to the West, due to the international conditions mentioned above, it collapsed, because it was not a competitive economy.

Russia collapsed together with the USSR, during 1990-2000 the annual rate of growth of the USSR was - 4.26% and the one of the Russian Federation was -3.77[28]. Russia's collapse during 1990- 2000 meant that Russia did not make an efficient use of its high saving rate. In the period 1988 -2017, Russia's savings rate is very high, similar to the one of the successful Asian economies. But its GDP growth is extremely low, compared with the Asian economies – due to the collapse.

Thus, it is important to remind ourselves that centrally commanded economies, without market flexibility, can maintain high rates of growth for large periods; but, whenever they open up to compete with the outside world, they collapse. Probably the only country in Eastern Europe that has become truly developed is East Germany. But it had to pay a very high price. East Germany had been growing at very high rates before it was reunited with West Germany. Before the reunification, it was argued that the two Germanys were extremely productive, invoking the German character. When East Germany joined its Western counterpart, it represented around 13% of West Germany's GDP; five years later, the proportion was in the vicinity of 8%[29]. Why? Because most of the goods

[27] Own calculation based in Maddison Project 2018 and USSR 1989 population census.

[28] World Bank data.

[29] See Obregon, C. 1997, p 260. *Capitalismo hacia el tercer milenio*. Nueva Imagen, Editorial Patria. Mexico. And Smyser, W.R., (1993). *The German Economy*. St Martin Press, New York. Chapters 7 and 8.

and services offered by East Germany were not competitive by Western standards. Exactly the same happened to the USSR when it opened up in 1990. Therefore, the problem is that if an economy has an inward-looking economic growth, it may be growing fast, but when it opens up to the world, its worth may be very little. As soon as foreign competitors arrive, they render the inward-looking technology and its associated industry obsolete; therefore, much of the old economy's value disappears.

The contemporary Russian Federation is in better shape to develop than before, due to several reasons: 1) added local market flexibility, 2) added openness to the external world, and 3) it does not have any longer the pressures associated with the Cold War. But it is still a central command economy, with public finances and exports that are oil dependent. The Russian Federation and USSR have recovered, but they have not yet paid the full price to become part of the most developed world. They are more efficient than before, but most of their recovery has been based upon going back to the traditional mode of a centrally commanded mode of production. They still have serious problems. Communism did not modernize the Russian Federation: its industry is still not sophisticated enough to compete globally.

Eastern Europe also suffered the flaws of the Communist Model. Up to 1990, it apparently was performing very well; 1990-1950 it grew 1.03 the world's growth. But then, in 2000/1990 it also suffered a huge contraction. In this period, it grew only 0.66 the world's growth. Therefore, within a longer horizon, 2000/1950 Eastern Europe only grew 0.68 the World's, almost the same than Africa's 0.69. In the most recent years, 2016/ 2000 Eastern Europe had a recovery similar to the USSR's; but it still has the scars left by the Communist Model of Growth. The only Eastern European Country that became truly developed was East Germany; and this happened because its reunification with West Germany. By 2016 Eastern Europe's GDP Per Capita was 4% higher than the old USSR's, but only amounted to 82% of the Russian Federation's and 50% of the Western Europe's[30].

Cuba's economic growth has been a disaster. In fifty tears, 2015/1960, Cuba only grew 0.60 the West's Growth. Cuba shows a pattern that is similar to the other communist countries analyzed, except that even in the "good times", 1990/1960 it only grew 0.84 the world's growth. 2015/2000 Cuba had a recovery similar to Eastern Europe and the Russian Federation. Most of Cuba's bad performance can be attributed to the Com-

[30] Data from Maddison Project 2018.

munist Model it adopted, which also failed in the USSR and in Eastern Europe. However, a large part of the difference in performance between Russia and Cuba is certainly a result of the US's economic blockage of Cuba. In any case, Cuba made the wrong choice adopting the Communist Model; like anybody else, it overestimated the economic success of the USSR and became its unconditional ally. Cuba has paid a huge price for confronting the US.

1980/1950, also following a communist model of growth, China grew 1.08 the world's growth. However, it is necessary to understand what is behind this number before passing a final judgment as to whether communism was successful in China or not, prior to the 1980 -1990 capitalist reforms. First, at the beginning of the period in 1950, China was quite destroyed by the corruption of the Kuo Mi Tang; and by the vandalism of the Western countries, which had already lasted one century. According to the Maddison Project 2013, it is not until 1956 that China recovers the income level it had in 1850. When the revolution wins in 1949, and Mao starts to govern China, the main task was essentially to reorganize the country. Between 1950 and 1953, according to the Maddison Project 2018, income in China grew 31%. Thus, the reorganization 1950-1952 explains largely the good performance that China had 1980/1950. If we re-estimate this number for 1980/1952 it goes down to 0.88, showing the failure of the Chinese communism prior to the capitalist reforms 1980 – 1990. Moreover, the real trouble for communism in general starts in 1980. The USSR's comparative number for 1980/1950 is 1.01 the World's growth, not far from China's 1.08; and the USSR's number for 1980/1952 is 1.05, actually higher than China's 0.88. Therefore, up to 1980 China was performing similarly to the USSR. What saved China was the implementation of the 1980-1990 capitalist reforms, by means of which it avoided what would have been its inevitable collapse in 1990, the fate encountered by Russia. China's income per capita in 1980 was only 77% higher than in 1850 and was at the level of 1894 USSR's income; by 1980 China was still a very poor economy.

What really has made China successful were the 1980 – 1990 capitalist reforms that positioned it very well for the ICT Revolution that started in the world in the mid eighties. China entered the ICT Revolution adopting the Asian Growth Model, that had proven successful in other countries, and its very low wages made it extremely competitive for the new world to come. For now, we will close this section on the Communist Model of Growth emphasizing that it was not successful in

any country. China is communist, but its success is not due to the Communist Model of Growth, but to the Asian Growth Model. By following the Asian Growth Model, China was able to use to its advantage the ICT Revolution as its fundamental source of growth. China's success reminds us that an economic growth model can function well with different ideologies and diverse forms of governing.

After 1990, the communist model of the USSR and the Russian Federation almost looks like the Chinese model, in the sense that it has had high savings, high exports and a healthy external balance. But the huge difference is that while one model looks outwards (the Chinese), the other model looks inwards. China has developed an extremely competitive frontier technology industry, while the Russian Federation's and the old USSR's industry are still largely based on obsolete technology.

There are several key lessons to be learned from the communist model: 1) an inward- looking economic policy develops a non-competitive industry. 2) An inward-looking economy may appear to be growing, but whenever it opens to the rest of the world, its industry disappears. Since it is not able to compete with the foreign frontier technology, the economy collapses. 3) The theory that high savings and capital accumulation produce high growth did not consider the technological quality of the capital. Savings only produce proper growth if they are used for investing in world's frontier technology.

There are not reliable poverty statistics to measure objectively the impact of the failed Communist Model of Growth. But what is clear is that the poor of these countries would be much better off today if these nations had followed an adequate model of economic growth.

The Import Substitution Model

The Import Substitution Model had its origins in the postwar Latin America (LA). During the war, imports were difficult to obtain, and a process of import substitution took place. And when the war was over, a group of economists, mainly at CEPAL, thought that continuing this process was the key to modernize LA. These thinkers were impressed, like everybody else at the time, with Stalin's industrialization success, and therefore looked forward to industrializing LA following his example. Moreover, given the weakness of global trade at the time, it was not

conceptualized as a relevant source of economic growth. The economists that endorsed this model argued that the West had developed through high savings, and they recommended to increase savings to match the West's historical standard. Solow's economic growth model, which initial article was published in 1956, reinforced their point of view. The Import Substitution Model does not have the command economy problems of the Communist Model, but it shares an inward-looking industrialization strategy. This model was not successful. LA grew 1990/1950 only 0.91 the world's growth, while East Asia grew 1.56[31]. Contrary to one of the central assumptions that backed the adoption of the Import Substitution Model, global trade became a key source of growth; and LA did not benefit from it, as much as it could have done. Moreover, focusing inwards meant the use of obsolete technology, as a result of both an inadequate scale of production, and the lack of significant presence in the global markets, where the frontier technology was being defined. The ambition to substitute imports of capital goods became not only inefficient, but expensive; and given the lack of sustainable competitive exports, it created imbalances in current account that had to be financed. Therefore, LA had to increase its external debt substantially. And when global interest rates increased sharply in the Volcker's era[32], LA entered the 80's debt crisis. This crisis, and the obligation to repay the renegotiated debt, limited the potential rate of growth of LA for many years and generated widespread poverty. In many ways, the Neoclassical Growth Model was a response to the crisis created by the failure of the Import Substitution Growth Model. But, as we will see, it did not work either; LA 2016/1990 again only grew 0.90 the world's growth, while East Asia grew 2.61.

The Import Substitution Model in Latin America was not the success it is still often argued. It was a failed model that finally conduced to the 80's financial crisis. Just like in the case of the communist model, LA had to face the fact that it did not have a competitive industry. Both the level of indebtedness and the lack of industrial competitiveness constrained enormously the future to come for LA. To put this in perspective, consider that between the years 1990- 2018 China grew as much as 4.4 times LA growth.

With the Import Substitution Model, 1950 to 1990[33], LA had a low savings rate, 21.58% versus World's 25.87% and East Asia's 33.30%. It

[31] We use 1990 because the debt crisis of the eighties was consequence of The Import Substitution Model.

[32] Volcker was the Fed's Chairman.

[33] S, Ex and EB data not available 1950 -1960, we use 1960 – 1990 instead.

had relatively low exports, 12.88% versus world's 15.60% and East Asia's 15.46%. And its growth rate was acceptable, similar to the World's, 2.26% versus 2.28%; but much lower than East Asia's 3.43%. While the countries following the Asian Growth Model grew fast and built a competitive exporting industry, LA only managed to grow at the average of the world, entered a severe debt crisis and fostered the creation of a non competitive industry. The Import Substitution Model was a failure. Sadly, as we will explain in the next section, after 1990 LA adopted again models of economic growth that proved ineffective.

The Neoclassical Model

From a purely theoretical point of view, the Neoclassical Model is quite elegant, and its logic is compelling. However, the model ignored a key element of the real economic world – institutions. The model predicts that capital will flow to wherever it can obtain more profits, thus it should seek low wage countries. Therefore, it is argued that if the developing economies fulfill some conditions, capital will flow to them, and they will grow quickly, with first class global technology. The conditions to be satisfied are: open their economies, maintain low wages, reduce bureaucracy, maintain healthy government finances, reduce the government's size to give space for the productivity of the private sector to operate, and free internal markets so that market prices reflect real scarcities. The Neoclassical Model was applied in many countries. In LA, in Argentina, Brazil, Chile and other countries, but only for relatively short periods; in the Russian Federation, partially during the nineties; but nowhere was it applied more rigorously, and for a longer period, than in Mexico. And Mexico's growth 2018/1990 was very disappointing. It grew at an annual rate of only 1.03%. Why did this happen? With hindsight we know that the model has two concrete problems. The first one, as we said before, is that it did not consider the obvious fact that in the real world there are institutions that differentiate the diverse countries. Institutions that cannot be changed quickly, at will. There is a country risk associated with the specific history of each country. And it is defined by historical, political, racial, and social class conflicts; the legal system's transparency; law enforcement effectiveness; corruption; bureaucratic inefficiencies; physical infrastructure; mafias operating in the country; and so on. A country

cannot change its cultural, social, political, administrative and physical infrastructure conditions at will. Therefore, capital was not inclined to go massively to developing economies, only because they had low wages. There was too much risk involved in fully transferring the technology associated with capital to developing economies. And the second and even more definitive reason for which the Neoclassical Growth Model did not work, is because only a few years had passed by since its conception, when the ICT Revolution started to dominate the international arena. The ICT Revolution made it unnecessary to fully transfer capital and its technology. Due to the advances in Information, Communication and work Technology, it became possible to manage the overall complex production process from offshore. Moreover, the processes of production could be distributed amongst many countries. Diversifying the processes of production amongst countries while maintaining at home the key managing decisions and controls reduced a specific country risk a lot.

These two reasons explain why capital did not abundantly come to a specific developing economy, to substitute the insufficient local savings. As we said before, the main difference between Mexico and China is that Mexico kept expecting the foreign capital to arrive, and it never did in the amounts predicted by the Neoclassical Model; meanwhile China was increasing its local savings a lot. 1990-2016 Mexico's average savings rate over GDP was 22%, while China's was 48%. The ICT Revolution changed the internal economic conditions; one cannot really talk any longer about comparative advantage between countries –the competitive advantage now belongs to specific global industries which have diversified their global processes of production amongst many countries.

The impact on poverty of the Neoclassical Model versus the Asian Growth Model can be seen in table 1.3. At $1.9 dollar a day, China reduced poverty headcount by 745 million people versus Mexico 3.1 million. At $3.20 dollars a day, China reduced 947.6 million people versus Mexico 6.1 million. At $5.50 dollars a day, China reduced 785.5 million people versus Mexico 1.4 million. In relative terms to the 2016 population, the above results can be interpreted as follows. Both countries inserted themselves into the ICT Revolution, China with the Asian Growth Model and Mexico with the Neoclassical Model. The fact that China chose the right model meant that 54% of its population in 2016 was no longer poor at $1.90 dollars a day, 69% at $3.20 dollars a day and 57% at $5.50 dollars a day. In Mexico, following the wrong model meant that overcoming poverty at $5.50 dollars a day was achieved only

by 1.4% of the population (almost nothing), 4.9% did so at $3.20 dollars a day, and 2.5% at $1.9 dollars a day. It is extremely clear that choosing the wrong economic model has a huge impact on poverty. This result is particularly strong given the fact that the q1(lowest income quintile) share of income increased in Mexico, while it went down in China. q1 share of income went down in China from 8.3% in 1990 to 6.8% in 2015, while in Mexico it went up from 3.6% in 1989 to 4.9% in 2016[34].

TABLE 1.3 POVERTY HEADCOUNT REDUCTION CHINA VS. MEXICO

	Povrty Headcount Reduction 2016/1990 (Millions)		
	1.9	3.2	5.5
China	745.0	947.6	785.5
Mexico	3.1	6.1	1.4
	As Percentage of 2016 Population		
China	54.0	68.7	57.0
Mexico	2.5	4.9	1.1

Source: http://iresearch.worldbank.org/PovcalNet

CONCLUSION

Adam Smith's main contribution was his understanding that free markets are required for proper economic growth, but as we have seen, for Smith free markets were only part of the whole relationship between the individual and the society, which must be ruled by ethics. Ethical actions require both an ethical individual and proper social institutions that guarantee such actions. Therefore, Smith was an institutionalist. He understood economic value as consequence of its capacity to command the labor of others, thus any economic and exchange relationship is a social relation which must be subject to ethical considerations. His understanding that technological development was the main way to avoid the Stationary

[34] World Bank 2019 as reported in https://www.wider.unu.edu/database/wiid

State, and that technological development required free markets was a great contribution – technology relates to the enlargement of the market.

The question of economic growth after Smith was abandoned because it was assumed that capitalism guarantees fast growth. Economic growth was not a concern for Ricardo, Malthus, Marx, and the Neoclassical School. It was not until Solow's model in 1956 that the question of economic growth was raised again and mostly in relationship to developing economies. In Solow's model, technology is exogenous and the change from one growth path to the next is defined by the amount of savings. Savings therefore were seen as crucial for economic growth. Solow's model inspired two failed growth models: the Communist and the Import Substitution Model. As we have seen, these models failed because the quality of savings is important. Once the frontier technology is defined in the West by the changing preferences of the growing Western middle class, even economies as the USSR with large markets saw its savings being channeled to obsolete technologies that could not compete with the Western one, and which finally defined the collapse of the USSR. Solow's growth model has been substituted for endogenous models of economic growth, in which technology is endogenously defined by factors such as: Science, Learning by Doing, Education, and Research and Development. All these factors are relevant, as the aim of Solow's model is to explain the economic growth of the West, in which not only savings but each one of the endogenous causes of growth played a fundamental role; but once the frontier technology is defined by the West, neither high savings nor proper endogenous causes of growth can guarantee adequate economic growth for a developing economy. The USSR had high savings, science, education, learning by doing and research and development, and nevertheless was a failure. What was missing in the USSR was a large middle class which changing preferences were able to guide technological development. Moreover, the USSR was a smaller market than the West, therefore the only solution for the USSR would have been to produce with Western technology, as the Asian Model did – which meant exporting to the West and being economically integrated with it. Given the Cold War, the USSR was condemned from the beginning to be a failure.

The importance of the middle class to enlarge the market in capitalism, and the relevance of the changing preferences of the middle class in guiding technology, were not understood neither by Smith nor by other posterior schools of economics. Capitalism is intimately connected with democracy, which enlarges the middle class and provides it with an au-

tonomous engine of growth. However, attempts in developing economies to increase the local middle classes to enlarge the local market would be a failure, because this would also end up in obsolete technology, disconnected from Western frontier technology. A larger middle class does generate faster economic growth but only in the dominant market (the Western), or at the global level if the middle classes in developing economies become international middle classes, consuming international goods produced with frontier technology.

CHAPTER TWO: THE ICT REVOLUTION AND RICARDO

In Smith, the focus was upon understanding economic growth through the study of the different institutions in distinct countries. Smith's economics was tied with his philosophical thinking; and economic relationships are seen as social relations. Thus, in Smith, economics is the tale of two stories: free markets and institutions. Ricardo's *Economic Principles*[35] were published only forty-one years after Smith's *Wealth of Nations,* but Ricardo changed the focus of economic thinking from economic growth (which was assumed to be granted by capitalism) to economic efficiency. For him, it was needed to place economic thinking on solid intellectual grounds. Beyond the social relation that Smith's command labor theory implies, Ricardo wants to uncover what are the technical determinants of economic value, therefore he shifts to an incorporated labor value theory. An economic good has value because it incorporates human labor. Ricardo was in the quest of a *numeraire* – a good with a defined amount of incorporated labor that could be used to measure the economic value of all the other goods through their price differentials with the initial good used as a *numeraire*. Since corn was fundamental for human life, Ricardo uses corn as a *numeraire*. Unfortunately, the amount of labor involved in corn production is not fixed, therefore it was just a proxy, which Ricardo thought was good enough. But as the production technologies improved substantially in many goods, including corn, the price relation between other goods and corn changed drastically and the amount of labor involved in corn production also changed substantially. Therefore, Ricardo's quest for the *numeraire* can be counted as a failure. However, in his quest Ricardo changed the view of economics from economic growth and institutions to the determination of relative prices and free markets, which would be the direction taken by the Neoclassical School.

While Smith was looking for the institutional differences between England and Spain that explained the success of the first country, and understood an economic relation as a social relation through his labor command theory of value, Ricardo sees the economic world as indepen-

[35] *Principles of Political Economy and Taxation* (1817). Sraffa, Piero; David Ricardo (1955), *The Works and Correspondence of David Ricardo:* Cambridge, UK: Cambridge University Press, p. 434, ISBN 0-521-06075-3.

dent of social relations, and he is searching for the understanding of the laws of this autonomous economic system. Economic value is defined by incorporated labor, economic growth is guaranteed by capital accumulation, the Stationary State is avoided through free trade which lowers the cost of food production and allows for profits to remain positive. Ricardo's vision of an autonomous economy system left out the study of social relations and institutions.

Ricardo's contributions are a powerful antecedent of neoclassical economics. He had relevant contributions in at least four fields: monetary economics, microeconomics, price theory, and international trade[36].

In monetary economics he anticipated the main tenet of monetarism arguing that the excess of bank notes from the Bank of England was the main cause of the rise in prices. Gold for Ricardo was produced by a given amount of labor, thus a gold standard guaranteed price stability. The Bank of England, by printing excess notes beyond what it could back up with gold, generated inflation[37].

In microeconomics he introduces the law of diminishing returns and his concept of the marginal rent, which implies that land itself did not add value because rent was defined by the productive differential with the less productive rent – therefore he argues all value comes from labor (a conception adopted by Marx but with a particular philosophical intention).

In Price Theory, value is defined by incorporated labor.

In International Trade, comparative advantage and free trade guarantees satisfactory capital accumulation and avoids the Stationary State. Ricardo was for example highly critical to corn tariffs because they only served the purpose of increasing the rents[38].

In the following sections we will first very briefly discuss the problem of the numeraire as restated by Piero Sraffa, then we will summarily describe Ricardo's theory of marginal rent, and afterwards we will discuss Ricardo's comparative advantage theory to end up discussing in the final section the ICT Revolution and its connection with Ricardo's thinking.

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[36] We have left out the Ricardian Equivalence Principle used by Barro and first mentioned by Ricardo because the latter author did not believe that it had practical implications, see chapter five.

[37] *The High Price of Bullion, a Proof of the Depreciation of Bank Notes* (1810). Sraffa, Piero; David Ricardo (1955), *The Works and Correspondence of David Ricardo:* Cambridge, UK: Cambridge University Press, p. 434, ISBN 0-521-06075-3.

[38] *Essay on the Influence of a Low Price of Corn on the Profits of Stock* (1815). Sraffa, Piero; David Ricardo (1955), *The Works and Correspondence of David Ricardo:* Cambridge, UK: Cambridge University Press, p. 434, ISBN 0-521-06075-3.

SRAFFA'S NUMERAIRE

Using the trace of an input-output matrix Sraffa is able to solve Ricardo's problem of the numeraire[39]. He does it for a stable input-output matrix in which there are not monetary transactions involved. The problem of such a solution is that in the real world these two conditions do not hold. Samuelson has shown that in a dynamic world, characterized by technological change, the input-output relations of a stable input-output matrix do not hold, therefore neither prices nor the amount of labor involved in the original stable input-output matrix are relevant anymore. Moreover, in a monetary economy changes in monetary conditions, for example the nominal interest rate, would also affect relative prices and the relative amount of labor involved[40]. Therefore, Sraffa's solution while valid for a stable input-output matrix is too restrictive to be relevant in the real world; and we can conclude that there is no solution for Ricardo's numeraire problem.

RICARDO'S MARGINAL RENT THEORY

The rent of a land would be defined according to this theory by the productivity of the marginal (less productive) land used. This is an important economic statement that will be the basis of the marginal price theory of the Neoclassical School. Since anyone looking for land has the option of renting any piece of land, as the population grows, and less productive extensions of land have to be incorporated to satisfy the growing food requirements – the price of food will reflect the cost to produce in the less productive land (marginal land). This cost to produce in the less productive land will define the rent of the marginal land, and the more productive lands will have a rent equivalent to their productive differential with the less productive land. This theory will be key to fully define what the classical economists meant by the Stationary State – see chapter three. The Stationary State in Ricardo is avoided through free international trade, cheaper food imports when required.

[39] Sraffa, P. (1960): *Production of Commodities by Means of Commodities,* Cambridge University Press, Cambridge.

[40] Consider for example the 1930's Great Depression, the 2008 Global Financial Crisis, or the 2020 Global Pandemic.

RICARDO'S COMPARATIVE ADVANTAGE

Together with Smith's absolute advantage, Ricardo's comparative advantage settles the case of the need and relevance of international trade. However, neither Smith nor Ricardo focus on what a country should do to compete in international trade. The Hecksher-Ohlin Theory attempted to solve this problem and it had important contributions, but soon it was realized, due to the Leontief Paradox[41] and the fact that most trade occurs between countries with a similar development level, that free markets and relative endowments were not enough to define the patterns of international trade; a specific analysis of the institutional arrangement and its characteristics was needed. The history of international trade theories clearly shows the need of both free markets and proper institutions.

The mercantilists argued that a country must restrict imports and promote exports to maximize its gold reserves. Contrary to this position Adam Smith, as we have seen, was a defender of free trade. But in technical terms Smith only discussed what is known as an absolute advantage, that is, a country must specialize in whatever it is more productive. Ricardo goes one step further and argues that even if a country is more efficient than another in the production of every good, free trade can still be beneficial for both countries. To maximize global product, production must happen accordingly to the comparative advantage principle. In a simple two countries - two goods example: suppose country A must give three units of x for each unit of good y produced, and country B only has to give up two units of x to produce one unit of y. Still both countries will benefit if country B specialized in the production of y and country A in the production of x. This way B produces one unit of y and exchanges in country A for more than two units of x and both countries are better off. And country A produce one unit of x and trades it in country B for more than 1/3 of good y and both countries are better off as well. The situation gets of course more complex with many goods, intertemporal production, many countries and technological change, but the notion of the importance of free trade and specialization amongst countries prevails[42].

Ricardo's comparative advantage was refined by the Hecksher-Ohlin Theory in the early 1900's. They argued that a country should specialize in

[41] Leontief's paradox in economics is that a country with a higher capital per worker has a lower capital/labor ratio in exports than in imports.

[42] See for example. Costinot, A; Donaldson, D; Werning, I., 2014. Comparative Advantage and Optimal Trade Policy. http://economics.mit.edu/files/10340.

producing items that use factors (land, labor, and capital) that are in abundance in that country. Bertil Ohlin received the Nobel Prize in economics in 1977. There are two main implications of the Hecksher-Ohlin Theory: 1) countries in which capital is relatively plentiful should export capital intensive products and countries in which labor is abundant should tend to export labor intensive products; and therefore, 2) trade between capital plentiful countries and labor abundant countries should be very intense. But empirically this has not been the case. Leontief, who also won the Nobel Prize in economics in 1973, found out in the early 1950's that contrary to the Hecksher-Ohlin Theory the US was exporting more labor-intensive products and was importing more capital-intensive goods– this is what is known as the Leontief Paradox. Moreover, contrary to this theory most global trade happens between the developed countries. Steffan Linder explains that most trade happens between advanced countries because people in countries with similar levels of development have similar preferences. In what is known as the Country Similarity Theory Linder, in 1961, explains that companies that produce first for the domestic market look for a foreign market that demands the same product.

Several other trade theories have been built to explain the shortcomings of the Hecksher-Ohlin Theory. Among them we can mention three that have been the most relevant: Raymond Vernon's Product Cycle Theory; Krugman and Lancaster's Global Strategic Rivalry Theory; and Porter's National Competitive Advantage Theory.

Vernon's Product Cycle Theory, developed in the 1960's, argues that a country that comes up with a new product has an advantage in its production; it was very useful to explain the success of some products in the seventies like personal computers, but it is no longer useful in today's world, characterized by the ICT Revolution.

Krugman (who also won a Nobel Prize in economics in 2008) and Lancaster's Global Strategic Rivalry Theory (also called New Trade Theory), which was developed in the 1980's, argue that firms competing in the global marketplace have numerous ways of obtaining a sustainable competitive advantage. These include: owning intellectual property rights, investing in research and development, achieving economies of scale or scope, exploiting the experience or learning curve, forging strategic alliances, and making strategic mergers and acquisitions. Increasing returns to scale and monopolistic or oligopolistic competition explain intra-firm and intra-industry trade. Both the Leontief Paradox and the trade between countries with similar level of development can be explained with this New Trade The-

ory. The higher economies of scale lead to increasing returns that explain trade patterns not necessarily linked to differences in factor endowments.

Porter's Theory of Competitive Advantage, presented in 1990, concentrates on a firm's home country environment as the main source of competitiveness and innovation capacities. Porter emphasizes the following four attributes: 1) Factor (Input) Conditions. Resources of a nation that can be created or inherited such as: human, capital and natural resources; physical, information and administrative infrastructure; science and technology. 2) Demand Conditions. Sophistication, level and growth pattern of national demand; Transmission mechanisms of domestic preferences to foreign markets. 3) Related and Supporting Industries. Clusters play a key role in speedy delivery of inputs, quality and cost efficiency. 4) Firm Strategy, Structure and Rivalry. Corporate investment, strategy and intensity of local rivalry.

As we can see, international trade theories have moved from pure productivity differentials, whether absolute or relative (Smith, Ricardo), to factor endowments (Hecksher-Ohlin Theory), to the recognition that institutional factors do matter (Krugman and Lancaster, Porter). In terms of the real-world markets, as we saw in the first chapter, only two models of growth have been successful, the Western and the Asian, and in both cases free trade as well as a proper institutional arrangement were crucial. Free trade in the Western model was the critical feature that enlarged the market and fostered technological development. The Western countries developed trading amongst themselves, because they have developed, through democracy, a large international middle class which changing preferences guided the technological change. And the Asian countries were able to develop themselves because they exported to the Western middle class, and so they were using frontier technology. And in both the institutional arrangement was crucial. In the Western model a set of institutions guaranteed the political democratic stability that empowered the large consumption of a growing middle class. In the Asian Model, the institutional arrangement we described in chapter one was fundamental. Markets do matter, the labor cost advantage of Japan in the first phase of the Asian Growth Model and of China in the second phase were definitive. But markets are not everything, as we have seen foreign direct investment went to China much more than to Mexico. And free trade is necessary, but it is not the sole determinant of economic growth. China's high internal savings and a careful industrial plan made the difference with Mexico. Institutions are decisive. But one also must remember that institutions cannot replace the markets, the USSR was a failure.

With free capital mobility the Hecksher-Ohlin Theory would imply that capital should move into low labor cost countries, this was the main assumption behind the Neoclassical Growth Model that we reviewed in the last chapter. It did not happen, as we mentioned before, mainly because institutional barriers and the ICT Revolution that we will further discuss below.

THE ICT REVOLUTION

The ICT Revolution started sometime in the late eighties, around 1990. The "I" stands for information, the "C" for communications, and the "T" for technology, particularly related to new working methods and workplace organization. The ICT Revolution, which is still underway, is a long technological wave which for the first time seriously involved the lower labor cost countries (the international poor) in the global process of production. Up to now, we can clearly distinguish two phases in the ICT. The first one starts in the years before 1990 and ends up in 2008, during these years the expansion of the ICT was very fast. In the second phase, which starts in 2008 and has lasted to our days, the expansion of the ICT has slowed down, due to nationalistic policies in the developed countries consequence of the 2008 GFC. The 2008 GFC deteriorated the standard of living of the middle classes in the developed economies, which was used by populist leaders to win elections based on the promotion of nationalistic policies[43]. The 2008 GFC again focused everybody's attention on the problems of the rich nations. Although Biden's administration may partially reverse this trend.

FIRST PHASE VERSUS SECOND PHASE OF THE ICT REVOLUTION

Richard Baldwin notes that "*Between 1986 and 2007, world information grew at 23%, per year, telecommunications at 28% and computation power at 58% per year*"[44]. To put these numbers in perspective we must recall that global GDP (Gross Domestic Product) Per

[43] See Obregon 2018, op cit.

[44] Baldwin, R. (2016). The Great Convergence. The Bellknap Press of Harvard University, Cambridge.

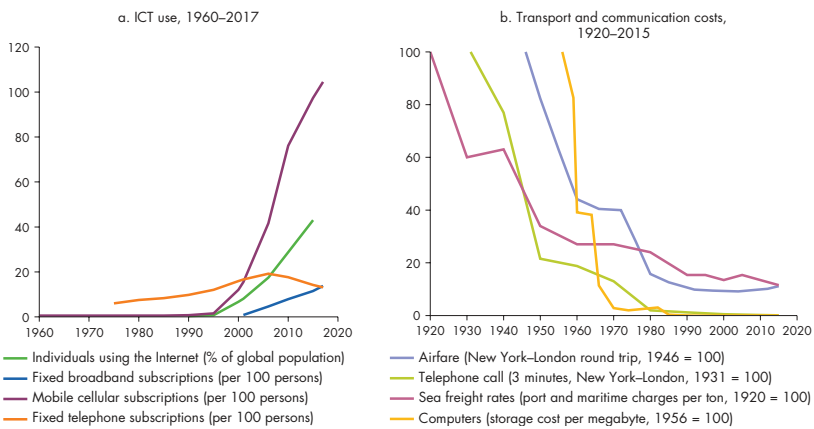
Capita in the period only grew at annual rate of 1.9%[45]. This means that while Per Capita GDP multiplied 1.5 times in these twenty-one years, information multiplied 77.3 times, telecommunications 178.4 times and computation 14,852.5 times. Gordon Moore formulated what is called Moore's law, that establishes that computer power grows exponentially, George Gilder observed that bandwidth grows three times as fast as computer power, and Robert Metcalfe noted that the usefulness of a network increases with the square of the number of users. Therefore, the ICT Revolution constitutes a real, fundamental revolution. The consequences of the ICT Revolution have begun to be noticed by economists. Blinder called it the next industrial revolution; Jones challenged the principle of competitive advantage; Grossman and Ross-Hansberg pointed out the growing tradability of parts and components, and developed their notion of "Trading Tasks"; and Baldwin[46] has discussed it as the second unbundling, referring to the Steam revolution as the first unbundling. But despite the attention that some economists are paying to the fast changing global environment, global institutions, traditional policies and mainstream economic thinking have not yet adapted to the new reality; as we will argue, this explains to a large extent the inadequate institutional response to the abrupt transformation, brought about by the ICT Revolution.

[45] Maddison project 2018. In order to compare different countries along diverse years one has necessarily to make adjustments. In a given year countries' comparisons have to be made using a common currency, the one normally used being the US dollar. But in order to translate the values of a given country from its currency to dollars one cannot just use the prevalent exchange rate, for the simple reason that the price of a given product or service is not the same in different countries. Therefore, one needs to calculate what is known as Purchase Power Parity – PPP -dollars. Which tells us that one dollar of this kind buys the same in all the countries. And in order to avoid distortions for inflation, one uses constant dollars. Maddison is the only available long-term historical data series calculated in PPP constant dollars, in his case 1990 Geary- Khamis dollars. The World Bank has also calculated PPP series: the first one was in 2005 dollars, the second one in 2011 dollars, and the last one in 2018 dollars; all of them are in constant PPP international dollars. The World Bank presents data from 1990 onwards. In general, in this work we will use World Bank data for 1990 onwards and Maddison for any date before, unless stated otherwise. For Maddison there are three series. The first one is the 2009 series which is the original of Angus Maddison and presents GDP, Population and GDPP. The second one is a revised version made by colleagues of him, once he was already dead in 2013; this series only presents GDP Per Capita. The third one also made by colleagues is a revision in 2018 which presents GDP, Population, and GDP Per Capita but does not go backwards as much as the original 2009 series.

[46] 2016, op.cit.

The consequences of the ICT Revolution are part of our daily experience. The existence of resources like the internet, our cellular phone, Facebook, Twitter, Amazon, Uber, and so on, have changed our daily life. Figure 2.1 shows how intense the ICT Revolution has been, particularly since 1990. As can be seen, internet usage, fixed broadband subscriptions, mobile cellular subscriptions are drastically going up, showing the strength of the ICT Revolution; and they all continue going up, even in the second phase. Fixed telephone subscriptions go up, and then down, mainly as a consequence of the substitution with the cellular phones. The costs of sea freight, airfare, telephone calls, and computer storage, have consistently gone down for quite a long time. The reduction in the costs of the last two is particularly dramatic. The ICT Revolution continues to be very strong in the second phase, and what is particularly important from our point of view is: *that the ICT Revolution is bringing the world together and reducing the distance between rich and poor countries, see figure 2.1.*

FIGURE 2.1 THE ICT REVOLUTION

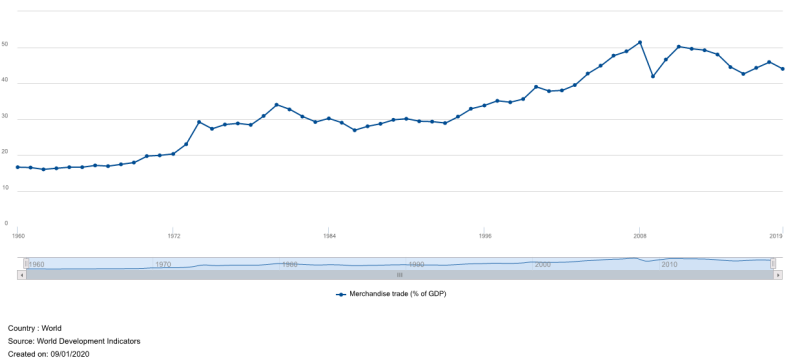


Source: World Development Report 2020

Another remarkable consequence of the ICT Revolution had been a rapid increase in global trade – see figure 2.2. The ICT Revolution increased the world's rate of economic growth by segmenting production, and taking advantage of low cost locations that offered specific advantages such as China. This represented a rapid increase

in global productivity and world trade, and for the first time involved the international poor in the global process of production. Merchandise trade over GDP for the world in the first phase went from 16.7% in 1960 to 51.4% in 2008. The ICT Revolution has changed the world and will continue to do so. However, trade also clearly shows the exercise of nationalistic policies by the developed countries, which have the capacity to slow down the speed at which the ICT Revolution grows, and to reduce the benefit that the ICT Revolution can bring to the whole world. In the second phase, merchandise trade over GDP for the world decreased from 51.4% in 2008 to 44% in 2019.

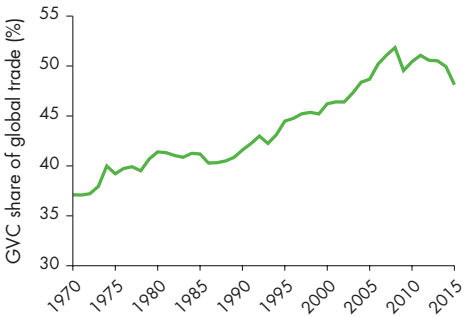
FIGURE 2.2 MERCHANDISE TRADE % GDP



Source: World Development Indicators 2020

The impact of the ICT Revolution on the increase in trade can easily be seen in Figure 2.3. the GVC (Global Value Chains), consequence of the ICT Revolution, share of global trade went from around 40% in 1990 to more than 50% in 2008; but then it went down again to be less than 50%. But still, of the 44% merchandise trade over GDP for the world in 2019, around half is explained by GVC's exports.

FIGURE 2.3 GVC TRADE



Source: WDR 2020 team, using data from Eora26 database; Borin and Mancini (2015, 2019); and Johnson and Noguera (2017). See appendix A for a description of the databases used in this Report.

As Table 2.1 shows, in 1970, 53% of the world's merchandise exports were from the Euro Area and North America; in 2019 they were only 36%. Conversely in 1970 only 13% of merchandise exports were from East Asia & Pacific and by 2019 they were 33%. Moreover, as table 2.2 shows, in 2019 81% of East Asia & Pacific merchandise exports were manufactures exports, of which 37% were high technology exports; while in North America the corresponding number are 57% and 18%, and in Europe 78% and 17%. The high percentage of high technology exports in East Asia & Pacific clearly shows that the "poor countries" like China are exporting high technology.

TABLE 2.1 MERCHANDISE EXPORTS (CURRENT US$)

	% World		
	1970	1990	2019
East Asia & Pacific	*13*	*22*	*33*
North America	20	15	11
Euro area	33	36	25
Latin America & Caribbean	6	5	6
South Asia	1	1	2
Sub-Saharan Africa	4	2	2

Source: WDI, World Bank, april 30, 2021

TABLE 2.2 2019

	Manufactures Exports % Merchandise exports	High Technology Exports % of Manufactured Exports
East Asia & Pacific	*81*	*37*
North America	57	18
Euro area	78	17
Latin America & Caribbean	45	14
South Asia	71	10
Sub-Saharan Africa	26	4

Source: WDI, World Bank, april 30, 2021

Summary: The ICT Revolution is incorporating some of the low labor cost countries (some of the international poor) to the global process of production. It explains most of the international reduction in extreme poverty.. However, the ICT Revolution not only has brought the world closer together, it has also highlighted that markets without a proper institutional arrangement do not work properly, as it has also accelerated the globalization of finances, crime, health issues, and the deterioration of the world's natural environment. The ICT Revolution is a global phenomenon and requires an adequate global institutional arrangement that as of today does not exist. Working on such globalization of institutions to address these global issues would be a better way forward than restricting the potential of the ICT Revolution by inward looking nationalistic policies. The brilliance of Ricardo and subsequent trade theories is to show that the world can be better through trade.

CONCLUSION

International trade is no longer guided only by Ricardo's principle of comparative advantage or by the factor endowments of the Hecksher-Ohlin Theory. What has prevailed in the ICT Revolution is the institutional characteristics of the low labor country that receives the segment of production. This is what mainly explains the differential success between China and Mexico – which is proven by the fact that many other Asian countries performed better than Mexico in the ICT Revolution, despite the fact that they had higher labor costs.

In many ways, trade does not happen any longer just between countries, but obeys optimization principles of the multinational companies that take into account comparative advantage principles, but also other institutional characteristics of the countries analyzed. The ICT Revolution highlights in the real world that economics cannot be understood, as Ricardo attempted, "as an autonomous system". Economic relationships are social relations and are embedded in a social system, that includes the integrative system and the power system. Institutions are decisive for the quality of the final economic equilibrium to be obtained.

Smith was in the right track to see economics as the tale of two stories: free markets and institutions, and Ricardo was wrong in leaving outside institutions and conceiving the economic system as autonomous – self contained –. However, by focusing only on efficiency Ricardo was able to advance economic thinking substantially. If Smith can be considered the father of economics, no doubt Ricardo can be seen as the father of modern neoclassical and mathematical economic thinking; which despite its limitations, has been fundamental, not only to understand the power of markets, but also the dependence of the economic equilibrium on the institutional arrangement (as other critics have pointed out).

Ricardo's marginal rental theory did define in precise terms the Stationary State, which we will review in detail in the next chapter. This is because Ricardo shared with Malthus the concern with the fast growth of the population.

Ricardo's labor theory had also a decisive influence on Marx's thought, the latter author was convinced that Ricardo's theory justified the philosophical view of humans as a "species-being". In Marx, in contrast to Ricardo, labor value theory would be understood and used within a wider philosophical and political framework, which had radical implications for his economic approach. This topic will be discussed in chapter four.

CHAPTER THREE: GLOBAL HEALTH AND MALTHUS

Contrary to Ricardo, and despite their friendship and many shared views on economic issues, Malthus was convinced of the importance and the need of a proper institutional arrangement. Thus, instead of searching for the rules of an autonomous economic system, Malthus was studying what institutional interventions were required to obtain a proper economic equilibrium. Malthus has two main contributions: his proposal of the need of effective checks on population growth, and his theory of effective demand that anticipated some of Keynes' later proposals. It is also worth mentioning that Malthus retained the command labor value theory of Smith. This chapter contains three sections. In the first we review the classical economist's Stationary State, which formalization is mostly due to Ricardo, but at the same time is a good framework to understand Malthus' concerns with fast population growth. In the second section we review very briefly how Malthus' population theory relates to today's health problems. And in the third we will discuss the importance of Malthus' usage of the command labor value theory, and Malthus' theory of effective demand.

THE CLASSICAL ECONOMISTS´ STATIONARY STATE

The Stationary State of the classical economists provides a good framework to understand why Malthus was so much concerned with population growth. The classical economists income distribution theory is shown in table 3.1, and it actually is conducive to a Stationary State. In summary, *as population grows* more agricultural production is required, which implies diminishing returns through the usage of less productive land. The consequence is that rent in the more productive lands go up – rentiers' income goes up; food becomes more expensive, nominal salaries go up, but real salaries go down in the long run to the subsistence level. As worker's income goes to subsistence levels, profits go down – capitalists' income goes down until it disappears. The economy enters the classical economists' Stationary State.

There is no room for the capitalists' profits, because if their profits increase the subsistence salary will go down, and population will go down diminishing the supply of labor and increasing the salary again to the subsistence level. For Smith, it was key to avoid the Stationary State, which was a natural long run tendency, and for that capitalism had to be expanding; that is why trade and enlarging the markets was so crucial, because larger markets fostered mass production and allowed for the technological innovations needed to maintain capitalism's expansion (Smith was right, this is what actually happened later on in capitalism). Malthus followed up Smith in his vision of the "Stationay State" but became more pessimistic. He pointed out the pressure that the growing population exercises: population grows exponentially and food geometrically, which accelerates the movement towards the Stationary State. Ricardo recognized the importance of technology, but for him it was not enough to prevent the economy to move into the Stationary State. Ricardo recommended importing food, while Malthus advised to restrict population growth. The reason that technology could not be enough for Ricardo is somewhat related to his theory of value. Economic value has to do with hours of labor, not with technology. But Ricardo never worked out these relations explicitly. Marx did.

TABLE 3.1. CLASSICAL ECONOMISTS´ INCOME DISTRIBUTION THEORY

Higher agricultural production	Diminishing returns despite technological advancements	Less productive land used (rent goes up)	More expensive food (salary goes up)	Profits go down despite technological improvements in manufactures
		MALTHUS		
Population grows geometrically		Profits go down and salary becomes a salary of subsistence		
Food arithmetically		Policy reduce population growth		
		RICARDO		
Points out technological advances but argues that they are not enough		Policy import food		
Classes: rent goes up		Renter's income increase, nominal salary goes up but real goes down		
Profits down - Capitalists		Workers to subsistance level		

For Marx, since value came from labor - what is in the price not paid to the worker is exploitation. Therefore, class conflict is unavoidable. Capitalism will go down because of two factors: 1) the proletariat revolution, which for Marx was going to become international, and 2) the falling rate of profits. The falling rate of profits is directly derived from Marx's theory of labor value. As capital grows more and more in relation to labor, value in relationship to capital has to go down because value comes only from labor, this is the basis of the falling rate of profits.

Why did both the classics' Stationary State and Marx's prediction of the demise of capitalism fail? For one simple reason: technology. Malthus, Ricardo and Marx failed to understand that capitalism could expand due to technology innovations both in agricultural production and in manufactures. Technology went ahead of population growth. This is the same reason the Club of Rome failed in its forecasts in the 70's with the famous book "The Limits of Growth" (made with Forrester's MIT models). The brutal expansion of technology, due to trade globalization and the middle class's consumption growth, has changed the world. Technology is guided through the markets by the changing preferences of the middle class. The salary did no go down, it went up and created additional demand that fostered the growth of the service sector – which in turn accommodated the reserve army of unemployed forecasted by Marx[47]. And the rate of profits did not go down because economic growth - due to technology - accommodated both an increasing salary and increasing profits. Thus, both, classical economists' Stationary State and Marx's predictions of the end of capitalism were mistaken. It is important to point out, however, the change that Marx introduces into the Classical theory of income distribution – he for the first time introduces class conflict and class political activism. For the other authors, economic classes were not in conflict; they were just the natural consequence of the characteristics of the production process. This will be crucial for Marx's economics, which will be presented in the next chapter.

[47] 'reserve army of unemployed', i.e. the unemployment resulting from capitalist production becoming ever more K-intensive reducing the demand for workers. Marx never considered the increasing demand for workers due to the fast growth of the service sector; which is what happened in advanced capitalist economies.

MALTHUS' POPULATION THEORY AND TODAYS' HEALTH PROBLEMS

Malthus' essay on the principles of population was first published anonymously in 1798[48], the first official version was published in 1803, and the latest version was published in 1826. In all the versions Malthus argues that population grows more rapidly than food production (in the first versions he said that population grows in geometrical progressions while food grows in linear progressions).

Malthus' thought can be summarized in the following propositions: A) The population of a country is limited by the means of subsistence. In other words, the size of the population is determined by the availability of food. B) The growth of the population will out-run the increase in food production. Malthus thought that human's sexual urge to bear offspring knows no bounds. He seemed to think that there was no limit to the fertility of humans. But the power of land to produce food is limited. Malthus thought that the law of diminishing returns operated in the field of agriculture and that the operation of this law prevented food production from increasing in proportion to labor and capital invested in land. C) If the food supply in a country increases, the people will produce more children and will have larger families. This would increase the demand for food and food per person will again diminish. Therefore, according to Malthus, the standard of living of the people cannot rise permanently. D) There were two possible checks which could limit the growth of population: 1) Preventive checks, and 2) Positive checks. Preventive checks exercise their influence on the growth of population by bringing down the birth rate. Preventive checks are institutional checks which are devised by humans. Positive checks exercise their influence on the growth of population by increasing the death rate. The unwholesome occupations, hard labor, exposure to the seasons, extreme poverty, bad nursing of children, common diseases, wars, plagues and famines are some of the examples of positive checks. Malthus recommended the use of preventive – sometimes harsh - checks if mankind was to escape from the misery.

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[48] https://www.britannica.com/topic/An-Essay-on-the-Principle-of-Population-as-It-Affects-the-Future-Improvement-of-Society-with-Remarks-on-the-Speculations-of-Mr-Godwin-M-Condorcet-and-Other-Writers

Was Malthus Right?

As we already mentioned, the rapid expansion of technology due to the enlargement of the market, consequence of free trade and the fast-changing preferences of a growing international middle class allowed, as Smith thought, the world to rapidly expand its population as well as drastically improve it standards of living. However, while this is true for the average of the world taken as a whole, this average disguises the fact that for the less developed countries in the world this has not necessarily been quite the case. Thus, there is no wonder that in many developing countries the preventive checks recommended by Malthus have been extensively applied.

As it can be seen in Table 3.2 from 1820 to 2018, 198 years, even though its population has grown 7.2 times, the world has improved its standard of living, in 2011 GDP Constant International Dollars, 13.8 times. Thus, at the world level Malthus was wrong. A particular anti-malthusian case were the Western Offshoots (US, Canada, Australia and New Zealand) which despite the fact that their population grew 35.2 times, improved their standard of living 21.4 times. However, the poorest countries on earth do reflect some sort of a Malthusian like trap, because despite the fact they have use preventive checks, their population still grew 17.5 times, and their standard of living has only improved 4.4 times.

TABLE 3.2 POPULATION AND GDP PER CAPITA GROWTH 1820-2018

	Annual Growth Rate (AGR) and Total Accumulated Growth (TAG)			
Region	Population		GDP PC	
	AGR %	*TAG*	*AGR %*	*TAG*
World	1.00	7.23	1.33	13.81
Western Europe	0.59	3.18	1.45	17.25
Western Offshoots	1.81	35.15	1.56	21.39
Eastern Europe	0.76	4.48	1.64	25.28
Latin America	1.75	30.87	1.37	14.77
Asia (East)	1.14	9.49	1.38	15.00
Asia (South and South-East)	0.67	3.78	1.07	8.23
Middle East	1.38	15.00	1.50	18.92
Sub-Sahara Africa	1.46	17.46	0.75	4.42

Source: Maddison Project 2020
https://www.rug.nl/ggdc/historicaldevelopment/maddison/releases/maddison-project-database-2020

Vaccines, Today's Health Problems and Malthus

Due to the improvements in the standard of living and to the discovery and development of vaccines[49], the world's population has grown rapidly; but technological improvements both in agricultural production and in industrial production have allowed for a rapid increase in the standard of living of the world's population, that has fostered a fast development of the service sector. Humans have broken the ecological cycle by which common diseases – including pandemics, plagues and famines - prevented the population from growing. But as we have just experienced with the 2020 pandemic, we are still fragile creatures exposed to the possibility of epidemics, which given today's globalization, consequence of the ICT Revolution, may easily become global pandemics. Poverty, which used to be considered a problem that only concerned the poor countries, may no longer be seen so in the future, because uncontrolled pandemics in poor countries may become globalized like it happened with Covid 19 in 2020. It started in China, which is still a relatively poor country, and became global. The global costs of the pandemic have become several times larger than the accumulated costs of maintaining a truly efficient World Health Organization (today's WHO has a ridiculous budget, similar to a large US private hospital) and a coordinated Marshall-like development program to modernize the developing economies[50]. Despite their impressive technological advances, in 2020 humans paid a huge price for the lack of adequate global management, the absence of a true global health organization, and the large number of poor people that still inhabit the earth. We are getting closer and closer together, and if regions of the world are so underdeveloped that they can easily be pray of pandemics, the rest of the world is also at risk. The point is that there was a Malthusian positive check on the population growth through common diseases – including pandemics, plagues and famines that worked historically (world's population almost did not grow during the first 15 centuries after Christ), but this mechanism was broken through vaccines, medical aid and other technological improvements in food production, water sanitation and so forth, that allowed the population

[49] Smallpox 1976, Cholera 1980, Rabies 1985, Tetanus 1990, Typhoid Fever 1896, Bubonic Plague 1897, Tuberculosis 1921, and since then 37 more vaccines had been discover. See https://en.wikipedia.org/wiki/Timeline_of_human_vaccines

[50] See Obregon, C., 2020. A New Global Order. University Editions. Available at Amazon.com and also at Research gate.com

of very poor countries to grow, but the very low international aid has not permitted these poor countries to develop. Thus, they are trapped in poverty and living in conditions that make them vulnerable to incubate future pandemics, which together with the lack of truly global health institutions maintains the world at risk of a new pandemic event like 2020. More on this topic in the epilogue[51]. So, perhaps the new Malthusian theory should enlarge its focus to go beyond its concern with population growth, to address global health issues in a comprehensive way.

MALTHUS' THEORY OF EFFECTIVE DEMAND

There is a fundamental reason for which Malthus maintained Smith's command labor value theory and refused Ricardo's incorporated labor value theory. The command labor value theory defines economic value after a true market price has been defined, while the incorporated value theory wanted to define economic value without market prices. In his quest for a solid technical way to define value, Ricardo left out what is one of the most critical issues in economic theory – the demand in the markets. In 1820 Malthus published his Principles of Political Economy[52]. In them, Malthus defines prices as institutionally determined by "effective demand". Malthus proposed public works and private luxury investment as solutions for economic distress, through their ability to increase demand and prosperity. He argued that "the principles of saving, pushed to excess, would destroy the motive to production." To maximize wealth, a nation had to balance "the power to produce and the will to consume." He was concerned with what he called the problem of "gluts" –the problems of economic recession or depression –. Malthus to some extent anticipated Keynes' economic discoveries.

Economists all along the history of economic thought have tried to isolate the economic system as an autonomous system, that can be studied by itself; to do so, they consider demand as given or stable. Think of Ricardo, Leontief, Sraffa, General Equilibrium Theory, and so on. But in the actual world, the economic system interacts with the integrative and the power systems; social institutional issues do change the demand

[51] See also Obregon, C., 2021. Poverty and Discrimination. University Editions. Available at Amazon.com and also at Research gate.com

[52] *Principles of Political Economy Considered with a View to Their Practical Application* (1820)

and the prices of the economic goods constantly. There is no doubt, for example, that the 2020 GP and the fiscal and monetary governmental responses have changed relative prices. If in doubt, just check the prices of the main digital companies, the largest five represent today near 25% of the S&P stock index in the US, and were only slightly above 15% in 2019[53]. And they may go down again, but not to historical levels; post-pandemic social life will most likely change and become more digital. The isolation of the economic system as autonomous has the advantage that it allows a higher mathematical-technical exploration of the economic relations in the system, thus it has its virtues. But it has the disadvantage that it makes difficult the study of some other economic problems like: economic recessions or depressions, underdevelopment, economic distribution, poverty and globalization- all of which necessarily require the understanding and analysis of the institutional arrangement. One of Malthus' key contributions is that he understood from the beginning the relevance of the institutions in the determination of the demand.

CONCLUSION

Mathus' vision of the human species as struggling to survive in an eternal conflict between food production availability and population growth has profound evolutionary roots in our animal origin. In fact, Malthus' thoughts were very influential for Darwin, who used Malthusian concepts to understand the evolutionary struggle of the species to survive. As mentioned repeatedly, the rapid technological changes brought about by the enlargement of the market, consequence of free trade and the rapid growing preferences of an international middle class market, has allowed the human race to escape the Malthusian trap, but the risk is always there, particularly for very poor countries. We should not forget our animal heritage. We need to respect the environment to maintain healthy future living conditions. We need to help the poor countries to develop, or they will continue experiencing excessive preventable deaths and eventually be the future incubators of a new global pandemic. Technology has been fundamental and it will continue being so, but in addition we must ensure that proper global institutions exist, to guarantee for all humans a different future than what the Malthusian trap entails.

[53] The five companies are: Facebook, Alphabet, Amazon, Microsoft and Apple.

As we mentioned, the classical economists' Stationary State would be highly influential in Marx's proposal of the declining rate of profit, that will be discussed in the next chapter. Malthus' view on the importance of an institutional effective demand would be forgotten until after the 1930 GD with the writings of Keynes, which will be the subject of chapter eight.

CHAPTER FOUR: ECONOMIC JUSTICE AND MARX

Marx has to be understood within the framework of his philosophical and epistemological roots, that go back to Hegel. Hegel's idealism sees history as the manifestation of "The Absolute"[54]. For Hegel, history is teleological, the *telos* implies that "finally" mind understands itself as the manifestation of matter. Thus, history for Hegel can be understood by the human mind as a dialectic process, meaning one by which the mind in opposition to matter finally understands itself as one and the same with it. Thus "The Absolute " finally understand itself as the conjunction of material reality and human thought. Marx turns Hegels' idealism upside-down in his dialectical historical materialism; but keeps the Hegelian view that history can be understood by the human mind. In Christianity, because of the original sin, humans are condemned to have to work for their subsistence. Thus, through history they redeem themselves as a "species", by working hard for the good causes. In the final judgment, some individuals will be punished and sent to hell, but the human "species" as such will certainly redeem itself and will go back to its true essence as sons/daughters of God. There is a duality, humans are free to sin or not, and individual sinners will be condemned; but it is guaranteed that the immense majority of humans will not be sinners, so that with certainty the "species" will redeem itself. Thus, freedom in Christianity can only be achieved when humans as a "species" are redeemed, and realize their true essence – which is loving God. Humans must love each other as they love God because they are brothers and sisters. Marx creates an atheistic version of Christianity; there is no God – Marx was opposed to religion, but humans' true nature is still realized through history by working to subsist. Humans' true essence, according to Marx, is that they are an "species being". Capitalism for Marx unravels the true nature of humans as a "species being", because as never before the process of production is globalized. But, in capitalism there is exploitation, because if we

[54] For Kant, the human mind can never truly get to know reality, the "thing in itself" can never be known. Following Kant's thought, Hegel argues that if we cannot get to know reality, we can never know about its existence but by the human mind, thus reality and thought - argues Hegel- are the one and the same and this is what he calls "The Absolute".

produce as a "species" then everything must be owned by the "species". The true nature of humans as a "species being" would not be realized until there is a common ownership of the means of production and whatever the "capital" produces is owned by the whole "(human) species".

Thus, in Marx there is an ontology[55] – humans are a "species being"- , there is an epistemology[56] – by studying history and particularly capitalism, it is possible to understand the true nature of humans as a "species being"-, and there is political activism – the global proletariat will produce a revolution, so it can own the means of production. Marx's philosophical principles are clearly spelled out in the *Poverty of Philosophy*[57] and the *Early Manuscripts*[58], his analysis of history is developed in the *German Ideology*[59] and the *Grundrisse*[60], and for the particular case of the French revolution and its aftermath in the *18th Brumaire of Louis Bonaparte*[61]. And the need for political activism is stated in the *Communist Manifesto*[62]. However, in the *Early Manuscripts* Marx makes it clear that owning the means of production in a communist society is only the beginning, the goal is to realize each individual's freedom which can only be obtained when they become social beings that act and behave socially as a true "species being".

Marx's economics is mainly defined in the three volumes of *The Capital*[63] (although his *Critique of Political Economy*[64] is also relevant). To un-

[55] Ontology i.e. the conception of what exists. What is the nature of reality. very elusive term and what th tolabor content ology is crucial as Smith had envisioned already. Thus, as techonlogy d thoug

[56] Epistemology i.e. the study of how we know about he world and how we can check if what we know is right.

[57] Marx, K. (1963): *The Poverty of Philosophy,* Marxist Library, Works of Marxism-Leninism, vol. XXVI, International Publishers, New York.

[58] Marx, K. (1964): *Early Manuscripts,* McGraw-Hill, New York; translation and ed. by T.B. Bottmore.

[59] Marx, K., y Engels, F. (1971): *The German Ideology* (1845), International Publishing Co., New York.

[60] Marx, K. (1971): *The Grundrisse* (1859), Harper & Row, New York; translation and ed. by D. McLellan.

[61] Marx, K. *The Eighteenth Brumaire of Louis Bonaparte,* New York: International Publishers, 1963)

[62] Marx, K., y Engels, F. (1964): *The Communist Manifesto* (1848), Washington Square Press, New York.

[63] Marx, K. (1967a): *The Capital* (1867), 3 vols., International Publishing Co., New York.

[64] Marx, K. (1970): *A Contribution to the Critique of Political Economy* (1859), International Publishing Co., New York; ed.: M. Dobb.

derstand Marx's economics, it has to be seen through the lenses of his ontology, his epistemology and his political activism. The cornerstone of Marx's economics is his theory of labor value. Marx saw in the labor value theory of Ricardo's the counterpart of his philosophical conception of humans as a "species being"; but he also realized that leaving the markets out of the determination of the economic value was wrong, he strongly criticized Proudhon for doing so. He needed a new labor value theory; therefore, he developed the notion of "socially necessary labor", that is, labor only adds value when it is socially necessary, and it is so only if it is revalidated by the markets. In a way, it was brilliant, because it avoids all the inconveniences of a rigid theory of incorporated labor which leaves out prices, institutions and real social dynamics. But Marx paid a huge price, because if value depends on labor, and labor to be measured has to be revalidated by the market prices, we enter a circularity – in which there is no possibility of finding ex-ante any measure of labor that determines economic value. We need ex-post prices, but if we need prices then we do not need labor anymore – this is, by the way, the route taken later on by the Neoclassical School. Notice that all the extensive literature on how to transform labor value into prices is misguided, clearly there is no solution based on any ex-ante measure of labor. Once real market prices are involved, they define both economic value and the labor that is socially necessary, the solution is obvious, and it is a circular tautology. Stable input-output matrixes, whether of a Leontief or Sraffa kind, do not reflect the reality of an ever-changing economy with moving prices. There are no ex-ante measures of labor that are valid as determinants of economic value. But Marx was not concerned with the circular tautology that his new labor value theory implied, because for him it was already philosophically and historically established that humans are a "species being", therefore it was already predefined that all economic value has to come from labor, because for him economic surplus can only be the result of adding labor in the production of any commodity. This is the key philosophical preconception[65] made by Marx, which guides all his analysis. As we will discuss later on, this key preconception explains both why Marx's forecast of capitalism was wrong, and why he was so influential regarding justice, particularly in developing countries. But, for now, let us continue explaining Marx's economics. Once it is established that all value comes

[65] In Derrida's sense. That is, preconceptions made from the start that cannot be proven as truthful, but which are used to deduce the rest of the philosophical proposals.

from labor, two conclusions can be derived. The first one is that in capitalism there is exploitation, because the surplus left after paying the workers, which is taken by the capitalist, belong to the workers, who are the final source of any economic value. Capitalists do not have any role to play in the humans' social economy envisioned by Marx. The economy grows because of capital, and it will continue growing if capital instead of being owned by the capitalists were to be owned by the workers. The second conclusion is that profits will tend to decline.

For Marx, there are historical laws working with "iron necessity" that clearly signal the unavoidable demise of capitalism and the coming of a communist society (characterized by the social ownership of the means of production), which will be the beginning of human history, as the society moves toward the human society in which each individual is truly free realizing his/her true nature as a "social being". The demise of capitalism would be produced by the revolution of the international proletariat, that will finally posses the means of production. But there are also economic reasons for the demise of capitalism. Marx describes three of them, which in order of relevance are: 1) the long run declining of the profit rate; 2) under-consumption; and 3) recurrent economic crises.

Recurrent economic crises- are consequence of the lack of coordination between supply and demand in a sectorial economy, which is aggravated by the existence of the financial economy. In forecasting recurrent economic crisis in capitalism Marx' was right, but as Keynes convincingly argued later on, and as we have seen with the 1930 GD, the 2008 GFC and the 2020 GP, these crises can be repaired with government intervention, and therefore they are not conducive to the demise of capitalism.

Under-consumption is also derived from Marx's labor value theory, since workers are exploited, their wages are not enough to consume what is produced. Here Marx is wrong, because final demand is not only composed of the consumption demand of the workers, but also of the consumption demand of the capitalists and, most importantly, of the investment demand.

The declining rate of profits: For Marx, capital accumulation implies that "constant capital growth relative to the variable capital (which for Marx is labor) has to lead to a gradual decline in the overall rate of profits"[66]**.** As capital grows in relationship to the labor force, value, which comes only from labor, becomes smaller in relationship to capital. This is

[66] Marx quoted in Obregón, 1984a, p. 206. Obregon, C., 1984. De la filosofía a la economía. Trillas. Available in Research gate.com

derived directly from Marx's labor value theory. However, it did not happen because profits are not defined in value terms but in monetary terms. Even if wages were to go down as a percentage of total value added, profits would not go down if total demand remains high.

WHY WAS MARX WRONG?

The key cornerstone in Marx's economic theory was the declining rate of profits. But economic value, contrary to what Marx thought, does not only comes from labor, technology is also crucial, as Smith had envisioned already. Thus, as technology expands the economic value related to a given labor content grows, because productivity grows.

Marx's predictions regarding advanced capitalist societies were wrong as well, basically because economic productivity distorted the vicious economic cycle that presupposed the theory of classical distribution in which Marx's inspired himself. Productivity not only allowed the capital profit rate to grow, but also increased the real wage. Capital accumulation led neither to the fall in the rate of profits, nor to the fall in variable capital; as a result, neither the Marxist industrial reserve army was generated nor was the predicted sub-consumption observed. The expansion of capitalism led to rapid growth in the services sector, which employed a substantial part of the growing workforce. Real wages increased thanks to productivity gains.

The profit rate did not fall. Democracy forced the growth of the State, which became an arbiter among the interests of the capitalists and the working classes, as attested by the growth of the Welfare State and the welfare economy. The consumption capacity of the large masses remained, and even grew, thanks to increases in real wages and the welfare economy. The key to Western development, as opposed to Marx's predictions, was the consumption boom led by the growing middle class. The massive presence of consumers enabled the optimal functioning of the pricing system, which acted as a transmitter of information of the growing changing needs of the new middle class. The consumption of mass products by the middle class expanded the market and sponsored technological development. Productivity overcame the vicious cycle of classical economics and explains why Marx' s declining rate of profit never happened. Marx was also wrong in that value is created in the

market and is not defined by the amount of labor, as we experienced historically: because as the constant capital labor-ratio has increased, profits have also gone up.

The Russian revolution anticipated the announced triumph of the international proletariat, and the new Russian State concentrated its efforts on achieving capital accumulation and industrialization. The expected result was accelerated economic growth in a socially satisfying environment, in which humans could express their true nature. However, the expected fast economic growth in Russia and in the USSR, as we saw in chapter one, was never achieved. The key to capitalist growth was not the accumulation of capital, as Marx and the classical school thought. The key was the permanent expansion of the mass consuming market products, due to the enlargement of an international middle class. It was not savings, but investment opportunities that determined the dynamics of capitalism.

Marx's political forecast did not happen either. Instead of the revolution of the unified international proletariat, what the world experienced were two world wars in the twentieth century, in which the proletariat from one nation fought the proletariat of another. What predominated politically was not Marx's socioeconomic class conflict, but the conflict between nations. Why? Because Marx's ontological preconception of humans as a "species being" is scientifically mistaken. We were evolutionarily designed to belong to small groups of about one hundred to one hundred and fifty members. We have a brain which is largely occupied by our vision capabilities (versus the case of other animals, like for example sharks, whose brain is more dedicated to their capacity to smell), we are designed to have visual contact with other members of the group. And our whole proper chemical body functioning requires mind to mind connections. Large groups were consequence of the creation of economic surplus due to new techniques of production and were sustained through conceptual systems and institutional arrangements that supported the adequate functioning of the extended group. Nations are already extremely large in relation to our evolutionary heritage, that is why in many cases they are under the pressure of the desire of separation of some regions. We love the people near to us, and we identify with our nations in a distinct way – we do not love all the human "species", nor do we identify with it beyond our personal, group, and regional interests. The whole history of wars between nations would not make any sense if we were truly a "species being". Moreover, Marx's epistemology is also scientifically incorrect, the mind does not have access by itself, studying history, or applying scientific

models, to universal essences. Marx's conception of humans as a "species being" is not a scientific discovery, it is only a philosophical preconception introduced by him (and still assumed by many today). And it was clearly a wrong description of how humans really are, Marx's announced unification of the international proletariat never happened.

IF MARX WAS WRONG, WHY HAS HE BEEN SO INFLUENTIAL?

Marxism inspired the Russian Revolution, the Chinese Revolution, and the Cuban Revolution, and the three countries are still communist. Moreover, directly or indirectly the Marxist philosophy has led many social political movements, mostly in developing economies, although after the 1930 GD Marxism also was popular in the developed Western Europe. Why? Marx's philosophical preconception of humans as a "species being" offers a promised heaven on earth, which becomes attractive for those groups or nations that have had hard times and whose masses have suffered poverty or even misery. Marxism was very popular in Germany after the 1930 GD, because the harsh conditions imposed by the First World War Treaties, the 1920 hyperinflation and then the 1930 GD. It did not succeed because the populist offers of Nazism seemed more attractive, and because Hitler ordered the killing of hundreds of Marxist leaders. Russia was already in a very difficult economic position before the First World War, and the expenses linked to the war and the poor conditions of the soldiers sent to fight made the situation unsustainable; thus, the promises of Marxism became attractive. China had been very powerful in 1800, but in the nineteen century and the first half of the twentieth century it was invaded by almost all of the Western powerful nations. It even lost two wars against Japan, which was very humiliating. Its leaders in the Kuomintang were corrupt and allied themselves with Westerners to obtain personal wealth, at the expense of China as a nation. The GDP Per Capita in China in 1938 was at the same level as in 1760[67]. Marxism was then a powerful promise for the masses. Cuba was prosperous but not for everybody, and when the US took away the preference price to buy Cuban's sugar the economic situation became particularly harsh; and looking at the Russian example, Cubans decided in favor of the Marxist revolution.

[67] Maddison 2020, op.cit.

Marxism in Latin America and other developing nations has been used to demand more justice for the popular classes and has been useful to serve as a support base to stop the imperialism of the advanced capitalist countries which, due to the lack of global institutions, in occasions was savage. Unfortunately, communism as an economic model of growth does not work well, as we explained in the first chapter. Marxist leaders usually concentrate on distribution efforts, and attack the capitalist classes, which more often than not jeopardizes the growth model and ends up being detrimental for everybody.

ESSENTIALISM IN ECONOMICS: HOW DO WE GET TO KNOW REALITY

This is probably the right place to make a digression about essentialism in economics. Economic thinkers writing in previous historical times did not have access to the empirical neurobiological scientific knowledge that we have today about the human brain. They were under the influence of a philosophical thought dominated by essentialism. Therefore, whether in the material world or in the moral world, they assumed that humans have access to universal truths. Essentialism has a long history in human thought, rational essentialism was formally initially proposed by Plato and was later refined by Aristotle. But long before Plato, in the primary societies humans developed a conceptual system which I have denominated in other works "magic" which anticipated essentialism in presuming that humans have access to universal truths[68]. Magic was a natural socio-psychological response of humans to a very uncertain changing and unknown environment. As Levy Strauss has beautifully shown, magic was a universal cosmogony that classified everything that existed and gave humans a defined place both in space and in time[69]. In magic, reincarnation was possible, a notion inherited later on by diverse religions such as Buddhism. Reincarnation of course is also the antecedent of the eternal life promised in Christianity. The access to the essential universal truths happens in different ways in distinct thoughts. In Greek philosophy universal essentials can be accessed through the human reason. In Buddhism their access requires a mystical

[68] See Obregon, C., 2020. The Philosophy of Belonging. University Editions. Available at Amazon.com and also at Research gate.com

[69] Lévi-Strauss, Claude (1964). *El pensamiento salvaje,* Fondo de Cultura Económica, Breviarios, México.

process called "illumination". In Christianity, the access requires a combination of religious mysticism and reason. For the modern philosophers that influenced the economists the access happened in diverse ways. For Hegel, the mind through history has access to the universal truth that mind and matter are the same, what Hegel calls the "Absolute". For Marx, as we have said, the mind studying history has access to the universal truths, the "laws working with iron necessity".

For Locke and Kant, humans were not able to access the essence of the material universe "the thing in itself". Locke though that all knowledge of reality starts from the senses and therefore is always limited, while Kant argued that we get to know reality through "apriori" categories in the human brain, that limit the access to the true essence of external reality. However, both thinkers argued that in moral issues humans do have access to the universal moral laws that were in God's mind. This was inherited by Smith who calls God "the impartial spectator".

Scientifically however there are only two ways that the humans can get to know the external reality: directly through their brains, and indirectly aided by science. Contemporary neurobiology has clearly established that the human mind directly does not have access to universal truths. And modern science is based on mathematical models that establish positive feedback loops with reality, but which never can get to know reality itself. Thus, there is no way for humans to get to know these universal essences. The mind unaided by science bases its knowledge of reality on images from sensorial data preselected by emotions. Emotions are long inherited patterns of response that allow humans to discriminate their environment according to their survival value. Thus, our knowledge of reality is emotionally biased and sensorially limited. We never get to know reality, but only the images we form of it. Our ability to form distinct images out of a same reality is actually a psychological surviving evolutionary capacity. It has been shown in many neuropsychological experiments that emotions distort the ability of the mind to perceive reality[70].

Scientific models are in general mathematically based and they establish positive feedback loops with reality. But, as Karl Popper said, while they can be proven wrong (whenever they cannot establish a positive feedback loop with reality), they can never be proven true. Distinct models may establish positive feedback loops with the same reality. Think for example of Newtonian physics versus Einstein's relativity; as Penrose[71] has pointed out, both

[70] See Obregon, C., 2017 *¿Quienes somos realmente?la historia del yo*. Ediciones Universitarias. Available at Amazon.com and also at Research gate.com

[71] Penrose, R. (2005), The Road to Reality, Alfred A. Knopf, New York.

work very well for almost all of the physical cases in the macro-universe, yet their mathematical models and their conceptions of reality are different. What is time? Is it absolute, like in Newton? Or is it relative – and a geometric dimension- like in Einstein? It is both, because both conceptions work to establish positive feedback loops with reality. What is "true time" out there we cannot know. The human mind whether un-aided or aided by science cannot get to know universal essential truths. Yet many schools in economics still debate amongst themselves as if we could access universal truths. On one extreme fervent Marxists, despite two hundred years of contrary empirical evidence, still claim that capitalism in the advanced countries will collapse for the reasons announced by Marx; on the other extreme some enthusiastic neoclassical economists, despite scientific and empirical evidence that clearly shows that the economic equilibrium is defined by both the markets and the institutional arrangement, defend that markets can be stable by themselves if left alone. We should be careful to distinguish what is a true scientific economic proposition, from philosophical preconceptions, in the Derrida sense, that establish universal truths that can never be proven wrong.

POVERTY AND INCOME DISTRIBUTION: THE WORLD IS STILL A VERY UNFAIR PLACE TO LIVE IN

Despite the failure of the communist model of economic growth, Marxism is still alive because the world in which we live is still very unfair – and Marxism is a moral claim for a more egalitarian world. There are clear contradictions in the Western humanism which presents itself as universal, but in reality, is nationally bounded. While social expenditures over GDP reach the order of 25% in advanced Western countries, international aid to the poorer countries on earth is only 0.2% of global GDP. The global income distribution is very unequal and similar to the one in a very underdeveloped country. The world at large is a very "unfair" place to live in. While the income distributions in developed countries have improved in the last one hundred years, the income distribution at the world level and within the developing countries remains very unequal.

Recently, Piketty and others have pointed out the deterioration of the income distribution even in advanced economies; and it is true that it has happened, but as we will see below, and contrary to what they argue, this is only a temporary phenomenon brought about by the ICT Revolu-

tion, which most likely will be reversed by the democratic forces of such countries, as it is already happening in the US with the Biden administration. On the other side, while it is true that the global income distribution has improved due to the ICT Revolution, it is only due to countries like China and India; but if these countries are taken out of the equation, the global income distribution is as bad as it was before. For the international poor the world continues to be a very unfair place to live in.

Poverty

Our unequal world can be appreciated by looking at poverty lines. In High Income Countries, the poverty line was estimated at $21 dollars a day (DD) in 2016, and if we focus only on the richest countries, at $30 DD. At $20 DD 78 % of the world's population is poor and at $30 DD 85 %. We are very far away from eradicating poverty.

The World Bank has been defining extreme poverty as people living below $1.90 DD. The important reduction in extreme poverty at $1.90 DD between the years 1990 and 2017 happened mainly because of the economic growth in East Asia & Pacific, which explains 88.3% of the reduction. Another 22.9 % is explained by South Asia, but even at the radical extreme poverty threshold of $1.90 DD, the rest of the world in absolute numbers increased by 11.2% (all of which is explained by Sub-Saharan Africa). In 2017 the world had around 691 million people living in extreme poverty. The 2020 GP (global pandemic) has reversed the gains in global poverty. This reversal was expected to push between 88 and 115 million more people into extreme poverty in 2020[72].

In 2018, it is estimated that around 79.4% of the population in Central African Republic lived in multidimensional poverty, 55% in Sub-Saharan Africa, and even in South Asia 29.2%.

In terms of purchasing power parity between 1990 and 2019 the GDP Per Capita decreased 21% in Central African Republic; and only increased 33% in Sub-Saharan Africa, while it increased 75% in High Income Countries and 248% in East Asia & Pacific.

The poverty problem is still a very significant one, the reductions that have occurred in extreme poverty are due mainly to the consequences of

[72] Estimates by the World Bank, last updated: Oct 07,2020. https://www.worldbank.org/en/topic/poverty

the ICT Revolution in East Asia & Pacific (principally China) and to technological improvements in medicine, water sanitation, house construction, transportation and others. But the developed world is doing very little to help the international poor. They are still highly discriminated[73].

A Digression on Income Distribution Theories

Kuznets

Following the Classics, Kuznets sought to explain income distribution as a consequence of the production process. The idea is very simple: inequality is low at very low income levels, then rises with urbanization, as income grows, and finally falls at high income levels. At low-income levels, people live in the low-income low-inequality agricultural sector; as income grows, they move to the industrial urban sector, which increases inequality (both within urban life and between urban and agricultural lives). With further development, urbanization becomes widespread, and inequality goes down again.

The recent rise in inequality, particularly in the US and in the UK, is incompatible with Kuznets hypothesis. What went wrong with Kuznets is that he tried to generalize the observable facts of a historical period of the Anglo-Saxon economies to a general theory. This cannot be done.

Piketty and Milanovic

These two authors have opposite theoretical explanations of reality. On one side, Piketty 2014 has argued that income concentration is a long run tendency in capitalism – due to unavoidable laws. On the other, Milanovic 2016 defends cycles - that he has called Kuznets waves. Inequality, for this second author, goes up and down and up and down and so on. Who is right? Can we really construct a theory of the income distribution? There are very serious issues involved in the answer.

[73] For all the data and a deeper discussion in this issue see Obregon, C., 2021, Poverty and Discrimination, op.cit.

Piketty tell us that there are long-term laws that will increase within country inequality and that between countries inequality will go down significantly - because he sees a very quick convergence from other countries to the quality of life of the West. Thus, for him the key problem of the world is the upward trend of within country inequality[74]. Milanovic on the other side, sees the United States and the UK approaching the peak of within country inequality so that these countries will start the descending phase of the cycle. The problem with Milanovic's Kuznets cycles theory is that it lacks predictable power[75].

To judge who of these authors is right, or if both are wrong, not only involves a theoretical scrutiny of their thesis, but also requires a discussion about what economic theory is all about. Do markets define an economic equilibrium by themselves? Or do the markets need an institutional arrangement to function properly? If the answer is no to the first question and yes to the second; then one must recognize that the economic equilibrium is the outcome of both the unstoppable market forces and the decisive institutional framework that defines their operation. And then we should not expect any definitive tendency in the income distribution, neither towards the concentration of income as Piketty argues, nor waves as Milanovic proposes. This is in fact the case.

Piketty

Why is he wrong? Piketty is wrong because he confuses wealth and capital. We do have an economic theory of capital, but not one of wealth. The distribution of wealth is not defined by the factors of production like Piketty has argued. Capital is an input in the production process and as such it is subject to the long run logic of the markets. Wealth is pushed by medium term economic waves which are technologically and institutionally driven. Let us examine specifically where Piketty is wrong.[76] Piketty confuses wealth with capital and in doing so he creates confusion as to how the economic markets operate, he uses a mid-wave income

[74] As we mentioned, we have argued elsewhere that this proposition is wrong.

[75] See Obregon, C., 2018. Globalization Misguided Views. University Editions. Available at Amazon.com and also at Research Gate.com

[76] In a recent technical article, which I recommended to the interested reader, I have shown Why Piketty is wrong? In here, I will only summarize some of the arguments presented there, to use them for our present discussion. See Obregon, C., 2015, Piketty Is Wrong, op.cit.

concentration produced by the ICT Revolution to forecast a world's long-term income concentration; and even to defend long-term laws of income concentration in capitalism. Basically, for Piketty, the world's economic growth will slow down and therefore with a more or less rigid savings rate, the capital income ratio goes up and with a relatively rigid rate of return on capital, the capital share of income goes up. And since the ownership of capital is concentrated, income concentration does occur.

To understand what is wrong, one needs to take two steps. The first step is to explain: where does the statistical factual increase in wealth come from? And show that it is not a long-term but a medium term phenomenon; and that therefore, because of economic reasons, eventually it will go away. It will become a cycle, although we cannot forecast the size or durability of such cycles. The second step is to explain: how to make compatible the medium term increase in wealth with the literature on both the elasticity of capital and the behavior of the savings rates in dynamic growth models? Both steps have to recognize one simple economic fact – markets are flexible and they do work – price rigidities, as those assumed by Piketty, do not make sense, particularly in the mid-long run.

In the mentioned article, we identified the wealth increase with medium term waves happening in the real estate and the stock markets. We have shown that if these phenomena are taken away, all the statistics are compatible with the seventy-five-year literature on the capital labor elasticity for all the countries involved. Table 2.5 and Table 2.6 of the mentioned article show these results. Capital is not wealth. The rate of return on capital is flexible and it is subject to the diminishing returns law. Wealth increases do not mean capital increases. The medium-term return on wealth may remain high. The medium-term boom in real estate and the stock market is produced by the ICT Revolution which: 1) increases expected profits of companies due to the increase in productivity and 2) increases the demand of urban real estate because of urban located manufacturing services companies and the associated boom in the financial sector, which increases the number of executives in this sector and their relative salaries. But eventually, both phenomena have a market logic of their own: stock markets in a Stationary State – in the long run – have to be governed by book value; and real state prices by reposition costs. Therefore, the medium-term price increases in both markets do produce wealth and income concentration, but it is not a long-term phenomenon – it cannot be used to establish long-term economic laws, neither to forecast the next century, as Piketty did.

A higher saving rate does move the economy from one inferior growth path to another, superior one; they are both parallel to one another, but in the superior one the output Per Capita is higher. There has to be a relationship between the saving rate and the rate of growth of the economy; and dynamic economic models have shown that there is one. Using both a flexible rate of return on capital and a flexible savings rate, we have constructed alternative forecasts to Piketty's, which behaved well according to both the dynamic growth models that define the savings rate and the seventy-five years of literature in capital-labor elasticity. Table 5.1 of the mentioned article shows these results.

Thus, there are no long-term laws, nor even a forecastable long run tendency for income concentration. Piketty is wrong. But the medium-term wealth increases produced by the ICT Revolution are there, as well as their income distribution consequences. Which implies that some income redistribution policies should be implemented, as it is already happening in Biden's government.

Milanovic

Milanovic 2016 argues that there are inequality waves – that he calls Kuznets waves -both in preindustrial societies and in industrial societies, where the mean income grows. In preindustrial societies, the general idea is similar to the Stationary State of the classics. Rent is defined by the marginal productivity of the less productive land. Inequality is given by the land rent ratio to the subsistence salary, which is stable. And inequality goes up or down, only temporarily, by exogenous shocks such as epidemics, war or trade. Thus, in general in preindustrial societies it provides space for inequality to go up; and as the economic surplus goes down, inequality has to go down, because societies are moving back to the Classics' Stationary State. Milanovic cites, for example, the case of Rome, whose Gini was around 0.41 in the mid second century and, as Rome falls, it gets to be around 0.15 – 0.16 in the year 700.

In the industrial societies, technology - positive shocks create the necessary surplus for inequality to increase. Both urban inequality and urban – agricultural inequality goes up. Inequality goes down because of: 1) Wars – through destruction and higher taxation; 2) Civil conflict (state breakdown); 3) Social pressure through politics (socialism, welfare state, trade unions); 4) Widespread education; 5) Aging population (demand

for social protection); 6) Technological change that favors low – skilled workers (of which we have not seen much). Milanovic points out that diverse societies respond institutionally different to the economic forces described above, but he insists that institutions are endogenous - in the sense that they can act only within the margin that the income level allows them. Income distribution for him, is the result of the interplay between economic and institutional forces.

Milanovic resumes his Kuznets waves findings in his table 2.2 in page 88. The countries involved are only six: US, UK, Spain, Italy, Japan and Netherlands. And despite using very few countries he reports huge variances. He reports a level of maximum inequality between 51 and 61 Gini, but at very different GDP Per Capita levels that range between 1,500 dollars (1990 PPP's, Maddison project 2013) and 4,800 (300% difference); and a level of minimum inequality that goes from 0.27 to 0.35 Gini, again at very different GDP Per Capita levels that range from 10,000 to 19,000 (190% difference). The years of downswing of the Kuznets curve go from 50 to 250 years (500% difference). He finds relative commonalities at the expense of huge variances.

Are there really Kuznets waves? The answer is not as a general phenomenon[77]. Milanovic has a very interesting proposal that unveils for us the exogenous pressures that push inequality up or down. And he does recognize institutional factors and the difficulty that one has in forecasting the future. Thus, in some ways, one cannot ask for more. But being a scientist, one always does ask for more. After telling us how difficult forecasting is, Milanovic tries to forecast; and after recognizing the importance of institutional factors, he wants to find strong commonalities instead of exploring institutional differences. And there is nothing wrong with that, it is a very scientific procedure; but as it very often happens in science, in our opinion he uncovers the opposite of what he was looking for. His work clearly shows that there is not a general theory that can describe how the income distribution is defined unless it takes into account historical institutional factors and the specific exogenous shocks that occur to each country. There are not strong commonalities, because there are deep institutional differences. We may theoretically understand what economic or other exogenous shocks like epidemics or wars may produce in the income distribution; but we cannot forecast when these events will happen nor the magnitude of their impact on the income distribution of a given country, which necessarily depends on its specific institutional arrangement.

[77] For a further discussion see Obregon, C., 2018, Globalization Misguided Views op.cit.

Milanovic's Kuznets waves theory, like the theories of economic cycles, lacks predictive power. There is not a general economic theory that can describe income distribution neither as a straight upward line, like Piketty has proposed, nor as waves or cycles, as Milanovic suggested.

In their excellent 2016 book, Lindhert and Williamson list in the first chapter their findings. To conclude this section, I am quoting their last finding (page12)[78]:

"Inequality movements are driven not by any fundamental law of capitalist development but instead by episodic shifts in six basic forces: demography, education policy, trade competition, finance, and labor–saving technological change. These forces appear to be exogenous with respect to inequality. If they are indeed exogenous and hard to predict, then four centuries of American inequality can hardly have been driven by some capitalist law of motion".

The Global Income Distribution: Long-term Trend

Table 4.1 presents the history of the World's Gini. It has different levels in the estimation of diverse authors, but in all the global Gini is very high. As it can be appreciated, it goes up since 1820 until 1990; and then, after 1990 either remains at the same level or goes down. This is due to the ICT Revolution.

[78] Lindert, P & Williamson, J. (2016). Unequal Gains. Princeton University Press, Princeton

TABLE 4.1 HISTORY OF TOTAL GLOBAL INEQUALITY GINI

	1820	*1850*	*1913*	*1980*	*1990*	*2000*	*2008*	*2010*	*2013*
I	.430	.532	.610	.657	.703	.683	.638	.623	
II		.500	.580	.650	.660	.660			
III	.490	.460	.580	.650	.660	.660			
IV					.722 (1988)	.715 (1998)	.705	.670 (2011)	
V					.763 (1988)	.772 (1998)	.759		
VI						.687 (2003)			.649 (2013)
VII				.698	.691	.683	.659	.650 (2009)	

Sources: I) 1820-1980 Bourguignon and Morrison 2002, 1990-2010 Bourguignon 2015; II) Baten, *Foldvari* , van Leeuwen and van Zanden; III) Boates and Moatsos in van Zanden-OEDC 2014; IV) 1990-2008 Lakner-Milanovic 2013, 2011 from Milanovic 2016; V) Lakner-Milanovic 2013 –it allocates excess income from the gap between national accounts household consumption and the surveys mean income to the top decile only, and uses a *pareto interpolation* to elongate the distribution of the top decile; VI) Hellebrandt and Mauro 2013; VII) Liberati 2013.

How does the World's Gini compare with the one in emerging economies (EE)? Table 4.2 shows that the World's is higher, 58.9 versus 51.8, in 2015. As it can also be seen in this table, the World's inequality is going down mainly because inequality in EE is going down, and inequality between EE and DE (developed economies) is also going down. But this effect is solely due to China and India, in fact if they are excluded, the World's inequality goes up[79].

[79] This is the main result of Zsolt 2019, the source of the table.

TABLE 4.2 WORLD'S INEQUALITY

	1990	2008	2015
World	67.45	62.49	58.84
DE 37	33.5	34.43	35.34
EE 108	60.69	53.84	51.79

Source: Darvas, Zsolt (2019) 'Global interpersonal income inequality decline: the role of China and India', World Development, Volume 121, September 2019, Pages 16-32. Country Classification from IMF WEO. https://doi.org/10.1016/j.worlddev.2019.04.011

Another way to see the same result is by looking at the percentage of inequality that originates between countries versus the percentage that originates within countries, as it can be seen in Table 4.3. Since 1820 and until 1990, between country inequality increases, and then decreases; and the opposite happens with within country inequality. The reversal of both trends after 1990 is consequence of the ICT Revolution. Between country inequality goes down because the rapid growth of China and India. And within country inequality goes up because inequality increases both in these two countries, and in the DE for the factors previously mentioned, mainly stock and real estate booms and high salaries of top executives – all produced by the ICT Revolution.

Thus, the ICT Revolution apparently has made the world more equal, but not for everybody: if we exclude China and India, the World's inequality actually increases.

TABLE 4.3 PERCENTAGE EXPLAINED BY BETWEEN COUNTRIES AND WITHIN COUNTRY INEQUALITY

I. Bourguignon and Morrison:	*1820*	*1850*	*1870*	*1913*	*1950*	*1980*	*1990*	*2000*	*2008*	*2010*
Between countries inequality	8	25	31	49	70	74	77	75	69	66
Within country inequality	92	75	69	51	30	26	23	25	31	34
II. World Bank:					*1988*	*1993*	*1958*	*2003*	*2008*	*2013*
Between countries inequality					80	76	74	72	70	65
Within country inequality					20	24	26	28	30	35

Source: I) for 1820-1980 Bourguignon and Morrison 2002 and Bourguignon 2015 for 1990-2010; II) World Bank "Taking on equality" *Poverty and shared prosperity* 2016 (2016), International Bank for Reconstruction and Development, The World Bank, Washington, USA.

The 2020 GP is accelerating the convergence between DE and EE, because DE are expected to grow less fast than the EE. But again, this is mainly consequence of China's fast recovery.

The Income Distribution in Developed Economies: Long-term Trend

Despite Piketty's claims, there is not a long-term income concentration in the DE. Table 4.4 shows that, in disposable income, the lower nine income deciles increased their share of income substantially: in a range from 21.61% of total national disposable income in the US to 59.90% in France. This result is actually expected, because the last one hundred years have been the years of triumph of the democracies in the DE. As mentioned before, I have presented the theoretical reasons why Piketty is wrong elsewhere. And further discussion of the data presented in Table 4.4 is presented in Obregon 2018[80].

[80] Obregon, C., 2018., Globalization Misguided Views, op. cit.

TABLE 4.4. TOP 10% INCOME SHARE WID DATA

	Market value		*Disposable income*		*Change %*	
	1910[1]	*2013*	*1910*	*2013*	*MV*	*DI*
France	51.51	29.81	51.08	20.50	- 42.12	- 59.90
Sweden	43.88	30.62	43.43	21.25	- 30.22	- 51.07
UK	37.03	41.29	36.54	26.83	11.50	- 26.57
US	40.51	45.64	40.25	31.55	12.66	- 21.61

Source: MV share is from World Wealth and Income Data (WID) consulted, August 13 2017. Disposable income is calculated with the formula and the notation in text footnote 73. In this formula, SE comes from Public Expenditure in OECD Social expenditure-aggregated data, see Table 2.13–in Obregón 2018 op.cit; T is total tax revenues from OECD (2017) tax revenue (indicator).doc: 10.1787/d 98b8cfs-en (accessed August 14, 2017). Retrieved from https://data.oecd.org/tax/tax-revenue.htm. OECD presents SE and T as GDP percentages. To obtain Sni and Tni we use GDP and net adjusted national income from the World Bank DataBank available on the web, accessed August 14, 2017. Thus, Sni=[$\frac{SE}{GDP} x \frac{GDP}{Ni}$] and Tni= [$\frac{T}{GDP} x \frac{GDP}{Ni}$]. Sni for1910 is from Lindert (2004) for all countries. Lindert (2004) Growing public social spending and economic growth since the 18th century; vol-the story, Cambridge University Press. Tni for 1910 from Piketty (2014) tables TS 13.1 detailed series. The t and s are as indicated in Table 2.16–in Obregón 2018 op.cit.

[1] France and Sweden 1910, UK 1918, US 1917.

Recent Changes in the Income Distribution Around the World

There has been however a medium-term income concentration, particularly in the Anglo-Saxon DE, attributed to the ICT Revolution, that can be seen in Table 4.5.

TABLE 4.5 TRENDS IN INCOME DISTRIBUTION BY REGION, 1990 TO 2016a

Number of countries by type of trend in the Gini coefficient							
	Africa	Asia	Latin America and the Caribbean	Europe, Northern America, Oceania and Japan	Total	Percentage of countries	Percentage of total population[c]
Rising inequality 1990-2016	**13**	**9**	**1**	**26**	**49**	41.2	71.0
1990-1999[b]	n.a.	7	12	4	23		
2000-2007	n.a.	7	2	13	22		
2008-2016	n.a.	4	1	14	19		
Falling inequality 1990-2016	**16**	**12**	**17**	**13**	**58**	48.7	20.8
1990-1999	n.a.	2	4	4	10		
2000-2007	n.a.	8	13	13	34		
2008-2016	n.a.	13	13	14	40		
No trend[d] 1990-2016	**2**	**3**	**1**	**6**	**12**	10.1	8.2
1990-1999	n.a.	3	2	4	9		
2000-2007	n.a.	0	3	9	12		
2008-2016	n.a.	0	4	14	18		
Total	**31**	**24**	**19**	**45**	**119**		

Sources: Calculations based on data from UNU-WIDER's World Income Inequality Database, version 4, released in December 2018. Available online at: www.wider.unu.edu/database/world-income-inequality-database-wiid4. Accessed between January and March 2019.

Notes:

a. Or latest year available, if 2008 or later.

b. Includes countries where inequality has remained relatively constant as well as countries where inequality has fluctuated, but where there is no clear upward or downward trend during the period.

c. Percentage of the total population of the 119 countries with data. These 119 countries accounted for 91 per cent of the world's population in 2016.

d. The number of countries with detailed information for each of the subperiods (1990-1999, 2000-2007, 2008-2016) is below the total number of countries with enough information to assess trends over the full period (1990-2016).

Source: https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/01/World-Social-Report-2020-FullReport.pdf

Notice however that inequality has not gone up everywhere. It has gone up in two thirds of the countries in Europe, Northern America, Oceania and Japan, but it is going down in one third of these countries. It is rising in nine countries in Asia, but it is falling in twelve. It is going up in thirteen countries in Africa, but it has fallen in sixteen. And it is mostly falling in Latin America and the Caribbean. However, inequality is rising in 71% of the total population mainly due to the ICT Revolution. Thus, income redistribution policies are required.

HOW TO OBTAIN JUSTICE?

Justice is a very elusive term, and its meaning will continue to be the subject of heated discussions among scholars[81]. On one side, there is an attempt to separate justice from ethics, and base it on the actual empirical relations between the individuals under analysis. Thus, Rawls argues for the need of a more egalitarian society in the developed countries; but not at the international level because here the relation between individuals is not strong enough. This is, actually, what has happened in the world. However, the ICT Revolution is bringing the individuals around world closer and closer together, as the 2020 Pandemic has shown, thus a valid question is whether in the future Rawls' argument -that the relation between individuals at the global level is not strong enough to require justice- will be valid anymore. On the other side, other authors put justice and ethics together. And they point out the clear contradiction between the universal values of humanism and the fact that, in practice, it is nationally bounded. Thus, the unfulfilled promises of a universal humanism have created a void which is considered unjust by many, and this has provided fertile grounds for the promises made by Marxism.

In any case, whether it is unjust or not, the undeniable truth is that as we have seen the world is a very unfair place to live. How to achieve a fairer world? The Marxist answer was political activism through the international proletariat revolution, that never happened. And as we have seen, the countries that adopted the communist model did not have an adequate economic growth. But the world does not have to become Marxist to be fairer, there are other alternatives. The simplest case to resolve is the recent income concentration in DE, it only requires income redistribution policies. A more complex case is how to make EE fairer. Because even though redistribution polices are also recommended, they will not achieve their objective if they are not joined by an adequate economic growth strategy. One of the common problems in EE is that leftist governments impose redistribution policies, based upon class conflict, that disincentive investment, and jeopardize the economic growth; thus, the announced benefits for the poor are never materialized. Finally, the more difficult problem to solve is how to make the world at large a fairer place. We argue that the only way is to implement a Marshall-like plan to develop the EE. Today such an initiative looks farfetched, but the ICT Revolution is bringing the world closer together and the costs of poverty in the EE are starting to be paid

[81] See Obregon, C., 2021. Poverty and Discrimination., op.cit.

by rich countries, like it happened in the 2020 GP, the costs of which were probably ten times or more higher than what it would cost to have a Marshall- like plan to develop the EE. More on this in the epilogue of this book.

Income Distribution Policies in DE

The income distribution has worsened in DE due to several factors such as: the increase in stock prices, the higher real estate prices, and the higher compensation of top executives, particularly in the financial sector. In the US, the third factor has been particularly decisive. In simple terms, the winners of the ICT Revolution have been large multinationals, their executives, and the owners of stocks and real estate. Populism, nationalism, and protectionism have been seen as an easy exit to improve the income distribution, which is to stop the ICT Revolution. This would be huge mistake. The losers should be compensated through the national income distribution polices available, such as: personal income taxes, social transfers, educating and training high skill workers, broadening asset ownership of stocks and real estate, increasing the minimum salary, and improving contractual conditions particularly as they relate to the service sector. In the EU personal income taxes and social transfers are already largely used, in the US there are still ample possibilities to use them, as the Biden administration is starting to do. All other policies are available to both.

The ICT Revolution inevitably means that the service sector will grow, that is why giving better contractual conditions to workers in this sector is a good idea. As well as increasing the minimum salary, and giving higher education and on-the-job-training for higher skill labor is a must.

Broadening the ownership of stocks and real estate can be achieved by several means. One way to do it is to foster workers' ownership of their company's stocks by law. The other is to create large, diversified stock funds with two characteristics: a) A government insurance of, let us say, 90% of principal, with a minimum investment period of five years. b) Worker's possibility to obtain loans against the fund when needed up, to let us say, 40% of the investment. Investing in these large funds could be partially mandatory and partially voluntary. Providing liquidity and insurance would make stock investing very popular, therefore, voluntary investment would be large. Real estate could actually be acquired through investment funds.

In relationship to the high salaries of top executives, they should not be regulated, but a structural problem in relationship to the companies' boards composition should be solved. In the company boards there should be both regulators and enough board members representing small stockholders and investment funds. And the responsibilities of the boards should be extended. One of the problems today in the US is that large companies' boards are integrated by chairmen of other large companies, which creates a situation in which nobody wants to criticize the big salary of another, because he/she runs the risk that his/her own salary will be questioned.

The ICT Revolution has globalized many activities. Among them, it has facilitated the flourishing of fiscal paradises. And as a consequence, has restricted the countries' scope for implementing capital and inheritance taxes – because capital can always fly away. And although there is still room, through the other policies mentioned before, recovering the possibility of taxing capital and inheritances would be very important to foster equality. Unfortunately, disappearing or supervising closely the fiscal paradises will not be easy in a world that does not have accepted international laws - to be used in common international courts - with accepted international judges.

Income Distribution Policies in EE

In terms of income redistribution, EE must remember that there is no conflict between egalitarian policies and economic growth policies. A growth strategy is compatible with many income distribution policies. It is not true that distributing income will jeopardize the growth rate of the country, but it is also not true that distributing income will increase the rate of growth.

Middle class mass consumption was one of the keys of capitalistic development, but that does not mean that distributing income in an EE, trying to generate a larger middle class, will stimulate economic growth. An example has been communism in diverse countries. Middle class consumption in an EE, when it is associated with obsolete technology, promotes only an artificial growth that will not last. This is because as soon as this particular country opens up, the price of the productive assets embodying the obsolete technology goes down, because they cannot

compete with the global frontier technology linked to the consumption of the middle classes in DE.

Income distribution in EE faces even worse difficulties than the ones it encounters in DE. Fiscal paradises create a real problem for the EE to avoid tax evasion, and to implement a redistributive policy through capital or inheritance taxes. Therefore, they have to focus mainly on income taxes, social transfers, and education. Scholarly education must be avoided. Education must be guided by the development model and be specific and internationally competitive; within-the-job-training must be privileged. Owning stocks is less popular in EE, which makes it more difficult to use it with redistributive purposes. Minimum wage increases as a redistributive policy has the limitations that it reduces the global competitiveness of the country.

Human rights, education, social transfers, and maintaining a national legal framework are important tasks in EE, in which usually a significant portion of the population faces rough living conditions. The solution to these problems is even more difficult due to the existence of fiscal paradises, which hinder substantially the fight against tax evasion, corruption, drug trafficking, and criminal activities.

There is definitely room for income distribution policies in EE, and in some countries, they have been used successfully. But policy makers should be careful not to implement redistribution strategies that are not joined by a proper economic growth program. The Marxist-leftist redistribution programs have in many cases ended as a failure as to the intended goal to improve the living conditions of the poorer, because they tend to jeopardize economic growth.

Researchers have compared how much changes in inequality matter for poverty reduction relative to economic growth. In 2002, Dollar and Kraay found that the incomes of the poor on average rise proportionately with average income; and therefore, growth on average does benefit the poor as much as anyone else in society82. The authors alert us that their findings do not imply that growth is all that is needed to improve the lives of the poor; but certainly, they show that economic growth is the most powerful determinant of the prevailing levels of poverty. In 2014 the same authors (joined by Kleineberg), in a panel study of 117 countries covering the time frame from 1970 to 2012, took into account not just poverty, but also the change in living standards of individuals above the poverty line. They conclude that: "*Most of the cross-country and over-time*

[82] Dollar, David, and Aart Kraay. (2002). "Growth is Good for the Poor," *Journal of Economic Growth,* 7, 195-225.

variation in changes in social welfare is attributable to growth in average incomes. In contrast, the contribution of changes in relative incomes to social welfare growth is on average much smaller than growth in average incomes, and moreover is on average uncorrelated with average income growth. These findings suggest that the welfare impacts of changes in inequality observed over the past four decades are small when compared with the welfare impacts of growth in average incomes".[83]

Obregon 2020 finds that income distribution and policy poverty elimination strategies are only fruitful when they are joined by a proper economic growth strategy[84]. After comparing the economic evolution of twenty-three countries, it is shown that with low growth it is impossible to have a successful income distribution policy, or it becomes too expensive for the rest of the population.

This comparison focuses on analyzing the income growth in the lowest quintile (q1), in order to establish whether it is influenced by the average economic growth, by the q1 social redistribution policy, or by both, and to which extent. First, an income ratio is obtained for each country, dividing its income growth by the average income growth of the twenty-three countries studied. Countries are denominated high economic growth countries (HG) if the income ratio is higher than 1.1; neutral (NG) if it is between 0.90 and 1.1; and low economic growth countries (LG), if it is less than 0.90. Then, an inequality ratio is obtained for each country, dividing each country's q1 share change by the average q1 share change of the twenty-three countries. Countries are denominated high q1 distribution countries (HD), if the q1 inequality ratio is greater than 1.1; neutral (ND), if it is between 0.90 and 1.1; and low q1 distribution countries (LD), if it less than 0.90. The findings are:

I) That the HG countries explain better a higher than one q1 income ratio than the HD countries, 1.74 versus 1.21. The same happens with the neutral countries, NG=1.12 versus ND=0.87. The LG explain better a low q1 income ratio than the LD, 0.71 versus 0.92. All HG countries have q1 income ratios significantly greater than one, independently of how high or low the q1 distribution is.

II) That HD countries also have a q1 income ratio greater than one, except Russia; but that there is a huge difference as to the wellbeing of the

[83] Dollar, David, Aart Kraay, and Kleineberg Tatjana (2014). Growth, Inequality, and Social Welfare Cross-Country Evidence. http://documents1.worldbank.org/curated/en/651701468182332804/pdf/WPS6842.pdf

[84] Obregon, C. 2020, *Three Lessons From Economists: That Policy Makers Should Never Forget*. University Editions. Available in Amaxon.com and also at Research gate.com

rest of the population. In all the HG countries the (q2 to q5) –d10[85] income ratio is greater than one, even if they have low q1 distributions, while in the HD countries with low growth it is significant less than one. The HD countries (except Russia) do achieve a q1 income ratio greater than one; but the ones with low economic growth obtain this result at the cost of (q2 to q5) – d10 income ratios significantly less than one. And in most cases the trade off is too expensive. In Nicaragua the q1 income ratio is 1.17 but (q2 to q5) – d10 income ratio is 0.71, that is 70% of the population is 29% worse off for 20% being 17% better off; that is a preference ratio of 5.97 ((70*29)/(20*17) favoring q1 over the rest of the population. In El Salvador 20% is 29% better off and 70% of the population is 26% worse off, a preference ratio of 3.14 favoring q1. In Guatemala 20% is 5% better off versus 70% of the population being 34% worse off, an unbelievable high preference ratio of 23.80 favoring q1. Thus, it is clear that a policy that results in low economic growth in most cases does not achieve a social distribution goal; in the sense that despite national redistribution policies, the income of q1 is not acceptable (i.e., it does not reach an income ratio greater than one) due to the low economic growth, this happens in 11 out of 14 countries (79%). And in the three countries that did achieve an acceptable q1 income ratio despite low economic growth – due to local redistribution policies –, it was too expensive for the rest of the population; and it would be very difficult that any democracy would deliberately approve such expensive preference ratios favoring q1 against the rest of the population.

III) That the average LG+ ND and LG+LD all have income ratios less than one. LG+HD has a q1 income ratio greater than one but at the expense of a (q2 to q5) – d10 income ratio significantly less than one (the cases analyzed in the previous paragraph for Nicaragua, Guatemala and El Salvador). Thus, with low growth it is impossible to have a successful income distribution policy, or it becomes too expensive for the rest of the population.

IV) That in the HG countries all the income ratios are significantly higher than one, independently of whether they have a high, neutral or low distribution. It is interesting to note that for the HG countries d10 income ratio is greater than one, which shows that the high growth benefits everybody. Thus, high growth guarantees a satisfactory level of q1 income even with low distribution. With neutral growth only high distribution obtains both higher than one q1 and (q2 to q5) – d10 income ratios, at the expense of d10 being less than one. q1 income then is acceptable with high growth or with neutral growth and high redistribution.

[85] q2 = second lower income quintile. q5 = highest income quintile. d10 = highest income decile.

V) Given the evidence described in I), II) and III), it is clear that the growth policy dominates the results of the reduction of poverty and the rise of the general standard of living. But it should also be emphasized that the distribution policy does produce the desired consequences. Despite the fact that growth dominates, we can observe the positive results of the distribution efforts: q1 HG+HD > q1 HG+ND; q1 NG+HD > q1 NG+LD; q1 LG+HD > q1 LG+ ND. An exception that does not show the positive results of the distribution efforts is the particular case in which HG+LD has a higher q1 income ratio than both HG+ND and HG+HD; but this particular case is explained by the fact that in HG+LD we find China and India, and their high growth dominates any distribution efforts made by other countries.

In Summary: without proper economic growth, aggressive income redistribution policies cannot be really successful. But given adequate economic growth, income redistribution policies do make a positive difference and should be used.

A Fairer World

The only way out for a fairer world is the economic growth of the least developed countries; because as we have said, international distributive aid is nil, representing only 0.2% of global GDP. So, is there any way to create fast economic growth in these countries?

As we have seen, the ICT Revolution has improved drastically the living conditions in some poor countries like China, but if we exclude this limited number of countries, the rest of the poor countries remain as poor as ever. There are reasons for which the poor countries will not be able to develop soon by themselves. First, the Asian Growth Model requires high internal savings, which very poor countries, specially if they are small, cannot achieve. Moreover, there is a limit as to the import capacity of the Western countries which creates a restriction as to how many countries at once can follow the Asian Growth Model (which by the way implies the need to promote a larger international middle class, consuming international products made with frontier technology – something Asia has been very slow in doing). Thus, while middle-income countries should join the ICT Revolution, the only way out for low-income countries should be a Marshall-like plan to promote their development.

The main beneficiary of the Marshall Plan to develop Europe and Japan was the US. Thus, it is expected that the main beneficiaries of a Marshall-like plan to develop the poor countries will be the developed countries. However, the reason for which such a plan has not yet been implemented is the lack of proper global governance, which implies the absence of global institutions capable to guarantee that only Pareto moves will happen, that is, that the countries that funded the Marshall-like plan to develop the poor countries will benefit from their growing imports and by their higher trade. As the world stands today, there are many Game Theory possibilities, which may imply that the countries that fund the Marshall-like plan do not receive the benefits – that may go to corrupt leaders, or other countries that did not fund the plan.

But the ICT Revolution is bringing the world closer and closer together, and the costs of the lack of proper global governance are drastically increasing, as the 2020 GP has shown (the costs of which exceeded by many times the possible cost of a Marshall-like plan to develop the poorer countries on earth[86]). The Biden administration has become aware of the need of better global governance, thus although it is just at the beginning, there is some hope that, in the future, global governance will improve. More on this in the epilogue.

CONCLUSION

The humanism of the modern times is the inspiration underlying the Marxist promise of a heaven-like life on earth. There is no doubt that aspirational, ethical proposals have strong influence on human destiny, but they are what they are – aspirational ideas that do not reflect the actual reality. Throughout history nations have been very resilient. Humanism is nationally bounded. Proletariats from diverse countries fought each other in the wars. Conceptual ideas are only truly influential when they become institutionalized. What made Christianity so influential was the actual power of the institution of the church. Humanism has only been truly implemented within developed nations, and even in them there are ample exceptions. Against the promises of universal humanism there is an international void, which has been seen as unfair by many inhabitants on earth. Thus, particularly in those nations in which the masses were

[86] See calculations in Obregon, C., 2020. *A New Global Order,* op. cit.

seriously damaged by the economic conditions, Marxism became appealing. The problem with Marxism however is that it creates class conflict and frequently overemphasizes distributional efforts at the expense of an adequate economic growth program. And, at the end of the day, the poor get more damaged by the lack of economic growth than benefited from the distributional efforts. China of course is the exception which shows that beyond ideology what is important is to have the proper economic growth program. If one compares Russia with China 1990 -2018 (and the comparison is valid because both could have joined the ICT Revolution in the mid-eighties, China did and Russia did not)[87], in inequality terms: in Russia, the shares of d1, q1, and (q2-q5)-d10, all go up at the expense of d10, whose share goes down. Thus, it is clear that inequality in Russia did go down, as it is reflected in the Gini index, that also went down. In China, the shares of d1, q1, and (q2-q5)-d10, all go down at the benefit of d10; thus inequality in China went up. d1 Russians in inequality terms are 68% better off than the Chinese, but the Chinese are 362 % better off in income terms; q1 Russians in inequality terms are 57% better off than the Chinese, but the Chinese are 406 % better off in income terms. (q2-q5)-q10 Russians in inequality terms are 11% better off than the Chinese, but the Chinese are 734% better off in income terms. China is an exception which has shown that ideologies of any kind can be economically successful.

As the ICT Revolution is bringing the world together, the poor countries have entered capitalism through the back door – as the 2020 GP has shown, and the costs of a deficient global governance are rising fast. The aspiration to make the world a fairer place is legitimate, but it does not need to imply Marxism; there are other ways that do not need to imply such a drastic revolutionary change. Adequate economic growth programs in emerging markets, joined by distributive efforts; distributive efforts in developed economies to compensate for the ICT Revolution's concentration of income; and, why not, in the future a Marshall-like type plan to develop the poorer nations on earth.

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[87] For a further discussion on this comparison see Obregon, C., 2018. *Three Lessons From Economists That Policy Makers Should Never Forget,* op.cit.
To make the comparisons we need both income data (ID) and income distribution data (IDD). The ID comparison is made in Per Capita Gross Domestic Product (GDP) PPP constant 2011 international dollars from the World Bank, available in the Web, which allows a full comparison between countries and across time. IDD data comes form diverse sources compiled in United Nations WIID_19 Dec 2018.

CHAPTER FIVE: ECONOMIC EFFICIENCY AND NEOCLASSICAL ECONOMICS

The evident failure of labor value theory to explain economic value gave rise to the Neoclassical School, in which value is defined by the utility for the user. Neoclassical economics took a long time to develop and is the outcome of distinct schools of thought. But it has some common features that distinguish it: 1) it takes into account the utility for the user; 2) it argues for diminishing returns, thus decisions are marginal; 3) it establishes an equilibrium between supply (that takes into account the cost of production) and demand (which takes into account the utility for the users).

Neoclassical thinking started already with a classical economist, John Stuart Mill, who put together classical economics with the utilitarian philosophy of Bentham. For utilitarianism utility is the surplus of pleasures over pains. And utility is measurable and comparable amongst individuals. The goal is to maximize social utility. This school already proposed the notion of diminishing marginal utility which will be used by Jevons, Menger and Walras to propose the marginalist revolution. Marshall proposed an integration of the classical cost-based supply with the neoclassical utility-based demand, but he used partial equilibrium analysis. Which was insufficient for the Lausanne School, led by Walras and Pareto, which focused on general equilibrium. Walras concentrated on problems related to the existence of the equilibrium, while Pareto focused on the micro foundations of the general equilibrium, through the optimizing behavior of producers and consumers. Bohm-Bawerk proposed the Austrian theory of capital. Neoclassical economics can be understood mainly through the development of four paradigms: Welfare Economics, General Equilibrium Theory, Capital Theory and the School of Rational Expectations. In this chapter we will present the first three, and we will leave for the next chapter the discussion on the School of Rational Expectations.

The main contributions of the Neoclassical School are: 1) it solved the problem of economic value; 2) it allowed the use of mathematics to precise a paradigm that could advance economic knowledge; 3) it explained the functioning of the price system; 4) it explained why the economic system is ca-

pable to transmit the preferences of the middle class in such an efficient manner; 5) it explained why a decentralized economy can never be duplicated by a central economy. In summary: it explains the efficiency of capitalism.

The main limitations are: 1) it disconnects itself from philosophical and social issues; 2) it is uncapable to explain (rather, it renders invisible) the relationship between the economic and exchange system with the integrative system and the power system; 3) it does not take into account the institutional arrangement; 4) it cannot deal with "true" time and uncertainty.

And, as we will see both Welfare Economics and General Equilibrium Theory failed in the original goals that they pursued; however, as an unintended byproduct they have given us the formal proof of the dependence of the economic equilibrium on the institutional arrangement. Which has opened the door to the promissory contemporary theoretical developments that will be reviewed in chapter eight.

WELFARE ECONOMICS

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 up with the publication of The Idea of Justice in 2009 by Nobel 1998 laureate Amartya Sen. They are four attempts to show that markets do maximize social economic welfare, and the four have failed so far.

First Attempt:

Jevons pointed out that the labor-value theory could not be applied to things that lack value; for him, utility arises from 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. 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 one. 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.

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 – i.e. 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 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. It 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 convincingly that there is no real efficiency rule. Any efficient solution depends upon the given distribution of resources.

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 (Nobel Prize in 1972) 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 for the society 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.

Fourth Attempt

To solve Arrow's impossibility theorem, Sen argues that 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 humans.

Fourth Attempt Fails: Sen's solution however requires absolute external ethical values, which individual economic agents can use as a reference. But 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 of which many 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

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 theo-

rems states that the process of allocating resources in 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 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 that prevail 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 (Nobel 1994) 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 there is a preferred efficient Pareto allocation, then it will always correspond to a competitive equilibrium characterized by a defined set of prices and a given distribution of resources. This result implies that any final redistribution of goods that one wishes to achieve, can always be done efficiently through the market, but it requires a priori redistribution of resources. Mathematically, this result requires the assumption of technology and convex preferences. Note that the initial redistribution of resources cannot only be politically impracticable, but can physically involve the redistribution of human capital, which cannot be done in the short run. 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 resources. 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.

General Equilibrium Theory had important repercussions for welfare economics. But it is not possible to demonstrate a unique optimum equilibrium without the use of a set of *strong* assumptions.

Walras 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 strong assumptions about the nature of the exchange system (see, for example, Intrilligator, 1971, chapter 9, and Varian, 1984, chapter 6).

The relaxation of all these strong 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 the market behavior transmits information from

the individual to the society; but was unsuccessful to prove the existence, stability and ethical desirability of a unique Pareto efficient equilibrium.

John Nash, who received the Nobel Prize in Economics in 1994, has shown that there are many equilibriums that are not Pareto optimal and that they 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, the settings of the game. This changes drastically the neoclassical conclusions 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 economics in a mislead 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 setting 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 2001 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 in a game is as corresponding with an institutional arrangement. We will discuss more on these alternatives further in chapter eight. But what is critical in here is: *that it is clearly established that the attempt to find one unique stable optimum equilibrium has failed*.

What are the implications of the failure? Since the setting (whether as a game, an information set, or an institutional arrangement) defines partially the final equilibrium to be obtained, the first implication is that the microeconomic foundations of macroeconomics must take the setting into consideration. The second implication is that, despite the fact that markets do not achieve one unique optimal stable equilibrium, they do transmit very efficiently the information of individual preferences – which is fundamental for economic growth. 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. The third implication is that the market by itself does not maximizes social welfare.

CAPITAL THEORY

Capital theory has always been the subject of heated controversies. Since most production functions use only two inputs, labor and capital, it is necessary to precise what capital is. Bohm-Bawerk had a good intuition. Since producing capital goods takes time, time must be a good proxy for them - therefore the interest rate must be the price for capital. Based upon this intuition, most neoclassical text books present us with a production function with two inputs, capital and labor, in which the wage is the price of labor and the interest rate - which in equilibrium is identical to the profit rate - is the price of capital. In the most recent capital theory controversies, Sraffa using the trace of an input-output matrix was able to transform all the other inputs (excluding labor of course) into an infinite series of dated labor. He showed that such a transformation can be done in the general case. Moreover, using the mentioned series, Sraffa showed that what is known as the "Reswitching" is possible and therefore there might not be a well behaved demand for capital – which destroys the core of the neoclassical system because then there is no equilibrium possible and no determination of the price of capital which is the interest rate or profit rate. Reswitching means that, as the interest rate goes down, the economic system changes from a production technique A to another technique B, which is more intensive in capital (as the neoclassical demand for capital requires – an inverse relationship between the interest rate and the capital/labor ratio), but as the interest rate continues going down, the economic system changes back to A (against the neoclassical demand requirements because A is less intensive in capital than B). If Sraffa happened to be correct, the neoclassical markets just would not work. However, he was not correct; it can be shown for the general case that even when Reswitching occurs, the economic system changes as the interest rate goes down, always to a more intensive capital technique[88]. What is wrong in Sraffa's model is that it discounts the output at the relevant interest rate but not the inputs, once this correction is made the model works. What are the implications? 1) Capital is indeed time; 2) The neoclassical model of determination of prices based upon supply and demand does work; 3) interest rate changes do have important repercussions in an economy; a lower interest rate implies a higher output per person.

[88] Obregon, C. , 2018. The Reconstruction of Capital Theory: The True Meaning of Capital in a Production Function. University Editions. Amazon.com, also available at Research Gate.com

What does it mean in the real economic world? There is indeed a market for time. Investors borrow to invest in long duration projects and savers are willing to wait for a reward. Thus, there is a market determination of the interest rate, and the neoclassical marginal optimization model does work. But that does not imply that the income distribution between capital and labor in the real world is given by their relative marginal products. Why? Because, as we have seen before, there is not a unique economic equilibrium. The economic equilibrium depends upon the institutional arrangement, and so do input prices. Therefore, when savers and investors have to put a price on time, they need to look into the future, and this always involves expectations as to the proper functioning of the institutional arrangement and its influence upon the final equilibrium that will be obtained. This was precisely Knight's and Keynes' discussion on uncertainty, which in the light of contemporary economics can be better understood as expectations as to the proper or improper functioning of the institutional arrangement (see chapters seven and eight). But for now, what is important to highlight is that while the neoclassical argument that markets optimize behavior according to relative prices is correct, the argument that each factor of production is rewarded its marginal productivity is incorrect simply because there are distinct marginal productivities that correspond to distinct equilibriums related to different institutional arrangements.

CONCLUSION

As I am writing this manuscript, the "big five" – the largest digital companies on earth - just reached 25% of the S&P stock index in the US. In many ways these companies illustrate well the outcome of the neoclassical economic theory. First, they rely on the rapid transmission of the information of the customer; second, they reduce significantly the top/down decisions taken before by bureaucratic companies; third, they rely on fast innovation based on information about the customer's needs and preferences; and fourth, they fund themselves through the stock market, which is one of the most dynamic "free markets" in the world. We should not make any mistake, capitalism without customers is not efficient, it does not work, they are clearly needed – we just have to realize that, to work well, capitalism needs a proper institutional arrangement.

In this chapter we have only discussed neoclassical microeconomics on its own terms, we have left for later other criticisms of this school from other perspectives which also based their microeconomic analysis on the behavior of the individual, such as Sen's economics and Behavioral economics, which we will discuss in chapter seven. We also have left out neoclassical macroeconomics as expressed by monetarism, the Washington-Neoclassical Consensus for developing nations (which we have previously discussed, in chapter one, as the neoclassical model) and the School of Rational Expectation which will be reviewed and discussed in the next chapter.

Neoclassical economics is an enormous intellectual contribution that has put economics on solid scientific grounds, that have allowed the advancement of knowledge. It was however ideologically guided, and therefore searching for a stability and independence of the free markets, which never was able to prove. In fact, as it happens often in science, neoclassical economics found the opposite of what it was searching for: that the economic equilibrium depends upon the institutional arrangement. There are however significant contributions related to the initial research goal, the proponents of this school were able to show why the markets are so efficient in transmitting information between producers and consumers, which partly explains why the existence of the middle class in the US was so decisive for its fast economic growth, and why the lack of it was so damaging for the economic growth of the USSR[89]. Thus, while it is true that there does not exist something that we can call "free markets", in the sense that the economic equilibrium is always institutionally dependent; it is also true that institutions cannot replace markets – they are needed for economic efficiency in the transmission of information, for economic growth and other societal goals.

[89] The middle class was the consequence of the institutions built with democracy, something the Neoclassical School never took into account; anyway, it is true that a middle class without "free markets" does not work; because markets transmit efficiently the rapid changing preferences of the middle class which are the key to guide technological developments.

CHAPTER SIX: ECONOMIC STABILITY AND POSTWAR ECONOMICS

Economics, as science, is concerned with explaining reality. But social reality changes faster than physical reality or biological reality do. Therefore, although there is a central core for economic thinking, the history of economic thought reflects what is happening in the real economies at the time. From the relative stability of the nineteenth century, the world entered into the 1930 GD, which changed economic thinking drastically. Macroeconomics was born, and the role of governments was amplified to manage large recessions. In this change the key thinker was Keynes. However, soon his thoughts were integrated into the main tradition into what has been known as the Neoclassical Synthesis – which reflected the fact that the real-world economy was becoming stable again after the Second World War. In the Neoclassical Synthesis the role of governments became restricted to manage the business cycles. Postwar economics saw the mathematization of economics, led by Paul Samuelson, who was a Keynesian. As stability continued in the real-world economies, the memory of the 1930 GD faded away and the Neoclassical Synthesis was confronted by the New Neoclassical Economics at the end of the seventies – based again on microeconomics, which argued that macroeconomics was not needed, and that the governments did not have any role in the business cycle. The New Neoclassical Economics, led by the School of Rational Expectations, was never able to fully demolish the strong structure built by the Neoclassical Synthesis, thus in real policy the governments in the developed economies never stopped managing the business cycle. However, the New Neoclassical Economics conquered most academic circles and had a huge impact on many aspects of economic policy, such as the claim for a smaller government, the need of less governmental supervision, the required stability in governments policies, and so on. The Stagflation phenomenon of the late seventies could not be explained by the Neoclassical Synthesis; it was only understood due to rational expectations. Therefore, since the eighties and until the 2008 GFC the School of Rational Expectation seemed victorious. Then, the 2008 GDC happened, and soon the 2020

GP occurred, neither of which could be explained by the New Neoclassical Economics, nor by the old Neoclassical Synthesis, therefore all the eyes turned back to Keynes' original thought. In this chapter we will discuss the history of economic thought in the postwar period up to the 2008 GFC, and in the next we will discuss Keynes and the economic crises such as the 1930 GD, the 2008 GFC and the 2020 GP.

NEOCLASSICAL MONETARY THEORY

For the classical and neoclassical economists, cycles were seen as a natural feature of the economies. Therefore, they did not have a macroeconomic theory. Smith was concerned with economic growth; Ricardo and Marx, with the source of economic value; the Neoclassical School with the allocation of resources. None of these schools ever thought that the government could do anything to modify the economic cycle or to prevent major economic crisis. For the classical and Neoclassical Schools, the role of fiscal policy was to provide resources for the government to be able to execute its responsibilities, related to guarantee the rule of law, education, infrastructure, national defense, social aid, and regulation of the political life. But it was never conceived as a means to seriously influence the economic cycle, or to get the economy out of a major crisis more rapidly. Monetary policy was understood as providing the neutral conditions for the economy to work properly. Thus, the purpose was to maintain the central bank interest rate at the level of the natural rate of the economy – not to interfere with the productive side of the economy, which by itself defined the natural interest rate.

Neoclassical monetary theory was simple, more gold implied higher nominal GDP, and less gold implied lower nominal GDP. Nominal GDP always followed real GDP. Therefore, although there were economic cycles, these were always around the equilibrium defined by the real economy. The Neoclassical Monetary Theory (NMT) is closely related to the Theory of Capital. Real savings and real investment opportunities equal each other and define the natural real interest rate, that maintains the economy at its long-term growth potential. Note that there can be more than one long-term growth potential, because as we have seen in chapter one, not only the level of savings, but also the institutional economic model of growth defines the long-term growth potential; but that was not a concern for neoclassical economists. Moreover, given one

long-term growth potential, at a given point in time the economy may or not be at full employment, thus there are several natural interest rates, of which only one will correspond with full employment. But that was neither a concern for neoclassical economists, for whom real savings and real investment opportunities are exogenously given and by definition determine one and only full employment equilibrium.

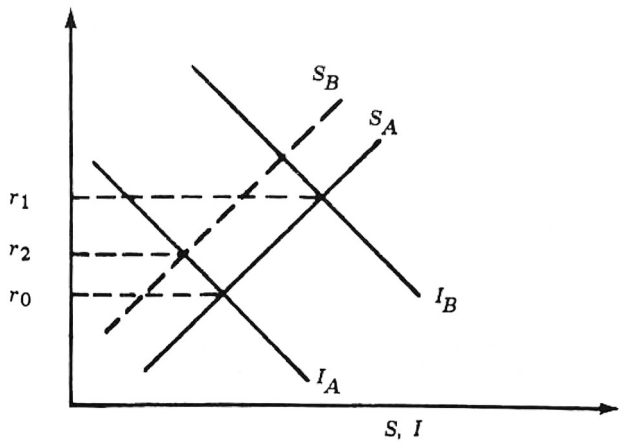
A good summary of NMT is given by Wicksell[90]. For him, the "natural rate" is the one that equals real savings and real investments in an inter-temporal sense, which is compatible with Bohm Bawerk's Capital Theory. It is an inter-temporal equilibrium, between the inter-temporal preferences of the savers 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 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 6.1. To start with, let us assume that is the natural rate of interest, therefore the central bank rate should also be . Now let us 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 therefore the new natural rate is , if the central bank maintains the interest rate at 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 , and that there is another real shock, this time in savers preferences, so that they decide to save more. Savings move from and the new real natural rate will be equal to if the central bank maintains the interest rate at there will not be enough credit demand (aggregate demand) and there will be deflation.

90 Mainly *in Interest & Prices*.

FIGURE 6.1 THE INTEREST RATE AND THE SAVINGS-INVESTMENT EQUILIBRIUM



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

It is remarkable that the rule of a stable rate of growth of the money supply has never convinced central banks in the real world. And the explanation can already be found in Wicksell's vision of the frequent parametrical changes, both in real savings and in real investment. In this sense, there is in Wicksell a recognition that monetary policy has to be active, 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 learnt form NMT is that money is not an end by itself, the key problem of any economy, at any time, is the real economy.

POSTWAR ECONOMICS

Everything went well with NMT until the Great Depression came along and governments had to confront it. Roosevelt raised government expenses long before he knew about Keynes. It was required then to have a theoretical justification, which Keynes gave.

In 1936 Keynes published the *General Theory* and, for the first time, there is a clear departure from the NMT. In the *Treatise*, as in the NMT, 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) – Tobin was Nobel 1981 - 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 was that the dynamics of the real economy was mainly defined by the volatility of 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 about 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 described 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 the 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 the normal business cycles that characterized the postwar period.

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 purely 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 earlier, Sraffa was wrong, but under his influence, Keynes mistakenly abandons the Neoclassical Capital Theory, and makes the economy depend on purely 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 of the Neoclassical Capital Theory, where the real interest rate was a function of savings and investment. LT and IT had the virtue that they were compatible with a vision of a real interest rate, as defined by the Neoclassical Capital Theory. Years later, Solow's Theory of Economic Growth would be compatible with the IS-LM frame, and therefore with LT and IT.

It should be quite clear why the main economics tradition refuses to incorporate LPT and MEC: they were not useful to explain the regular or normal operation of an economy, and that was what happening in the postwar period.

The Neoclassical Synthesis

The Neoclassical Synthesis occurs in a period in which economics as a whole became mathematized and therefore subject to a closer scrutiny as to the relations and implications of diverse theories. Mathematics were applied to microeconomics in the fields of: Welfare Economics, General Equilibrium Theory and Capital Theory (that we have reviewed in the last chapter); International Trade Theory; Economic Cycles Theory; Growth Theory and to almost any field in economics. The Neoclassical Synthesis was originally proposed by Hicks (Nobel 1972), in his presentation of the IS-LM model, and was later on mathematized and refined by Samuelson and others. The Neoclassical Synthesis created a specific mathematical representation of the macroeconomy, which allowed for the first time the systematic collection of data that could be tested through econometric models (Lawrence Klein got the Nobel in 1980 for the creation of econometric models).

The Keynesian-Monetarist Controversies

The controversies took place using the mathematical representation of the IS-LM model and the empirical data of the postwar economies, mainly in the US, which were very stable and near the full employment equilibrium. With the substitution of Keynes' MEC for Hicks IT and of Keynes' LPT for Tobin's LT (Tobin was Nobel in economics 1980), Keynesians had to recur to price and wage rigidities and money illusion to justify the Keynesian results. They assumed: 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 econometric results soon established that the investment function was elastic to the interest rate, and that both fiscal and monetary policies had an impact on the economic cycle, which discredited the liquidity trap. Therefore, it was concluded that the Keynesian argument of the inefficacy of monetary policy was unjustified. As we will see in the next chapter, Keynes' argument of the inefficacy of the monetary policy is still valid in large crises, but has to be based on Keynes LPT and MEC, and not on

the IT and LT assumed in the IS-LM model; but anyway, in economic cycles near the employment equilibrium, monetary policy does work and that was the result found by the econometric models. Moreover, with full flexible dynamic markets wage and price rigidity are short lived, so that at best they could explain short employment fluctuations around the full employment equilibrium. And monetary illusion was indefensible both theoretically and empirically in a world with fully available information.

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, managing the economic cycle through government expenditures, as was initially proposed by the Keynesians, was found to be difficult because of the administrative lags involved in convincing the congress; this was the main problem of the Johnson administration after the Vietnam War. Thus, governments relied more and more on the monetary management of the business cycle.

Third, the instability of the money demand function makes it impossible to fully abandon monetary policy and to substitute it by fixed rules, as the monetarist proposed.

And fourth, the microeconomic foundations of the IS-LM model were very poor and needed to be addressed, which was done by the Rational Expectations School.

Rational Expectations

To model mathematically economic cycles, differential equations were needed, and that implied that a theory of expectations formation had to be used. The first and simplest theory of expectations formation is to use the historical trend to forecast the future – extrapolative expectations; a second, more sophisticated way is to include adaptive expectations, that

is, the forecast is corrected taking into account the deviations (failures) of previous forecasts; but given the efficient amount of information available to the economic agents, soon it was realized that the best way for them to form their expectations is to use all the available information, this was the beginning of rational expectations.

The formation of rational expectations presupposes the efficient use of all available information, i.e. it assumes that the subjective probability distribution of the economic agent, conditioned by the information it possesses, actually coincides with the objective probability distribution, conditioned by the level of information existing. As a method for describing how economic agents form expectations, rational expectations is superior to extrapolative and adaptive expectations. With rational economic operators, errors in the process of forming their expectations have to be attributed to limitations or deficiencies of information specific to agents, but they cannot be explained by inefficiencies in the method used to analyze such information. In this way, for example, new information related to the introduction of a new government policy will be efficiently processed by economic agents. Thus, for example, if the central bank is irresponsible printing money, the economic agents understand that it will be inflationary – therefore in anticipation they increase prices and a stagflation is produced. Explaining the stagflation was one of the key contributions of rational expectations.

There are two observations to be made, however. The first one is that the rational expectations process is based upon the available information, which - when we are near the economic equilibrium - is usually sufficient and of a good quality, but there is no available information about other potential equilibriums. The understanding of large unemployment crises or underdevelopment is not compatible with rational expectations, simply because there is no information about the other potential equilibriums. We will further discuss this topic in the next chapter. But since the postwar economy was near the full employment equilibrium, rational expectations was a good proxy to understand reality. The second observation is that rational expectations work with dynamic recurrent models that necessarily bring back the economy to the full employment equilibrium, therefore the economic cycles observed during the postwar period are left unexplained. To be able to explain the cycles, the School of Rational Expectation recurred to what is known as the Phelp's islands – amongst which information does not flow. But this was a very difficult assumption to defend, in a world with full efficient information. Therefore, two new explanations,

one neo-Keynesian and one neoclassical, were introduced into the rational expectations models. The neoclassical is the presence of substantial real stochastic shocks (Kydland and Prescott, who got the Nobel in economics in 2004), which justify demand management in a short range to counteract the real shocks to the economy. The neo-Keynesian is the introduction of short term lived Keynesian rigidities (such as wage rigidity due to the durations of the labor contracts) in models like the ones initially started by Dornbusch, Fisher, Blanchard and others; which also justify short range aggregate demand policies, since the presumed Keynesian rigidities are short lived. Basically, 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 stochastic external shocks or 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, and as we will discuss in the next chapter, the 2008 GFC was not inevitable – it was rather caused by untimely and misguided interventions of economic institutions such as the Fed and US Treasury[91]. Policies implemented to address the crisis, when they finally came, were based on the incorrect theoretical framework, i.e., the 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.

The New Neoclassical Economics

The success of the School of Rational Expectations in explaining the stagflation that characterized the real world at the end of the seventies meant a revival of neoclassical economics. Markets were seen as stable, economic growth as produced by endogenous market forces, underdevelopment as the consequence of protectionist policies. What was needed for further progress was to get the government out of the way as much as possible. In the developed world it meant a smaller government and less regulation and supervision of the markets – which as we mentioned was the main

[91] 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

cause of the 2008 GFC. In the developing economies it meant following the Washington's Consensus Recommendations, which we have identified in the first chapter as the neoclassical model and which, as we have seen, was a failure. The 2008 crisis signalled the beginning of the end of the reign of New Neoclassical Economics.

The Impact of Postwar Economics in the Financial World

From the point of view of finances, Tobin's conception of risk had great consequences. Tobin's notion joined the one of Harry Markowitz, who had already written that investment portfolios had to be diversified and that the risk of the total portfolio could be measured through the covariances of the shares that made it up. Tobin suggested that the decision between risk-free and risky assets could be done with his portfolio theory and that risky assets could be selected using the Markowitz methodology, that maximized performance for a given risk level. Markowitz's efficient frontier is the set of all portfolios that will deliver the highest expected return for each given level of risk. These concepts of efficiency are essential for the development of the CAPM (Capital Asset Pricing Model) model, developed later on by William Sharpe, a student of Markowitz; who shared the Nobel Prize with him in 1990. CAPM proposes a systematic methodology to maximize return minimizing total portfolio risk; it is based on the covariances between the assets. Sharpe proved that the most efficient portfolio of all, the one optimizing risk-return, is the portfolio that buys the entire market. Sharpe's result changed the professional investment fund management industry forever. Pension investment funds increasingly acquired the total stock market index. This was the first great contribution of the definition of volatility as risk.

Franco Modigliani (Nobel 1985) and Merton Miller (Nobel 1990), would also use the notion of an efficient market in equilibrium, to show their theorem that establishes that the value of a company is independent of its capital structure i.e. it is independent of whether the company uses capital from its shareholders or market debt. The Modigliani-Miller theorem is the basis for modern thinking about capital structure.

Fischer Black and Myron Scholes (Nobel 1997), also use an efficient market in equilibrium and the notion of risk as probability, to show that the price of a derivative is independent of the price of the underlying as-

set and depends only on the volatility of the underlying asset. All things being equal, the theoretical value of an option is a monotonous increasing function of implied volatility. The derivative market changed for ever the practice of finance.

The Notion of Equilibrium

The study of the economic equilibrium by postwar economics has given extraordinary practical results. It has allowed the understanding of the mechanisms by which the individual preferences are transmitted through the price system and has created a basis for the valuation of financial assets that, as we saw in the previous section, created a revolution in the financial world. The notion that individuals by themselves can achieve an economic equilibrium is behind, as we mentioned in the last chapter, the digital revolution whose guiding principles include: reducing to the minimum the determination of the market conditions by the institutions, and letting the individuals by themselves find the market solutions that satisfy their preferences. Hicks' IT allowed for an equilibrium that defines an asset price, which was impossible with the "animal spirits" of Mrs. Robinson and of Keynes, this has made the valuation of financial assets possible. Tobin's LT introduced probability and, as we saw, this was the beginning of a revolution that ended up with a risk theory which is the basis of the modern understanding of asset management and has allowed the development of the indexed fund industry. The notion of a market in equilibrium is the fundamental cornerstone that is behind all the new financial discoveries of the last fifty years, whether to price regular assets, to price derivatives, or to derive the Modigliani-Miller corporate finance principle. The notion of equilibrium makes it possible to manage the real world, and thus has been extremely valuable. The attempts to develop a disequilibrium economics were a failure (see next chapter): first, because disequilibria in efficient, well informed markets are short lived; and second, because not much information can be obtained from a disequilibrium state. Equilibrium economics is the way to go, and it has proven, as we just mentioned, to be extremely fruitful. But we must remember that there is more than one potential equilibrium, and therefore the economic equilibrium obtained depends upon the institutional arrangement; as we will see in the next

two chapters, this is the key both to understand why the 2008 GFC happened and for a contemporary interpretation of Keynes' thought.

Postwar Economics, Neoclassical Economics and Social Issues

The term "neoclassical economics" is loosely used to include the old Neoclassical School, the Neoclassical Synthesis and the New Neoclassical Economics. But it is important to make a distinction. The old Neoclassical School and the Neoclassical Synthesis attempted to isolate the problems of efficiency and equity. By studying Welfare Economics and General Equilibrium Theory they were hoping to be able to isolate the economic and exchange system from the integrative system and the power system, so that questions of efficiency could be treated independently of the questions related to social issues and equity. As we saw in the last chapter, they were not successful, but they were always conscious of the importance of the social issues. Walras, for example, wrote two books: one on general equilibrium and another on social issues[92]. Lionel Robbins would have been extremely surprised to learn of Sen's solution to the Welfare problem by using interpersonal comparisons, because that was precisely what all the literature of Welfare Economics was trying to avoid, since they were trying to separate efficiency and equity; he was very conscious that there were important social issues, he just thought that their solution should be found in the political and not in the economic system. Paul Samuelson, the father of the Neoclassical Synthesis, was a Keynesian and a believer in the need of government intervention. Samuelson had a long-term disagreement with monetarism, represented by Milton Friedman (Nobel 1976) and disliked many of the conclusions of the Rational Expectations School. The Neoclassical Synthesis, as its name indicates, was designed to integrate neoclassical thinking with Keynes' thought; and it always had in mind the importance of institutions and of the government intervention. The only school that has defended that free markets do not need the government is the monetarist – Rational Expectation School tradition. They have created a libertarian ethics, represented among others by Friedman and Hayeck (Nobel 1974), which relies on the basis (theoretically mistaken) that free markets stand by themselves.

[92] *Etudes d'Économie Sociale: théorie de la répartition de la richesse sociale,* 1896.

Libertarian Ethics

Libertarianism rejects that the State should be responsible for promoting social morality and argues that individual freedom maximizes social welfare and produces economic progress. Libertarianism takes the individual rights of the differentiated individual to its last consequences and argues that society should not violate the right of the individual to possess what he has earned with his/her work. Libertarianism assumes that a sustainable social order can be obtained without State intervention; and that whenever individuals are free to choose, the actions they choose will be ethical in themselves – will be just (as long as they respect basic fundamental human rights).

Libertarians propose that individual rights should be respected by society, and among them the right to freedom is paramount. Libertarian ethics cannot be understood without reference to the libertarian view of economic markets. For libertarians, individual freedom promotes economic growth and maximizes social well-being. Therefore, not only does it not harm anyone, but it guarantees the best possible social consequences. Libertarians oppose State paternalism, moral affairs legislation, and income or wealth redistribution policies. Hayeck[93] has argued that egalitarian policies destroy the very basis of progress, which is individual freedom. Friedman[94] maintains that the Welfare State, the minimum wage, antidiscrimination employment laws, occupational licenses and many other State activities unacceptably violate the individual right to private freedom. Nozick[95] defends that only a minimum State, capable of ensuring compliance with individual contracts and protecting people from brute force, theft and fraud is justifiable. Any other faculty of the State is unjustifiable, as it violates individual freedom. Taxes on labor earnings, says Nozick, are on par with forced labor. He proposes that: 1) a person who acquires a holding is entitled to that holding; b) a person who acquires a holding in transfer, from someone else entitled to the holding, is entitled to the holding; and c) no one is entitled to a holding except by (repeated) applications of (a) and (b). Therefore, a distribution is just if everyone is entitled to the holdings they possess under the dis-

[93] Friedrich Hayeck (1899-1992).

[94] Milton Friedman (1912-2006)

[95] Robert Nozick (1938-2002)

tribution[96]. Ideas such as those of Nozick have recently been applied to the global level. Vossen and Brennan[97] defend that economic freedom, if applied at the global level, would lead to greater wealth than any attempt to pursue some particular pattern of wealth and poverty. They point out that social scientific data indicate that policy interventions designed to narrow the gap between the rich and the poor tend to do more harm than good. Lomasky and Tesón[98], similarly defend the thought that individual property rights would, if defended universally, lead to a significant reduction in global poverty[99].

Libertarianism is a conservative proposal that justifies the discrimination against the poor, because it implies that everybody is getting what everybody has worked for – what everybody deserves. At the national level in the developed countries Libertarianism opposes egalitarian distributive policies; and at the international level it has proposed that inequalities are a natural consequence of economic progress, and that if left alone in the future the between countries income distribution necessarily will be significantly more egalitarian[100].

Utilitarianism starts from the idea that social utility is the sum of each individual's utility, and introduces the essentialist preconception that it can be measured. But the utilities of any two distinct individuals are not comparable between them. And using money as a common denominator in a cost-benefit analysis does not solve the problem, because it not only has the disadvantage that the income distribution cannot be shown to be the optimal that the society wants; but there are also many social values and preferences that are not measureable in money. Utilitarianism has two serious unresolved problems: 1) social utility is not measurable, without external ethical judgments and 2) maximizing social utility is incompatible with individual rights. As for the first problem, the fundamental

[96] Nozick, Robert, 1974, *Anarchy, State and Utopia,* New York: Basic Books. Kymlicka, Will, 1990, *Contemporary Political Philosophy,* Oxford: Clarendon Press.

[97] Van der Vossen, Bas and Jason Brennan, 2018, *In Defense of Openness: Why Global Freedom Is the Humane Solution to Global Poverty,* Oxford: Oxford University Press. doi:10.1093/oso/9780190462956.001.0001

[98] Lomasky, Loren E. and Fernando R. Tesón, 2015, *Justice at a Distance: Extending Freedom Globally,* Cambridge: Cambridge University Press. doi:10.1017/CBO9781316336267

[99] These libertarian arguments at the global level will be criticized with more detail in chapter eight.

[100] Lucas, R.E., Jr. (2002): *Lectures on Economic Growth,* Harvard University Press, Cambridge/London.

essentialist assumption of utilitarianism is that social utility can be measured; but the problem of how to measure social utility has no solution. The only possible common denominator would be the currency, so that social utility was measured by the cost-money analysis. But this would imply that market prices were indeed such as to represent the maximization of social welfare (as assumed by the welfare economy), or at least Pareto efficient (as the general equilibrium literature assumes). As neither of these two requirements can be met: market prices cannot be used as an appropriate measure of social utility. The assessment of social utility, as Arrow demonstrated, will always involve ethical judgments, external to the market. As for the second problem: Mill makes utilitarianism compatible with respect for individual rights and with the great values of humanity; but it does so by introducing moral principles outside utilitarianism. Thus, we can conclude that social utility to be measurable, and to be compatible with individual freedom, requires external ethical judgments.

Robbins' critique of utilitarianism, that interpersonal comparisons of utility cannot be made, led to libertarian ethics. The purpose of libertarian ethics was to demonstrate that the market: 1) has a unique equilibrium that optimizes social welfare; and that, 2) generates proper economic growth. But as we saw in the last chapter neither proposals could be scientifically demonstrated. They are therefore only essentialist philosophical preconceptions unsustained by economic science.

As for the first proposition: libertarian ethics have no economic scientific basis in neither the Theory of Welfare Economics, the General Equilibrium Model, or the School of Rational Expectations. The School of Rational Expectations failed to demonstrate that the economy was always in full employment. The Theory of Welfare Economics, failed to prove that optimizing individual preferences maximizes social wellbeing (Arrow's Theorem). And the General Equilibrium Model does not provide adequate basis for the liberal claim that each individual's actions maximizing their preferences lead the economy to a single efficient Pareto competitive equilibrium. There are three reasons for which this does not happen. The first, is that there are different equilibriums for different initial property distributions. The second, is that the general equilibrium is not necessarily stable. And the third, and the definitive one, is that there are many general Nash Equilibriums that are not Pareto efficient. Economic equilibriums necessarily imply Nash's economic games. These Nash games in real economies are nothing else than the institutional arrangements that define the conditions under which the participating in-

dividuals compete; and these institutional arrangements correspond to conceptual systems which include the social ethics. Therefore, market prices necessarily reflect the institutional arrangement that corresponds to the specific equilibrium of the given economy (whether full employment, or any of the multiple unemployment equilibriums).

As for the second proposition. Libertarian ethics also failed to prove that markets foster proper economic growth, because: (a) it could not explain the economic growth of successful Asian countries; and b) nor did it succeed in generating the expected economic growth in countries that adopted liberal policies.

Libertarianism assumes that there is a sustainable social order without state intervention and, whenever individuals are free to choose, the actions they choose will be ethical in themselves The problem with libertarianism is that, for the reasons discussed above, it failed to prove that there is a social order based on individual freedom. The liberal social order is only an essentialist preconception that is assumed at the outset, but which cannot be verified scientifically.

Radical egoism is the proposition that the individual must always act according to his own self-interest. It is a radical form of libertarianism, that would only be defensible if the Theory of Welfare Economics had succeeded. If everyone acts according to his/her individual interest nothing guarantees that social order will occur. Social order has to be established as a consequence of an institutional arrangement, which necessarily implies a social ethic.

Therefore, we can conclude that consequential ethics is not defensible in terms of economic science, markets actually involve external ethical judgments, that cannot be inferred from economic relations per se. Economic equilibriums always occur within a social order, that already includes a social ethic. Consequential ethics in its three versions: Utilitarianism, Libertarianism and Radical Egoism is in itself an essentialist ethics, with its own philosophical preconceptions.

CONCLUSION

Postwar economics was extremely fruitful; it would not be an exaggeration to say that, thanks to it, economics became a scientific discipline. It mathematized economics, which allowed the understanding of the char-

acteristics of the economic equilibrium. The notion of economic equilibrium is behind both the digital revolution and the financial revolution, thus it has changed forever the way we live. The digital revolution has brought to the forefront, as never before, the relevance of individual preferences as the motor engine for the digital innovation; individuals are truly and decisively influencing the world in which they want to live. The financial revolution allowed for asset pricing, the creation and pricing of the derivatives market, the development of the indexed fund industry, and the contemporary theories of corporate finance used to manage large corporations. The understanding of the economic equilibrium has been extremely useful in the practical world.

The mathematization of macroeconomics by the Neoclassical Synthesis allowed the development of econometric models; and as never before, the theoretical proposals in the Keynesian- Monetarist controversy were tested empirically – which allowed the advancement of solid scientific knowledge.

The mathematically sophisticated New Neoclassical Economics changed forever our understanding of economic agents' expectations, was able to explain the stagflation phenomenon, and highlights the importance of credible economic authorities

For all the previously mentioned contributions, postwar economics has been very important for the development of economic thought.

However, as the postwar economy was relatively stable, most of the empirical data suggested that the world looked like the Neoclassical School had argued before. Lucas (Nobel 1995) wrote that the 1930 GD was a "curiosum" never to happen again, and that Keynes was dead. But as the world dismantled the institutions built in Bretton Woods and entered the new global regime of free-floating rates, more frequent financial crises happened in the developing economies. And as regulation and supervision was diminished in the developed countries, the conditions that ended up in the 2008 GFC emerged. The 2008 GFC, as we will see in chapter eight, made it clear that uncertainty as to the future is something different than probability risk. The neoclassical model did not work as expected in developing economies like Mexico; and we ended up with very successful countries – like China – that followed a different economic growth model – the Asian one. The ICT Revolution questioned the full validity of Ricardo's competitive advantage, and the WTO (World Trade Organization) could not survive well the insertion of China. Finally, the 2020 GP came along with terrible consequences for the global economy, to a large extent due to the lack of global coordination about

health issues. Thus, there was decisive real-world evidence that markets were not doing what was promised by the New Neoclassical School; and Keynes was revived again. Almost all the governments decided to increase very substantially their government expenditures, to a very significant extent financed by monetary expansion. We will explore in chapter eight Keynes' thought and the origin and causes of major economic crises, and how they relate to the institutional arrangement.

CHAPTER SEVEN: CONTEMPORARY THEORETICAL DEVELOPMENTS

As we mentioned in the previous chapter, one of the critical contributions of postwar economics is that it mathematizes the discipline and truly starts economics as a science. The consequence have been several contemporary developments in economic theory. The developments on Welfare Economics gave rise to Sen's economics; the discussion on the rationality assumptions made in the postwar economic models originated Behavioral Economics; the analysis of the General Equilibrium originated Information Economics and Game Theory. And the failures of the Washington Consensus and the neoclassical model fostered the renewal of Institutional Economics. In this chapter we will review these five contemporary theories, and -as we will see- all of them have in common that they emphasize that rational free markets by themselves cannot define the economic equilibrium, something else is needed – the institutional arrangement.

SEN`S ECONOMICS

Sen's Economics and Behavioral Economics are the only two of the five schools of economics reviewed in this chapter that, following the tradition of the Neoclassical School, centered their analysis on the economic agent's rationality –or irrationality, and not on the institutional characteristics of the economy. Both schools, however, also have in common that they are critical of the selfish rational economic man. Both the *humans* of Behavioral Economics, and Sen's moral economic agent are socially cooperative and altruistic. However, Sen's economic agent is diametrically opposed to the one in Behavioral Economics. For Behavioral Economics, Kahneman's system 1 is very influential: thus, *humans* display conducts fully defined by emotions. Moreover, humans in general behave ethically, but they are not fully trustable, because certain ethical conducts would change if the monetary reward is significant. In contrast, Sen's rational economic agent

is fully rational, even beyond the strong rationality assumed by contemporary Neoclassical Economics. He is capable to distinguish good and evil, able to control his emotions and his passions, and can be trusted to do what is right beyond his selfish interest.

As we saw before, Arrow's impossibility theorem meant that a Social Welfare Function cannot be built; and therefore, contemporary neoclassical economists were unable to demonstrate that markets maximize social economic welfare. Sen (Nobel 1998) solves this problem going back to what precisely economist from Leonel Robbins onwards were wanting to avoid: interpersonal comparisons. They became feasible in Sen because economic agents are not longer selfish. They are ethical individuals, who understand rationally their social responsibility. In Sen, the preferential order of a set of social alternatives is not narrowly defined in the space of individual selfish utility, but in other spaces in which individuals can manifest their responsible and ethical preferences.

Sen points out that the political process is insufficient to aggregate individual preferences at the social level for several reasons. 1) It does not guarantee that the individual is informed and has analyzed in detail the consequences of his decision; 2) frequently, marginalized groups are underrepresented in the political apparatus because they do not exercise their voting rights; and 3) given Arrow's impossibility theorem, not all voting aggregation processes give consistent aggregate results, so it is necessary to redefine the possible areas of congruence and obtain the social choice of the individual in relation to those areas[101].

Sen's proposal provides a new mechanism of social communication, distinct from the market and democracy, through which the responsible (ethical) individual directly expresses his social preferences. The exercise of social choice confronts the individual with the possibility and the need to reflect on the consequences of certain social states, which go beyond the economic relations contained in the markets. The individual who uses a large, old car and pollutes the environment, and who acts in this way because everyone does, could be willing to use a new and smaller car if he knew that everyone else is going to do it. Models, for example, of multiple equilibriums, such as Tirole's model on corruption, as well as many others, show that the result obtained depends on the institutional arrangement imposed. In this way, there is room to ask what are the social preferences of individuals that are not expressed in the market, and Sen's social choice may be useful in these cases.

[101] Sen, A. 2002, p.77. *Rationality and Freedom*. Bellknap Press/Harvard University Press, Cambridge, London.

Sen develops his theory of justice and ethics mainly in *The Idea of Justice* (2009). For Sen, it is not possible to find justice in Rawls' hypothetical contract, which originates in a closed impartiality to a specific community, for Sen it requires universal ethical principles that generate an impartiality open to man in general. Sen refers to the *impartial spectator* of Smith (which in this author is God), whose requirements are that reason is used to reflect if what is considered fair for one and for his community would be fair for others and their communities; and if the others observing us would consider what we propose fair. For him there is no social justice possible if it is not based on ethical principles of the individual behavior of an integral and responsible man, who reaches these principles with the help of his reason. The ethical man not only understands ethical principles but acts according to them. It is not, however, an isolated individual, but one that learns in his relationship with society to distinguish what is moral from what is not. The benevolent feelings of man are a guide, but they are insufficient, moral conduct has to be based on reason.

Sen recognizes that there is not a single possible solution to determine which are the ethical principles that should guide individual behavior, and that different cultures, communities, groups and individuals can reach different principles. But he insists that there will always be common principles that will guide possible agreements between different individuals, groups of a community, between communities and at a global level, so that it will always be possible to move towards a less unfair world.

There are many unsolved issues in Sen's vision of justice and ethics. *First:* there is nothing that guarantees that all individuals will use the methodology of the *impartial spectator* and even less that they will behave according to the morality they discover with their reason. *Second:* there is an incompatibility between his theory of freedom exposed in *Development as Freedom (2000)* and his theory of justice introduced in *The Idea of Justice (2009)*. Sen replaces Rawls' notion of overlapping consensus with that of incomplete orderings based on the discussion between different points of view on fairness. But if we accept the notion of incomplete orderings of *The Idea of Justice,* then there is nothing to guarantee that these incomplete orders will result in Sen's basic capabilities related to freedom. The freedoms of Sen do not have to be accepted by all, nor do they have the universality that he confers to them in *Development as Freedom*[102]. *Third:* if

[102] The theory of underdevelopment of Sen is based on his theory of freedom and rationality. For Sen, the value of freedom implies a strong universalist assumption. Freedom for him is not only the ultimate goal and the way to measure development, but also what drives and

there is a plurality of conceptions about justice and incomplete orderings, nothing guarantees that there will be, as he affirms, always partial solutions that reduce injustice.

Empirical international aid data do not seem to justify Sen's vision of common ethical partial orderings between diverse communities. The difference between *us* and *them* seems clear in these data; which seem rather to confirm Rawls' vision that Western humanistic values relate only to the West. While social expenditures in developing countries as GDP percentage are in the range of 20 to 30%, international aid is only 0.2% of the world's GDP[103].

The undeniable contribution of Sen is that it clearly points out one of the most important limitations of the traditional economic literature, which does not emphasize enough the need to inform the individual of the consequences of social choices. As we have already seen, there are many possible Nash equilibria that are not Pareto optimal. Any given market equilibrium always depends on an institutional arrangement that defines the rules of the game. The social choice of said institutional arrangement is of great importance, and cannot be carried out through the market, because it depends for its solution on the institutional arrangement given exogenously. Political elections, for the reasons described by Sen, are not a sufficient solution to the previous problem, so there is always room for the social choice proposed by Sen. And it is true that this solution requires the participation of an integral man who, being well informed of the social consequences, makes ethical judgments that go beyond his personal interests. The social choice proposed by Sen enriches the delicate balance that exists between the individual and the society, and therefore is an important contribution.

causes it. For this author, development must be measured through the capacities that the individual has to satisfy: what he considers necessary (according to his reason). Sen argues that all individuals. according to their reason, always consider five basic freedoms of value: 1) political liberties (freedom of expression and choice); 2) economic facilities (opportunity to participate in trade and production); 3) social opportunities (education and health); 4) guarantees of transparency, and 5) protection and security. For Sen, one form of freedom reinforces the other and so development is generated, which is measured in the individual's own freedoms. Sen points out that it is necessary to focus on the deprivation of these basic needs and not on poverty (even though there may be some correlation). According to him, improving the capabilities of people has positive effects on development. For him, the counterpart of freedom is responsibility (his integral man) and the possibility of justice, and the latter is a relevant factor for evaluating economic and social changes.

[103] Social expenditures come from Obregón 2018, which uses OECD data. International aid data is our own estimation based upon World Bank Data available in the web - consulted September 12, 2018. Obregon, C; 2018. *Beyond Behavioral Economics: Who Is The Economic Man*. Amazon. Com. Also available at research gate.com.

However, admitting the method of social choice does not necessarily imply accepting the *rationalism of Sen's freedoms*. The great triumph of Rousseau and democracy was to free the individual from the tyranny of reason. The return to rationality is not acceptable. It is true that man can use his reason, but it is not true that he can reach unchangeable universal truths. It is true that there is room for reasonableness and for the scientific study of social problems, but it is not true that "the reasonable" determines social relations. It is true that there is room for the method of social choice, both internationally and locally, to illuminate different social alternatives. But it is not true that local democracy (or the political system that prevails in each case) will always revalidate the inalienable freedoms of Sen, nor that internationally the participating countries will accept them as a guide in their actions. The basic freedoms of Sen are based on the humanistic values of the West, which not even the West is willing to respect in the international arena. Therefore, given the current global institutional arrangement, it is almost impossible to obtain globally Sen's freedoms. And even if they were obtained, they would not generate economic development. The truth is that even given Western freedoms, development may not occur, as many underdeveloped countries illustrate. And even without Western freedoms development can happen, as China and other Asian countries have shown. Sen does not have a theory that can explain economic development[104].

It is not true that the individual always acts in society taking into account ethical considerations. Precisely what distinguishes contemporary Western societies is that the social order does not come only from ethical considerations about what is reasonable. The political order (although influenced by ethical discussions) is based on the individual desire expressed in the popular vote. The great virtue of the democratic agreement is that it makes explicit the fact that we cannot resolve the balance of power via the reasonable. Finally, democracy is *based on the will of the people,* and it is the ultimate source of justice in a contemporary Western society.

And given the West's legal institutional arrangement (that democracy has decided), the individual in Western countries has been allowed to participate in economic activities in the large markets based on his personal selfishness – and this is the key, as Smith has shown, of capitalism's rapid economic growth. It is true that an ethical individual is required, but not always, not in all activities. The *integral ethical man* of Sen can be used for

[104] See Obregón, 2008. In this work, it is shown that in cross sectional data, there is no relationship between Sen's capabilities and economic development. Obregon, Carlos; 2008. *Teorias Del Desarrollo Economico. Amazon*. Com. Also available at research gate.com.

social choices in which the markets or the political system are not suitable; but it cannot, and should not, supplant neither *the will of the democratic man* nor *the selfishness of the homo economicus*. Man in contemporary Western societies acts and should act as a selfish *homo economicus* in the market, as a citizen in democracy, and as a responsible citizen in social choices (in which he can be encouraged to express ethical preferences – i.e. taking social wellbeing into consideration, but there is no guarantee that he will do so).

Economic freedom as the space in which the individual acts on the basis of his selfishness must be maintained and does not conflict neither with the need for democracy or an efficient political system, nor with the need for some social choices taken by well informed individuals. It is not convenient for the individuals to participate in the markets thinking mainly about the interests of the community (as the integral man of Sen would), this would transform efficient economic markets into bureaucratic, slow ones and would seriously jeopardize economic growth.

Finally, Sen's rational ethical individual rests on two assumptions which are evolutionarily questionable: 1) that humans have rational access to universal moral truths and 2) that they are willing to behave according to them. His notion of partial orderings in the *Theory of Justice* is an attempt to diminish the heavy burden that these assumptions put on Sen's social theory; but it is unsuccessful because, if the two mentioned assumptions are gone, nothing guarantees the partial orderings. And then both Sen's solution to the social welfare function and his theory of justice do no longer have the general validity that Sen argued.

BEHAVIORAL ECONOMICS

Behavioral Economics was built mainly as a critique of the rational economic man of contemporary Neoclassical Economics, particularly in its free market's version. The *humans* of Behavioral Economics are defined as non rational, altruistic and social cooperative individuals. Behavioral Economics integrates psychology and economics and argues that we are *humans* and not *econs*[105]. *Humans* are not rational; they are emotional be-

[105] Good reviews of Behavioral Economics, ordered from simple to complex are: Baddeley, 2017; Tomer, 2017; Cartwright, 2018; and Dhami, 2016. Baddeley, M. (2017). Behavioral economics. A Very Short Introduction. Oxford University press.UK. Tomer, J.F. (2017). Advanced Introduction to Behavioral Economics. Edward Elgar, Northampton, Massachusetts. Cartwright, E. (2018). Behavioral Economics. Routledge, New York. Dhami, S. (2016). The Foundations of Behavioral Economics. Oxford University Press. Oxford, UK.

ings who under some circumstances may make the wrong choices and therefore need help from the government. *Humans* are not selfish individuals; they are altruistic and socially cooperative. They argue that there are powerful socio-economic and psychological incentives. People get wellbeing by compensations different from money, whether intellectual gratification, respecting others, social conventions, and social status. That explains why: paying students to study reduces the quality of their intellectual effort; charging parents for picking up late their child from a nursery had the effect that more parents did it, because they felt free to do it, once they paid for the service; payments for blood donations reduce donations; and higher wages encourage more work only if they are related to be treated well by the employer. Economic decisions, behavioral economists argue, are not only related to prices but to human relationships and social interactions. Behavioral Economics can be defined as the quest to integrate psychology and economics by showing that the definition of *humans* in psychology can cast light on specific economic problems. At the outset, then, one has to understand that Behavioral Economics is not and will not be a new paradigm in economics - simply because it cannot solve the full set of problems that economics needs to address.

Behavioral Economics has been very useful to approach from a different perspective certain economic decisions[106] and has been crucial in the implementation of innovative policies in these cases[107].

[106] *Behavioral Economics' methodology to criticize traditional economics works as follows: 1) It shows that humans fail in their process of decision making, due mainly to the psychological characteristics of Kahneman's system 1; 2) Intervention is required – in this case Nudges are recommended. But, as we will show, the link between 1) and 2) is not necessarily well established.*
The following list of failures due to system 1 is not exhaustive, but good enough for our purposes. Decision failures due to psychological factors are: 1) Anchoring, 2) availability heuristic, 3) representativeness, 4) priming, 5) optimism and overconfidence, 6) status quo bias, 7) loss aversion, 8) psychologically overweighting rare events, 9) probabilities miscalculation, 10) reversals, 11) safety considerations, 12) endowment effect, 13) framing, 14) psychological memory, 15) time and adaptation as psychological dimensions, 16) regret, 17) mental accounting, 18) sunk costs, 19) inconsistent customer behavior in bargains, 20) the house effect, 21) the break even effect, 22) time inconsistent preferences i.e. hyperbolic discounting of the future, 23) altruistic behavior, 24) cooperative behavior, 25) punishing non cooperative behavior, 26) psychological fairness, 27) reciprocity, 28) conditional behavior, 29) lack of self control, 30) influences of advertising or other information, 31) conformity - peer pressure.
Decision failures are also due to other three factors, mentioned by Thaler (2015): 1) economic transactions that do not allow for learning, 2) experts with conflict of interest, 3) lack of salience.

[107] *List of principal Behavioral Economics Interventions: 1) Save More Tomorrow; 2) A Diversified Portfolio: which automatically rebalance through time; 3) RECAP in mortgages; 4) RECAP in student loans; 5) RECAP in credit cards; 6) Nudges for the financial mistakes made in the 2008 crisis; 7) Prescription Drugs Plan for Seniors; 7) Presumed Consent for organ donation; 8) Disclosure of the main emitters of*

That emotions and group influences do count in the individual's perception of reality and in his decisions, has been shown for decades in many laboratory findings both in social psychology and in cognitive-behavioral psychology. Therefore, to some extent, it is not surprising that Behavioral Economics has found that economic decisions are also influenced by these two factors. Therefore, the interesting question is whether or not Behavioral Economics has brought value added in the understanding of a relevant subset of economic problems. And the clear answer is that it has been very relevant in the solution of specific economic problems like organ donation, individual saving decisions, and others[108]. There are five Nobel Prize winners that can be associated with Behavioral Economics: Simon (1978), Akerlof (2001), Kahneman (2002), Shiller (2013) and Thaler (2017).

The scientific method used in psychology has been very different from the one used in economics. Psychologists typically base their results on empirical findings in the laboratory, while economists study reality from an abstract deductive mathematical model. They also differ in the object under study. Psychologists are concerned with broad *human* individual and social behavior. While the economists' main interests are market prices, consumers' and producers' microeconomic behavior, allocation of resources, economic value, economic growth and development, income distribution, the open economy and financial and macroeconomic stability. Economics has been able to advance in the problems it is trying to solve, by introducing the assumption of the *economic man*- the *econ*. Economists are only concerned with individual and social behavior to the extent that its study is helpful to solve the set of economic problems mentioned above.

Humans, as defined by Behavioral Economics, cannot explain several empirical realities such as: 1) why individuals do behave selfish in large markets, despite the fact that they display altruistic and cooperative behavior in laboratory settings or small groups - even in monetary transactions. 2) Why individuals can display altruistic and cooperative social

pollution; 9) Choosing a school; 10) freedom to buy or not the the right to sue the doctor for negligence; 11) Replace official marriages for civil unions; 12) Give More Tomorrow;13) The Charity Debit Card and Tax Deductions; 14) Stickk.Com – to help people remind their commitments; 15) Quit Smoking Without a Patch; 16) Motorcycle Helmets; and 17) Gambling Self-Bans.

[108] See Obregon, C. 2019, Beyond Behavioral Economics: Who is the Economic Man. Amazon.com, also available at Research gate.com

behavior in some cases, like the Dictator's Game in laboratory setting[109], or the high social expenditures in developed economies; and not do so in other cases, like the extremely low international aid (which is nothing else than a global Dictator's Game in real life). 3) Why in some cases individuals can display very aggressive behavior, particularly to other, "*out-group*" individuals not belonging to the *"in-group"* to which the individuals belong. 4) Why the companies with more global success are the ones which introduce new options to the customer and new ways to process information in a more rational way. 5) Why despite the presumed individual non-rationality, markets work so well both to allocate resources and to promote economic growth. To explain these realities, we need to go beyond Behavioral Economics.

Behavioral Economics starts its analysis from the characteristics of the individual human nature. The whole discussion is around whether individuals are selfish or not, and whether they are rational or not. But there is not a careful description of the social group, the institutions and the historical values of the culture of reference. Focusing on the individual to explain social dynamics and economic relations is the wrong methodological approach, which for the free-market defenders ended up in their proposals that economic markets can almost do it all. Behavioral Economics rebels against this conclusion. And maintaining the same methodological approach, it ended up with the conclusion that *humans* display altruistic and cooperative behavior even in monetary transactions. However, it could not explain why in some cases they behave altruistic and cooperative and in others they behave selfish. And it could not explain in which cases individual selfishness is welcome, and in which ones it is not. And it could not understand the relationship between the individual selfish behavior in large markets, the efficient allocation of resources, and capitalism's faster economic growth. Social dynamics goes well beyond economics, and we do need to integrate other social sciences; but we

[109] *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% of participants 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 stake to the public good*. These results are argued by Behavioral Economics as an empirical demonstration that humans are not rational selfish calculators maximizing their personal well being. However, what it really shows is that in developed countries there is a strong Integrative System. And we must recall that both the Integrative System and the Power System are reflected in monetary and economic transactions. Therefore, it is not surprising to find that the Integrative System plays a role even in monetary transactions in the laboratory, in the Dictator Game and others in developed countries.

should not, and cannot, do it using only the methodology of analyzing the characteristics of the individuals; because social dynamics goes, as we will see, well beyond the individuals.

Introducing psychology allowed Behavioral Economics to describe a non rational individual, incapable to know, on many occasions, what his true economic preferences are. But then, how do markets work so well to allocate resources and governments do so poorly? Why did the USSR fail, and the Western economies succeeded? These questions cannot be answered with Behavioral Economics. We need to go beyond.

One of the first relevant studies we would like to mention is The Robbers Cave experiment, which showed how students became influenced by the *"in-group"* to which they belonged in the experiment, to the point of becoming extremely aggressive towards other students considered the *"out-group"*. The aggression was due to competition between the two groups for resources in a camping area. Another study was the very well-known Stanford Prison Experiment, which reproduced the conditions of a jail, with students playing both the role of policemen and of prisoners. The students playing the policemen role became very abusive and authoritarian, and the prisoners became submissive. Both experiments had to be stopped before the initially planned date for their conclusion, because the high and unmanageable level of aggression among participants. These studies leave no question that we are social beings, and that we are influenced by others.

The results of these studies cannot be explained neither with Behavioral Economics, nor with its extension into identity economics. Individuals were socially cooperative, but only within the *"in-group"*, and they behave selfish and aggressive towards the individuals belonging to the *"out-group"*. Thus, individuals are neither only altruistic and cooperative, nor basically selfish and aggressive – they behave different in distinct situations. And to understand these results, it is not enough to internalize in the individual's utility function the social norms as identity economics do. Because if the individuals had internalized the humanistic values of their larger society, they would not have become so aggressive to the other students' group, which after all in reality were part of the same large society to which they belonged. What these studies basically showed, is that there are not very relevant individual preferences, and that they can be changed with the influence of the group, actually in a record time of less than a week.

None of the economic schools which aim at explaining microeconomic interaction based only on the individual were successful. The Neoclas-

sical School could not prove that markets attain a unique stable optimal equilibrium that maximizes welfare. Sen's Economics and Behavioral Economics also failed. Sen's economics requires either external moral truths which can be attained by individuals willing to follow them; or a set of moral values which is institutionally developed. Since neurobiologically humans do not have access to external moral truths, it follows that moral values are institutionally dependent. Behavioral Economics conceived humans as irrational, which is useful for some specific economic problems; however, there is not any given human nature that defines individual decisions. Humans are neither intrinsically aggressive and selfish; nor cooperative and altruistic – what they do and decide is heavily defined by the group (and its institutions) to which they belong.

However, despite their failure to fully explain the microeconomic interactions between diverse economic agents, each of these schools has important contributions that we must take into account. As we argued before, neoclassical economics established the models to understand how a market works; which has been extremely useful not only for price theory, but also for many other theoretical problems in economics and in finances. Whether in international economics, in the Theory of the Consumption Function, in portfolio theory, or in public finances, among many other areas, the neoclassical model is a fundamental base. In finances, as we pointed out, asset management, derivatives, and corporate finances have developed in the light of the neoclassical model. Sen's economics has changed the way we conceptualize development. It has created the capabilities approach; and his theoretical frame is behind the Millennium Goals of the United Nations, the HDI (Human Development Index), and the measurement of multidimensional poverty. Sen's social choice theory has and will continue contributing to the creation of a better global world. Behavioral Economics has made us aware of the importance of emotions in economics, has been particularly useful to better understand some economic decisions, and has allowed the implementation of better policies in cases such as: *Save More Tomorrow; Presumed Consent for Organ Donation; Disclosure of the Main Emitters of Pollution; and many more*[110]. *Behavioral Economics will continue illuminating economic policy decisions from a different perspective, and therefore it is highly useful.*

As we have seen, it is not possible to fully explain the microeconomics interactions between the economic agents only based on the characteristics of the individuals. There is no doubt that the setting in which those interactions occur is highly influential.

[110] Obregon, C. 2019, Beyond Behavioral Economics: Who is the Economic Man, op.cit.

INFORMATION ECONOMICS

Information Economics' success is also shown in the fact that it has produced four Nobel laureates: Mirrless and Vickrey, 1996; and Spence and Stiglitz, 2001[111]. Information Economics represents a strong critic of 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.

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 equilibrium[112]. In addition, the sub-optimal equilibrium can create path dependence[113]. And temporary shocks can have long-term consequences, there is hysteresis[114].

[111] 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.

[112] 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.

[113] Engerman and Sokoloff, 1997, Hoff, 1994, Mookherjee and Debraj, 1999. Engerman, S.L., and 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.

[114] 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.

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 applied to diverse economic problems, among them: financial crisis[115], and underdevelopment[116].

There is a very close relationship between an insufficient information set, the inadequate institutional arrangement, and the uncertainty regarding the future. Knight and Keynes had explored the consequences of uncertainty for obtaining economic equilibrium and for 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 Information Economics 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's 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 must be analyzed in a dynamic path. Information Economics proved that even with strong rationality assump-

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

[116] Hoff, 2000; Hoff and Stiglitz, 2002. Hoff, K. (2000): "Beyond Rosenstein-Rodan: The Modern Theory of Coordination Problems ;;in Development", en 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", en Meier, G.M., y Stiglitz, J.E. (eds.): Frontiers of Development Economics. The Future in Perspective, 3a ed., World Bank/Oxford University Press, Washington, pp. 389-485.

tions, markets do not necessarily produce either full employment or the desired growth path.

GAME THEORY

Game Theory has shown that there are not only multi-equilibriums but 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 decision 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 towards 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, as we mentioned, 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), 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 non-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 not 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.

INSTITUTIONAL ECONOMICS

Both Neo-Institutionalism and Behavioral Economics argued that the contemporary neoclassical vision of how the economy works is wrong, and they both agreed that institutions are needed. However, their vision of the economic dynamics of the social system is diametrically opposed. Neo-Institutionalism focuses its analysis on the institutions; while Behavioral Economics focuses 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 fixed datum. The individual is always creative, and he is the source of economic progress; but whether there is progress or not depends upon whether the institutional arrangement is the proper one. A proper institutional arrangement is such that it allows for individual creativity to be expressed. For Behavioral Economics, the individual economic agent cannot always identify what is his real interest, and institu-

tions 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 Economics, the individual must be guided, and institutions are responsible to guide him so that he arrives at a proper solution. For Neo- Institutionalism, the individual is a fixed 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 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). Despite this, it is still not clear what is meant by "institutional arrangement" and there is discussion about this[117].

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, the analysis of property rights, and the development of contract theory. Coase's proposal[118] 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 basic for the analysis. The agent's theory studies the information problems between the contractors (Fama, Alchian, Demsetz, Stiglitz and Holmstrom), while the relational

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

[118] 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.

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 the institution as the collective action in control of individual action[119]. Commons placed a special emphasis on the study of the transaction as a transfer of ownership. It is particularly notable that there is no influence of Veblen's thinking in the New-Institutionalists, 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 the West; 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 on an institutional arrangement, has a long tradition in economic thought. Even though this idea never managed to dominate the mainstream of economic thought, it was always defended by various economists throughout the history of economic thought. In this tradition one can point out[120], among other authors, Smith, Malthus, Marshall, Keynes, Knight, Marx, Schumpeter, Veblen and Boulding.

Neo-Institutionalism is a great contribution to economic thinking, 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 of 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

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

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

neoclassical model[121], which should be expanded and include more restrictions. At the other extreme, some other exponents of Neo-Institutionalism consider the new paradigm as antithetical to the neoclassical model and incompatible with it[122]. 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, even giving rise sometimes to opposite conclusions: as for example in anti-oligopoly regulation and the auction of public monopolies.

Neo-Institutionalism shares with most of the other new schools the concept 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, order and for the law in general. The problem with this vision is that it prevents the study and understanding of the historical evolution of other societies, which do not take the individual as a central figure in their social dynamics[123].

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, as 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[124].

North's contribution on the resilience of informal institutions, allows explaining why in certain cases the export of Western institutions to underdeveloped countries does not work properly (this is the historical example of India, or México); and this by 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,

[121] Dahlman, 1979.

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

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

[124] (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[125].

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 the Neo-Institutionalism of North, an institution includes both the conceptual system of values and the actual institutions that implement such conceptual system. But there are two key differences, one that in our opinion favors North and another that favors Veblen. In Veblen, like previously in Marx, social change happens only as a consequence of technological change; North introduces

[125] Rodrik represents an advance with respect to North as he recognizes the importance of the strength of domestic institutions to stimulate development, but there is still in Rodrik the insistence on seeing the institutions of other countries as a transition to the optimal institutions, which are the Western ones; and to explain the success stories based on these institutions, i.e., respect for private property and democracy. (Rodrik's proposals are presented more extensively in Obregón, 2008 Teorias 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 from the West the minimum necessary to integrate globally and compete, but basically, they continue to be societies with values and institutions that are very different from the West. Openly analyzing 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 consequences of not 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 study of two central problems: 1) the analysis of how development could be generated from the current conditions of the underdeveloped countries and from the own specific historical institutions of each country, and 2) the possibilities and development consequences of reordering the international institutional arrangement that exists between developed and underdeveloped countries have not been sufficiently studied. The thinking of the new schools, even though it means a great advance over the old ones, continues to be influenced by the predominating 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 is supposed to produce progress and accumulation of capital; and has restricted the analysis of underdevelopment to answering which are the absent 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.

the social change that happens because of social intentional design, a key feature of contemporary societies. But what favors Veblen is that, while the individual is a fixed datum in North, it changes historically in Veblen. 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. The individual is not historically always the agent of change in Veblen; while it is clearly so in North.

Boulding pointed out that the economic relation through the market is only 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 points out that man's behavior changes as a function of the system in which he interacts with society. He may behave selfishly in large economic markets and yet be altruistic and cooperative through 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 the society in each one of the three systems is distinct in diverse societies and in different points in time, in 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 form 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 Game, people display altruistic behavior. Voluntarily 74% of participant dictators divide money equally with the other participant; which is argued by Behavioral Economics as an empirical demonstration that *humans* are not rational, selfish calculators maximizing their personal wellbeing. 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, in the Dictator Game and others.

The Integrative System and the Power System are part of the economy. Governments at the beginning of the 20th century were on average in developed economies only around 10% of GDP, today they are around 40%; of which the Power System represents around 4%, social expenditures around 25% and other integrative functions 11%. Thus, the Integrative System represents 36% of the economy, the Power System 4% and the Economic and Exchange System 60%[126]. Individuals living in developed economies live in a world in which social cooperation is a reality, that is why they display cooperative and altruistic behavior. That however does not mean that they will behave 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.

CONCLUSION

None of the economic schools which aimed at explaining microeconomic interactions, that were based only on the individual, was successful. The Neoclassical School could not prove that markets attain a unique stable optimal equilibrium that maximizes welfare. Sen's economics requires a set of moral values which is institutionally defined. Behavioral Economics conceived humans as irrational, which is useful for some specific economic problems; however, there is not any given human nature that defines individual decisions. Humans are neither aggressive and selfish rational beings; nor cooperative and altruistic emotional individuals –

[126] These calculations are not precise because available data do not allow to do 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 of which no hard data can be found, but we estimate that they do not add up more than 1.5% of GDP.

what they do and decide is heavily defined by the group (and its institutions) to which they belong.

So, we can conclude that: it is not possible to fully explain the microeconomic interactions between the economic agents based only on the characteristics of the individuals, and that no doubt the setting in which those interactions occur is highly influential.

Game Theory, Information Economics and Institutional Economics have found that the microeconomic interactions between economic agents critically depend upon the settings under which such interaction happens. Game Theory showed that there are many non Pareto equilibriums which depend upon the settings of the game. Information Economics obtained multi-equilibriums which are function of the diverse information sets. And Institutional Economics explained 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. 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.*

A particularly interesting result of Institutional Economics is North's discussion of the relevance of social engineering. In Veblen, like previously in Marx, social change happens only through technological change. Through social engineering North incorporates individual creativity in the process of social change. This establishes a connecting point between institutionalism and the schools which explain microeconomics based on the individual.

CHAPTER EIGHT: ECONOMIC CRISES AND KEYNES' ECONOMICS REVISITED

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 crises. Therefore, he thought countries must have an autonomous monetary policy. But a monetary policy by itself would not be successful because of the LPT (Liquidity Preference Theory), 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 crises, was Keynes' goal. Like all 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 also like with most geniuses, Keynes' revolution was only partially successful. He had a main problem. Accepting Sraffa's proposal that the interest rate was only a purely 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 (even an unemployment equilibrium). Because of all of the above, Keynes was reinterpreted in the IS-LM version that ended up in the rational

expectation's models. And his main contributions were lost in the economic literature for decades. It is only until the 2008 GFC 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 crises. 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.

Both Knight and Keynes emphasized that the uncertainty about the future cannot be reduced to probabilistic calculations based upon today's information, because the future is truly unknown. Keynes made this notion of uncertainty a central piece of his macroeconomic thought. The MEC (Marginal Efficiency of Capital) guided by the forces of uncertainty (the ignorance with respect to the future) defines by itself the level of investment, which in turn determines the national product and the level of employment. And it is only ex-post that, since consumption is a function of income, savings and investment are equalized. The MEC in Keynes is volatile and independent of the investment projects of the real sector of the economy; it is defined by what Joan Robinson called the "animal spirits". With a volatile MEC the interest rate becomes only a nominal phenomenon, and Keynes' macroeconomics becomes disconnected from the neoclassical capital theory. If Keynes had been right, major economic crises would have happened very often (because of the volatility of the MEC), and they did not. And theoretically it was very unappealing to disconnect the investment function from the profitability of the real economic projects that the investors were facing. That is why, as we said before, Hicks replaced Keynes MEC with his IT (Investment Theory). Something similar happened with Keynes' LPT, it did not explain why confidence shifted all of a sudden, and therefore it was replaced by Tobin's LT (Liquidity Theory) which, as we have seen, was very fruitful in practical terms for the development of the financial markets.

And everything seemed fine except that the new IS-LM model as described by the neoclassical synthesis was mainly an equilibrium model, in which, in order to to explain the economic cycle, external assumptions of price and wage rigidities had to be added, which were very difficult to sustain in economies characterized by price flexibility and almost full flowing information. Soon, as we saw, the empirical results

showed that the Keynesian external assumptions were not sustainable, and finally through the years the dynamic models incorporated rational expectations and showed with recursive mathematical models that the economy's natural tendency is back to full employment equilibrium. The School of Rational Expectations was able to explain the stagflation phenomenon, and the economic cycle was explained as the consequence of stochastic real exogenous shocks or as the outcome of short-lived minor Keynesian rigidities.

And again, everything seemed fine, but then the 2008 crisis happened, and then the 2020 GP occurred; and all the governments had to look back to Keynes' original thought. But since Keynes' original thought was abandoned because it could not explain the actual functioning of an economy in equilibrium, nor could it relate to the long-run growth of the economy, the theoretical question that opens up is: how can we rewrite Keynes' thought based upon the contemporary economic theories so that it can explain both why normally the economy is near the full employment equilibrium, and why eventually it can enter a major crisis? As we will see in this chapter, it can be done, and the answer lies in understanding the dependence of the economic equilibrium upon the institutional arrangement.

This chapter will be divided in three sections. In the first section, we describe Minsky's version of Keynes' LPT and Keynes' MEC, and we argue that both of them only become relevant after a crisis has started, therefore the question remains of how the crisis starts. In the second section we carefully describe the institutional causes that originated the 2008 GFC, and we discard both the official explanation that was given as well as the explanation provided by behavioral macroeconomics, which borrowed from Keynes the idea of the irrationality of the investors, and which, like him, cannot explain the regular functioning of an economy in equilibrium. In the third section we argue that what produces an economic crisis is an institutional mistake of such a magnitude that it creates distrust as to the institutional abilities of the economic authorities to deal with the future – this is why there is a shift in the MEC which again only becomes relevant after the crisis has started. We apply this theory to the 1930 GD and the 2008 GFC. And we leave for chapter nine the discussion of the 2020 GP and the perspectives for economic theory in the twentieth first century.

KEYNES LPT AND MEC REVISITED

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[127]. Minsky modifies the money demand of the IS-LM model to make explicit the precautionary demand of money. In the IS-LM model, the demand for money is given by (1), and in Minsky by (2):

(1) Ld=Ld (y,p)
(2) *Ld=Ld (y,Pk,F,NM)*

where, *y* is national income, *p* is the deposit interest rate, *Pk* is the price of capital goods – and Minsky introduces the uncertainty associated with its possession, *F* is the precautionary motive for possession of Money, and *NM* is quasi-money, which can also be used to satisfy the precautionary demand for money. For Minsky, the key is that the price of real capital assets in relation to financial debts depends on *U*, the state of uncertainty. In recession, when the money supply goes up and p goes down, the debt capitalization rises and Pk should also rise; but if *U* deteriorates, 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 because 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 and Keynes' model the deterioration in *U* could 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.

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

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[128]. 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 take more likely the route of significantly higher lending rates. But the macroeconomic consequence is like the one in the case or 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 therefore, 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 of the consumers' balance sheets. In turn, this leads to a reduction in the supply of consumer loans, unleashing a negative loop. Bank credit and *r* 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 sub-prime adjustable-rate mortgage holders when rates started to rise and allowing Lehman Brothers to fall) were a blow to the confidence in policy makers that explains, at least partially, why the US recovery was so slow. In a credit economy[129], monetary policy is not as effective as it is in a traditional macroeconomic model. That is why QE (Quantitative Easing – the central bank entering the credit market directly) has to be used at the end in large amounts to combat the already very large financial crisis.

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

[129] A credit economy is one which largely operates through credit intermediation, a feature not specifically considered in the traditional economic model.

The models developed by Minsky, Stiglitz, and Greenwald[130], emphasize the decline in the supply of credit as a result of the deterioration of 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[131]. These authors point out that the objective of monetary policy is not *p* but *r*. If *r* rises above the desired equilibrium - if in a recession r is contractionary rather than stimulating - the central bank must lower *p* even more and reduce reserve requirements. This task is even more difficult if parallel banking is widespread, as the central bank has little control over it. Minsky's model makes an explicit description of the demand for money that is not 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[132] 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[133]. 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"[134]. The distinction of Minsky, and Stiglitz and Greenwald, between *p* and *r* 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

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

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

[132] A point Patinkin did not understand

[133] 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

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

includes a degree of trust in the capability of institutions to manage any situation). Thus, in Keynes there are two mechanisms that slow down 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.

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/her own discount rate of the future, let us 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 the 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 the 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 because 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 about the future. i.e., expectations about the 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[135]; (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

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

productive economy, to be able to expediently discern which corporations are viable and which are not[136]; (4) government demand lacks the main virtue of the capitalist system, the transmission of consumer preferences in an efficient way through the price system. Because of all these problems, fiscal policy did not produce a fast recovery after 2008.

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 of 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 *U* in Minsky's model. The first job of the government or the central bank in 2008 should have been cleaning up those balance sheets. It was therefore of paramount importance to withdraw the so-called toxic assets from the system at an early stage. Without reestablishing healthy balance sheets, it was impossible to achieve economic recovery quickly. If they had acted this way *U* would have recovered. In Minsky's model, *U* would have risen and the credit economy could have been put to work[137]. 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 had appeared sustainable and capable to solve the crisis.

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.

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

[137] 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.

First, the MEC is not a candidate to explain why and how the economy moves to these infrequent far-away, inefficient equilibriums 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 last section of this 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, Information Economics and Game Theory. This discussion is also the subject of the third section of this 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 five groups: 1) those involved in the IS-LM controversy; 2) the Cambridge Keynesians[138]; 3) Post Keynesians[139]; 4) the proponents of Disequilibrium Macroeconomics[140]; and 5) Behavioral Economists.

[138] 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 disconnected from economic growth theory, and the interpretations of the Cambridge Keynesians in developing countries tried unsuccessfully to fill this gap. They were not successful 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.

[139] Post Keynesians 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 Post Keynesians 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. Post Keynesians include economists such as: Clower, Leijonhuvfud, Shackle, Minsky, and Davidson.

[140] 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. Macrodisequilibrium theorists include economists such as: Malinvaud, Bennasy, Grandmont.

What all of 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*.

THE INSTITUTIONAL CAUSES OF THE 2008 CRISIS

Neither the Neoclassical Synthesis, nor the New Neoclassical Economics could explain the 2008 GFC. In a rational expectations' world, it just should not have happened, but it did. 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 wrong141, resorted to the 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 the one of 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"*[142]. 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…"*[143]. They identify five psychological factors: confidence, fair-

[141] 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.

[142] Idem. *p. vii*

[143] Idem. *p. viii.*

ness, 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"*[144]. 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"*[145]. 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 not 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."*[146]. *"confidence – implying behavior that goes beyond a rational approach to decision making – indicates why it plays a major role in macroeconomics"*[147]. 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"*[148]. And again, it is never explained why confidence comes and goes. Remarkably, how it is that it only "goes" on 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 giving it to them because employees then respond with more productivity. However, since the fair wage is above the clearance level, unemployment results. Their proposal would 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"*[149]. There are several prob-

[144] Idem. *p. xi*

[145] Idem. *p. 4*

[146] Idem. p. 12

[147] Idem. p. 13

[148] Idem. p. 14

[149] Idem. p. 39

lems 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[150]. 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 rates, and were related to ALT A loans and not to subprime loans[151]. 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 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 peoples confidence, and other peoples perceptions of other peoples confidence"*[152]. So, they argue that there are "new era" stories that spread

[150] 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

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

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

like an epidemic. Confidence for them 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 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 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 fantasy, 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, as 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"*[153]. Due to *"animal spirits" "it appears that people had acquired a strong intuitive feeling that home prices everywhere can only go up"*[154]. The story did spread mouth to

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

[154] Idem. p. 150

mouth and created cycles of feedback. *"Money illusion appears to explain some of the impressions that homes are spectacular investments"*[155]. This housing boom was greater than ever before because of the political intention to provide housing to the most disadvantageous population. *"The feedback that produced the epidemic of home-price increases had institutional, as well as cultural and psychological correlates"*[156]. And *"In this atmosphere it was easy for mortgage lenders to justify losing their own lending standards"*[157].

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 exhibit 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 mar-

[155] Idem. p. 152

[156] Idem. p. 155

[157] Idem. p. 155

ket prices away from what pure fundamentals can justify, but not irrationally - people do their best guess, using both their emotions and their reason. Manias are not due to irrationality, but to uncertainty.

In the 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 due to the fact that stock prices had become expensive, while real estate was still reasonably priced[158]. 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 in Europe[159]. 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 subprime 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 institutional causes of the 2008 crisis*. It is not necessary to resort to

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

[159] Obregón 2011 and 2018, op.cit.

irrationality to explain it. These reasons also explain why it did happen initially in the US, and not in Europe[160].

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.

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

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

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, z[161].

It was 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 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 impossible to explain the 2008 GFC as the result of irrational mistrust, money illusion, corruption, stories, or insolvent

[161] Obregón 2011 and 2018, op.cit.

consumers. It was not produced by irrational "animal spirits", but by *institutional mistakes* that improperly managed the shock. *These serious institutional mistakes and errors explain the dimensions of the crisis.* They made future uncertainty unmanageable with probability models. The only rational thing left to do 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[162]. 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; but they are neither 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.

As we have seen, Keynes' LPT neutralizes conventional monetary policy in an 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 seri-

[162] An increase in , , and .

ous 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.

TOWARDS A NEW THEORY OF MAJOR CRISES

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 fist 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 understand why major crises occur: they are the consequence of huge institutional mistakes in coping with an internal or external shock. Markets operate within an institutional arrangement, which usually functions well and guarantees the continuity needed to 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.

Traditionally, Keynes' assumption of volatile investors' expectations made it impossible to reconcile Keynes' macroeconomic insights with the mainstream. The dilemma has been between: 1) the route taken by Keynes, the 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 argue here 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[163].

In rare occasions however, economies move to a far away equilibrium. But since there are only two shock absorbers: flexible market prices, 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, but this will be discussed in the next chapter.

In summary: major economic 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 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

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

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, what changes, 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[164]. The losers printed large amounts of money (as an inflationary tax) in an attempt to extract 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.

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-

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

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

CONCLUSION

Uncertainty can be seen as lack of trust in the institutional capacity to deal with 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[165].

In this chapter we showed that due to the 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. Thus, while huge institutional mistakes explain major economic crises, the economy usually operates near its full employment equilibrium defined by microeconomic forces.

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

[165] 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.

into the IS-LM model is that, while they are useful to explain what happens once a major crisis starts, 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' macroeconomics 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 economy 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 creating such a theory: *The General Theory* failed in integrating Keynes' 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 are not nominal volatile irrational investors' expectations 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.

CHAPTER NINE: ECONOMICS IN THE TWENTY FIRST CENTURY AND THE GLOBAL SOCIAL ORDER

The New Neoclassical Economics (NNE) concluded that: 1) stability would characterize the developed economies; 2) that the developing economies that freed their markets and reduced their government's size would have fast economic growth; and that 3) the gap between poor and rich countries would be closing. It failed on the three counts. Recent developments in economic theory in several fields such as: General Equilibrium Theory, Game Theory, Information Economics and Institutional Economics have suggested why NNE was wrong. The main reason is that the economic equilibrium is not defined by market forces alone, but also by the institutional arrangement. A major institutional mistake destabilized the developed economies in the 2008 GFC, and another institutional mistake produced again destabilization in these countries in the 2020 GP. Institutional differences between China and Mexico explain the fast growth of the first country versus the second. And, again, institutional differences explain why few poor countries closed their differential gap with the advanced economies, while most others did not.

This has enormous implications. In the world's view of the NNE, free trade and free markets solve the main economic problems: stability, growth, underdevelopment, poverty and income distribution. Therefore, the world's best possible status is simply achieved by having democratic countries with small governments, free trade and free markets. But since institutions do also define the economic equilibrium, a large new set of questions opens up: what is the best global economic system? What defines global economic growth, and how can it be accelerated? What institutions should the global financial system have? How should the ICT Revolution be managed? How to deal with income distribution problems brought about by the ICT Revolution? What to do at the global level with the problems of underdevelopment and poverty? What is the relationship between global financial flows and international crime, and what to do about it? What model of economic growth should the developing countries follow? How should countries deal with poverty and income distribution issues?

And since the economic and exchange system is not independent of the integrative and the power systems, as was shown in the 1930 GD which was mainly consequence of power struggles, and in the 2020 GP produced largely by the lack of proper coordination in health issues; there are other broader issues that become also relevant such as: global governance (including justice and international crime), and global health, and the environmental crisis.

The task of economic theory in the twentieth first century is very diverse and complex; and should be guided by two principles: 1) Economics' main goal should be to contribute to a better human life; 2) its second goal, that institutional arrangements be designed with the purpose of increasing microeconomic efficiency. In what follows in this chapter we will address the future role of economic theory and policy in the following topics: I) the international economic system: trade, growth and finances; II) poverty and income distribution; III) global governance: justice and international crime; and IV) global issues: health and environment.

I) THE INTERNATIONAL ECONOMIC SYSTEM: TRADE, GROWTH AND FINANCES

Trade, Economic Growth and Migration

The ICT Revolution has been maintaining a high global economic growth despite the 2008 GFC and the 2020 GP. The World's GDP in constant prices increased 1980-1990 3.26% and 1990-2026 it is expected to increase 3.44%[166]. But the impact of the ICT Revolution has been mainly to fasten the speed of growth of Emerging and Developing Asia which 1980-2026 is expected to grow at an annual rate of 7.1%, mainly due to China – see Table 9.1. The Advanced Economies are expected to have 1980-2026 a fast growth Per Capita rate of 2.11% (high by historical standards). However, other regions have not been able to join efficiently

[166] https://www.imf.org/en/Publications/WEO/weo-database/2021/April/weo-report?a=1&c=001,&s=NGDP_RPCH,&sy=1980&ey=2026&ssm=0&scsm=1&scc=0&ssd=1&ssc=0&sic=0&sort=country&ds=.&br=1

the ICT Revolution. In the same period the corresponding growth rates are 0.88% for Latin America & The Caribbean; 0.26% for Middle East and Central Africa; and 0.77% for Sub-Saharan Africa. Thus after 46 years, in terms of purchasing power as compared with the Advanced Economies, all these three regions are expected to loose in their relative position. The Middle East and Central Africa will go down from representing 41% of the constant GDP Per Capita of the Advanced Economies in 1980, to represent only 21.14% in 2026, Latin America & The Caribbean in the same indicator and period will go down from 44.5% to 28.8%, and even Sub-Saharan Africa which has represented always a very small percentage of the GDP Per Capita of the Advanced Economies will go down from 11.6% to 7.2%.

Looking at the future there are two key goals: 1) to maintain free global trade growing, so that the world can continue reaping the benefits of the ICT Revolution; and 2) to incorporate more efficiently other regions to the ICT Revolution. The keys for the first goal are: a) to overcome the protectionist pressure in advanced economies, due to the unemployment and the redistribution of income produced by the ICT Revolution; b) to create a strong and newly designed WTO; which will be needed, particularly to manage the relationship between China and the US. The keys for the second goal are: a) for middle income countries to adapt an Asian Growth Model to be able to incorporate themselves properly into the ICT Revolution; b) for underdeveloped countries, particularly the poorer ones, to receive aid through a Marshall-like plan, so that they can develop and incorporate themselves into the ICT Revolution; and c) as more and more countries incorporate themselves into the ICT Revolution, it will become necessary to expand the size of the global middle class, for which it will be needed for the Asian countries in particular (but also for other countries incorporating themselves efficiently to the ICT Revolution) to start opening more their markets, to import goods produced with frontier technology.

TABLE 9.1 THE ICT REVOLUTION AND ITS IMPACT IN GDP PER CAPITAL GROWTH PER REGION

Countries		Year 1980	Year 2026	*2026/1980 Annual growth %*
Advanced economies	GDP Per capita Constant $2017 int. Dollars	26505.71	56180.25	21.11
		% of Advance Economies GDP Per Capita		
Emerging market and developing economies		14.24	24.31	3.64
Emerging and developing Asia		4.83	26.76	7.08
Emerging and developing Europe		44.16	54.42	2.70
ASEAN-5		12.24	28.25	4.51
Latin America and the Caribbean		44.50	28.15	0.88
Middle East and Central Asia		40.78	21.14	0.26
Sub-Saharan Africa		11.54	7.17	0.77

Source: International Monetary Fund, World Economic Outlook Database, April 2021

Once economic growth can no longer be seen just as the automatic consequence of liberating the markets, the problem of what defines the economic growth of the world must be addressed, and institutional changes must be recommended. This would likely involve understanding the role of the international middle class in expanding the market and guiding technological development, which will suggest the importance of increasing the size of this international middle class. This can be done trough three compatible routes: 1) expanding the middle-class market in the successful Asian countries.; 2) developing the underdeveloped countries so that their share of the international middle class could increase substantially; and 3) increasing the size of the middle class in the developed countries (although there is less margin of action given that it is already quite large).

The WTO was the outcome of the last successful negotiation on global trade – the Uruguay Round that concluded in 1994. Since then, the US and the EU (European Union) have refused to have more rounds,

mainly because they are not willing to discuss the high tariffs they maintain to protect their agricultural sector. This is the reason why the Doha round, programmed to create a new multilateral agreement, finally failed in 2006. The only advance obtained lately in global trade was the TFA (Trade Facilitation Agreement) in the Bali meeting ratified in 2017 by 110 WTO members. The TFA aims to expedite the movement, release and clearance of goods across borders. The consequence has been that the WTO has become obsolete. Particularly, the ICT Revolution meant the rapid growth of the Chinese economy – for which the WTO was ill prepared because: 1) it allowed late comers to maintain the high tariffs that they have when they join the organization. 2) There is not an efficient mechanism to discuss other trade import barriers like for example through administrative rules. And 3) there is no mechanism to discuss the artificial undervaluation of a currency through exchange controls, to protect imports. The developed countries' resistance to have a true new global trade discussion has backfired to them with the almost near destruction of the WTO, to the point that in 2020 there were no candidates from the US or from the EU to lead it.

What to do? The nationalist route taken by Trump, Brexit and even Biden's "buy in America" policy, is the wrong one. Going back to protectionism and bilateral trade is very dangerous and may cost the world a lot. The US has to lead and convince the EU to join it in maintaining a strong multilateral trade agreement. A new global trade round is needed which should almost start from scratch, recognizing the new realities brought about by the ICT Revolution.

The ICT Revolution does not hurt the developed countries; it benefits them in several ways. The higher productivity translates into: 1) lower expected inflation. 2) Lower real long interest rates–due to higher global savings. 3) 1) and 2) mean lower nominal long interest rates and more credit availability, which substantially increase the population's standard of living in developed countries. 4) Lower prices today, which also benefit the living standard of the population in developed countries. The benefits clearly offset the costs of income redistributions and greater unemployment in some sectors of the economy. The costs should be addressed with specific national policies, but trade should not be reduced because its benefits clearly outweigh its costs, and by much.

What institutional global policies are required? The WTO should be strengthened, multilateral agreements should be preferred over regional or bilateral ones, and protectionism should be avoided. Trade is not the place

to resolve unemployment or income distribution problems; these have to be addressed with specific policies at the national level. The world must be allowed to reap the benefits that the ICT Revolution can provide.

Historical Contributions:

Smith and Ricardo were right in that free trade is the key for technological development and fast economic growth. The ICT Revolution requires free trade and uses Ricardo's competitive advantage, because after all one of the key advantages of China and other countries have been low salaries.

Future Economic Theory:

However, the success of the ICT Revolution is also related to the Asian Growth Model, as we have seen free trade alone was insufficient to create development – as the failure of the neoclassical model in the Mexican case has shown. A better theoretical understanding is needed in the future of the workings of the Asian Growth Model. The production in several locations in developing economies, coordinated from a center in a developed country, that characterizes the ICT Revolution, also needs better theoretical understanding.

Economic Policy:

After almost 250 years of the publication of *The Wealth of Nations*, the world still has not fully learnt the extreme relevance that free trade has for global economic growth. The most important threat for the future comes from the losers in the developed economies, which together with traditionally right-wind nationalistic groups are voting for protectionist measures, for antimigration policies and for a nationalistic perspective. Which will not only not work, but can create chaos and global disarray, as it happened before when nationalism triumphed in the 1930's. The ICT Revolution means that global trade and economic growth will continue to have an upward trend in the future; but protectionism is a real threat that can seriously jeopardize the ICT Revolution and slow down substantially its potential benefits. Trump's extreme protectionism was as serious menace for humanity; and although he has lost the presidency, he still has many followers. The Biden administration is a big improvement, but it also has some protectionist biases (like defending "made in America", and arguing that all the government's budget will only buy American products) which reflect the political pressures within the Democratic Party coming from leading figures defending protectionism, senators like Bernie Sanders and Elizabeth Warren. Brexit's protectionism is another example of populist policies that do not work.

As for migration: migration will continue growing as decreasing transportation costs will make it easier, and as since it is required given the demographic trends of the developed countries (their populations are getting old); but it will not be in the main source of future productivity increases. The ICT Revolution has made migration unneeded. Firms are better off moving manufacturing production offshore, instead of bringing in migrants. Multilateral agreements related to migration issues are very unlikely. Less migration would imply a higher need for the developing countries to join efficiently the ICT Revolution. Policies to maintain migrants in their home countries in a satisfactory way are required.

The International Financial System

There are critical problems to solve related to monetary and financial stability. The most important ones are: 1) global regulation of financial markets, mainly in the developed world; 2) define the role of monetary policy versus fiscal policy; 3) solve the problem of the excess volatility of exchange rates, mainly in developing countries, to prevent the high costs associated with speculative capital flows; 4) restructure the monetary and financial system of the Euro Zone to allow countries in extreme situations to have a monetary policy of their own; 5) redefine the role of the IMF to allow developing countries to be able to adopt anticyclical adjustment programs when needed; 6) define the global monetary and financial institutional arrangement that will be able to deal with the previously listed problems.

To start, we should identify two causes of the previously mentioned problems: 1) the NNE's belief in the capacity of the markets to adjust themselves; and 2) the unwillingness of the developed countries to truly commit to sustain and defend a global monetary and financial institutional arrangement. Removing any one of these causes is a titan's task and it may turn out to be impossible, for now. But given the huge costs that the world has recently experienced for not having an appropriate institutional arrangement, it is worth to discuss what the potential alternatives are.

Markets only work properly given the right institutional arrangement. Markets can manage probabilistic risk very well, but they are unable to manage future uncertainty (what Mervyn King calls radical uncertainty in his 2016 book *The End of Alchemy)* – the only way to bridge between the now and the future is by establishing the proper institutions. What provides the bridge

is the credibility of the institutions' commitment to maintain stability, this is the best way to reinterpret Knight and Keynes' central message about the relevance of uncertainty, as opposed to probabilistic risk. What institutions do is that they provide information, they provide the framework that makes private contracts credible and respectable; and they show the negotiated path to avoid some of the traps of the Prisoner's Dilemma i.e. the difficulty of achieving a good outcome given the obstacles for cooperation. Institutions may be the difference between the "wrong games" and the "good games"; because they may put penalties to the participants that do not follow Pareto moves –i.e. moves in the direction of a Pareto optimum (a point in which none of the participants can benefit without hurting some other participant).

So, what commitments must regulators, governments and central banks make? The most important one is that they will maintain stability. The comparison between the 2008 GFC and the 2020 GP illustrates well this point. In the 2008 GFC many mistakes were made, like in the US, letting Lehmann Brothers go bankrupt, and in the EU not supporting Greece and asking the private banks to absorb huge losses related to Greece's debt. The response in the 2020 GP has been more decisive and better coordinated. The difference between the 2008 GFC and the 2020 GP can be seen in the behavior of the S&P 500 index in the US. Previous to the 2008 GFC, its highest value was reached in October 2007, and it did not get back to this value until March 2013. In the 2020 GP, the previous peak was December 2019, and it got back to this value in July 2020.

The name of the game is not overregulation. Markets must be able to operate freely; but regulators must be vigilant and intervene, when needed, in early stages - as the US regulators should have done with the subprime adjustable-rate loans market crisis in the 2008 GFC; and as they did in the 2020 GP.

What is the Role of Monetary Policy?

In the past, answering this question would have been easy; the answer could have been found in any good textbook. Today, it is not that easy. Central banks have intervened in the markets to perform huge buys of private financial assets (what is known as Quantitative Easing – QE). The first things to clarify are: did they do it only because of an emergency in 2008? Were they correct in doing it again in the 2020 GP? Will, or should, they continue doing it? What are the implications?

Traditionally the role of central banks was seen as to exercise control on monetary aggregates to prevent governments from overspending. This is reflected in a single mandate to the central bank to maintain price stability –i.e. reduce the degree of uncertainty associated with the price level over the long run. And it was thought that central banks should also care about short term output fluctuations, because these fluctuations could be influenced by monetary policy. That is why some central banks, like the FED, have a dual mandate. Moreover, it was agreed that the central bank's role goes beyond monetary aggregates, it has to inspire credibility. That is why the main central banks adopted an inflation targeting policy – for most of them is two percent, which precisely aims at communicating the seriousness of the commitment and to inspire credibility. The two main traditional central bank's munitions were: first, setting the central bank's rate; and second, buying or selling government bonds of different maturities. After 2008 they have a third one, QE.

The 2008 crisis raised a new question: should central banks also care about large and significant disequilibriums like the 2008 crisis? The answer before 2008 was that they should not, in fact, these kind of disequilibriums was not supposed to have happened. After 2008, the answer is clearly yes. That is why they intervened aggressively in the 2020 GP. However, still most of their intervention in the 2020 GP was based on the two traditional instruments mentioned above, they printed money to buy government bonds and maintained the interest rate very low. They did use QE, but I have argued that they should have used it more[167].

QE has two key advantages: 1) it maintains the central bank paying attention to real market conditions; and 2) the central bank has more flexibility to act than the fiscal policy. QE is truly the discovery of a new instrument that is a hybrid between fiscal and monetary policies, and that should continue to be used more. But a very well thought legislation and regulation for this activity must be designed. In fact, a proposal I have advanced is the possibility to create a new institute expressly designed only to operate in large economic crisis which will channel the money printed by the central bank to the productive economy (partially substituting the government's role). This specialized institute could become more "credible" to be able to foster the recovery, than the government[168].

[167] Obregon, C., 2020. *Beyond Quantitative Easing*. University Editions. Amazon.com; also available at Research Gate.com.

[168] Obregon, C., 2020. Keynes Today. University Editions. Amazon.com; also available at Research Gate.com.

Global Regulation of Financial Markets, Mainly in the Developed World

A more active monetary policy necessarily requires global coordination. Giving free capital flows the macro-prudential task necessarily implies coordination amongst countries. What we have learnt from the 2008 GFC is that financial risks are globally interrelated. Therefore, financial regulation has to be global and this requires to build the proper institutional arrangement, to be able to do so.

The Euro Zone

The Euro Zone was not well designed. An economic zone to be able to have a unique monetary policy must also have a unique fiscal policy and free migration. Migration in the Euro Zone is free. And the Maastricht Treaty supposedly was going to oblige countries to coordinate their fiscal policy, in the practical world it never happened.

It could be argued that if the Euro Zone wants to survive it has to modify its rules; it cannot ask countries to go through draconian adjustments each time they have a significant external shock. As long as Europe is not one single country, each one of the countries participating is exposed in distinct ways to different external shocks – thus not even an agreed fiscal policy (like the Maastricht treaty) will solve the issue. Modern economic tools tell us that, when confronted with an external shock, the optimal solution is for the country to have its autonomous monetary policy. For an autonomous monetary policy there are only two options: 1) a fixed exchange rate and capital controls (like Bretton Woods); 2) a floating exchange rate and free capital flows (like the FFER). In our opinion, given that the world's actual regime is the FFER (which is the right option, given the flexibility required by the ICT Revolution), this is the one that the Euro Zone should use in special occasions – i.e. when a country is confronted with a significant external shock. How will it work? In the new proposal there would be multiple currencies, one for each country. In normal times, the exchange rates between the diverse currencies will be fixed and there will be free capital flows; therefore, in normal times the new regime will mimic the actual Euro Zone regime. But when a country faces a significant external shock, it will be able to let its currency float, recovering its autonomous monetary policy; which in fact means leaving temporarily, only in monetary terms, the Euro Zone.

The IMF

It was originally designed to guarantee exchange rates and financial stability, to contribute to the recovery of Europe; but it has changed its purpose and has become a short-term lender to developing countries which is no longer concerned with economic recovery or growth. Originally, it had full support from the world's leader – the US; today developed countries put a lot of pressure on the IMF to recover its loans in a short period. The IMF would need support from the developed countries to help developing countries to maintain exchange rates and financial stability with anticyclical programs – as it is done in the developed world.

The IMF should also become more involved in the supervision and regulation of the global financial system, particularly the one in the developed countries.

The Excess Volatility of Exchange Rates

Floating exchange rates have resulted too volatile in developing countries. Therefore, they adopted fixed or semi-fixed exchange rates, which under free capital flows were soon the target of speculators; and very serious financial crisis have occurred. To avoid this situation, the developing countries have decided to create very large international reserves that would allow them to control better their exchange rates. However, the economic cost of doing so is high and the exchange rates still fluctuate more than it is desired. A cheaper alternative, and that will work much better, as we said before, would be to strengthen the IMF and entrust it with maintaining exchange rate stability in developing countries –allowing, as we mentioned, the developing countries to implement anticyclical adjustment programs. That means in practice a very strong IMF, that must be resolutely backed up by the developed countries.

Towards a New Global Monetary and Financial Institutional Arrangement

The ICT Revolution has moved at such speed that institutions have not been able to cope with it, even in the developed countries. Today's monetary policy is already well beyond the boundaries of national monetary aggregates. It has entered the realm of credit, and credit is a global phe-

nomenon and therefore requires worldwide coordination, particularly among the main players – the developed countries. Macroprudential policies cannot be understood or executed without global coordination. Several steps in this direction have been taken already, but they are still organized mainly by the countries themselves; the international institutions are not strong enough – they really do not have an independent role of their own. The IMF – and other global financial institutions - must become stronger and truly independent.

The actual FFER is needed for the speed of change involved in the ICT Revolution; but it has the risks that, precisely because the speed at which it can change, it can become disruptive of the economic order, as the 80's Latin American Financial crisis, the 90's Asian crisis and the 2008 GFC have shown. In order to avoid such disruptive events, the FFER needs a much stronger global institutional framework. Which does not mean overregulation, but regulators that do participate in the markets and understand them. Regulators that are supervising the credit flows and the balance sheets of the banks and other financial institutions and players at the global level; and that are always asking themselves whether the institutional arrangement is, or not, providing the institutional certainty related to the future that is required. The speed of financial innovations that the ICT Revolution allows requires very fast regulating innovations at the global level – to that account global financial institutions must be substantially strengthened.

Historical Contributions:

There have been many relevant contributions. NE rightly pointed out the relevance of the relation between the monetary and the real sectors of the economy, in the determination of the final economic equilibrium. Keynes described the possibility of unemployment equilibrium, and forcefully argued for the need to use fiscal policy in these cases. NNE has signaled the importance of highly credible financial authorities. Keynes and Bretton Woods taught us the importance of a proper global institutional arrangement. And the actual FFER has shown the need of free capital flows in a world whose economic relationships have globalized.

Future Economic Theory:

There are many areas for future research. QE has created a new role for monetary policy which has been successfully used in the 2020 GP. However, most of the burden of the adjustment in 2020 still has been taken by fiscal policy. Governments grew substantially their fiscal expenditures, financed largely by money supply increases. But there is no good theory

to justify what governments have done (although it seemed to work very well), except Keynes' theory which is very old - and which has unresolved issues; because, as we have seen before, it cannot explain why major crises do not happen more often. The contemporary behavioral macroeconomic version of Keynes has the same problem. It is not acceptable that economic agents are irrational because then the economic equilibrium is left unexplained – it is not possible to understand why real economies are regularly around the full employment equilibrium and major crises only happen rarely. It is needed to develop a more comprehensive theory of major economic crises. We have suggested that the microeconmic bases for such a theory are already there in Information Economics, Game Theory and Institutional Economics; but much more formal analysis and empirical research in this direction has to be done. In particular, to study the role of the monetary policy and the fiscal policy in the response to a large crisis is a major topic. In fact, we have suggested in other works the creation of a specialized institute to channel the new created monetary resources to the productive economy. I have argued that such an institute could be more efficient both than the government and the central bank to channel those resources. But whether my proposal is considered valid or not, what is clear is the need of creating a major theory of large economic crises and of what to do when they occur (a theory that we do not have today).

Economic Policy:

The world is characterized today with highly indebted governments, low interest rates and huge amounts of liquidity. The situation will be manageable as long as interest rates can remain low because, at these rates, the governments will be able to pay their debts with the recovery income (increased revenues due to economic recovery). There are two critical factors for the actual situation of the global economy to end up well: high productivity, so that real interest rates remain low; and high credibility in the financial institutions, so that inflationary expectations remain low. The critical point to realize is that these two conditions are interrelated. If productivity goes drastically down it will push prices up and real interest rates up, thus nominal interest rates will go up and government's debts will become less manageable – and in this scenario, because of rational expectations, investors will realize the risk and inflationary expectations will be formed. Therefore, it is critical for productivity to remain high, and this depends on the proper workings of the ICT Revolution. Thus, the real economy and the nominal economy are clearly interconnected (as the NE taught us).

Therefore, in terms of global policy it is critical to maintain high productivity – accelerate as much as possible the ICT Revolution; and to maintain also high credibility in the financial authorities. In relationship to the second point, as mentioned before, I have argued that a specialized institute to disburse the newly created monetary funds would be more "credible" than the government. This is not the place to further discuss this proposal, but the interested reader may find the discussion in my previous works[169].

II) POVERTY AND INCOME DISTRIBUTION

Many global indicators present a positive scenario for the future; the global income distribution is improving, the United Nations Human Development Index (HDI) shows a clear upward trend and poverty has been declining rapidly. This has created several illusions. The first one is that the international and national programs to fight poverty are working very well. The second illusion is that the global program to improve the quality of human life is a success. The third one is that the underdevelopment problem will be solved by itself. The three illusions are mistaken.

Poverty is Still Widespread

The World Bank has defined extreme poverty at less than $1.90 2011 constant international dollars a day (from now on denoted as DD). Poverty in millions seems to be going down rapidly, as Table 9.2 shows, poverty in the world at $ 1.90 DD went down from 1990 to 2017 64%[170], which creates the first illusion – that the international and national programs to fight poverty are working very well. However, in the same table we can see that at $ 5.50 DD poverty is only going down 8%. Moreover, even $ 5.50 DD is an extreme definition of poverty. The average definition of poverty in High Income Countries has been estimated to be $

[169] Obregon, C., 2020. New Economics, op. cit.

[170] 1- (690.83/1911.39)

21.7 DD[171], and if one focuses only on the richest countries in the world, it has been estimated to be $ 30 DD[172]. At $ 5.50 DD, 43% of the world population is poor[173], at $ 20 DD 78%, and at $ 30 DD 85%[174]. We are very far away from eradicating poverty, 82% of the world's population lives in countries where the mean income is less than $ 20 per day[175]. In addition, in Table 9.2. we can also see that in Sub Saharan Africa even at $ 1.90 DD poverty in millions 1990-2017 is increasing drastically, 52%. And of the world's 64% poverty reduction at $ 1.90 DD, 56% happened in East Asia & Pacific and only 8% in other regions.

TABLE 9.2. POVERTY IN MILLIONS

	$1.90		$3.20		$5.50	
	1990	2017	1990	2017	1990	2017
East Asia & Pacific	1109.72	32.40	1548.86	176.94	1732.91	652.58
Europe & Central Asia	26.09	11.89	86.68	42.99	217.11	115.24
Latin America & Caribbean	67.16	24.75	130.34	60.28	220.47	146.58
South Asia	552.01	272.51	934.00	939.45	1082.49	1495.22
Sub-Saharan Africa	283.76	430.56	387.69	706.75	454.94	904.18
World	1911.39	690.83	2930.44	1809.69	3553.49	3273.96

Data from database: World Development Indicators
Last Updated: 12/16/2020

Sub Saharan Africa is the region that should be reflecting the victory against poverty, not East Asia. The truth is that the main reason poverty is going down is economic growth, and it is going down insufficiently. Does this mean we should stop the programs against poverty? Absolutely not, they are necessary and highly beneficial; but they are not enough. To get rid of poverty the world needs to solve the problem of underdevelopment.

[171] Dean, J, and Prydz., E, 2016. op.cit.

[172] https://ourworldindata.org/higher-poverty-global-line

[173] http://documents1.worldbank.org/curated/en/407961584980637951/pdf/March-2020-PovcalNet-Update-Whats-New.pdf

[174] https://ourworldindata.org/higher-poverty-global-line

[175] https://ourworldindata.org/higher-poverty-global-line

The Quality of Human Life is Still Unacceptable

The Human Development Index (Multidimensional Achievements).

The Human Development Index (HDI) is a composite index of diverse statistics. Philosophically it is an outcome of Sen's capability approach. It was developed by Pakistani economist Maybug ul Haq and was further used to measure a country's development by the United Nations Development Programme (UNDP)'s Human Development Report Office. The HDI includes life expectancy, education (literacy rate, gross enrollment ratio at different levels and net attendance ratio), and per capita income indicators, which are used to rank countries into four tiers of human development. A country scores a higher HDI when the lifespan is higher, the education level is higher, and the gross national income GNI(PPP) per capita is higher.

Since 1990 the Human Development Index (HDI) has shown substantial improvement in most regions and countries around the world, allowing the second illusion – that the global program to improve the quality of human life is a success. It should be observed that the HDI rate of annual growth 1990-2018 is higher in the least developed countries, see Table 9.3. The HDI is trending upwards mostly because it gives a significant weight to very basic improvements in human life, like life expectancy at birth – which to a large extent has improved because of technological changes, which among other things often imply new or cheaper medical treatments.

TABLE 9.3. HUMAN DEVELOPMENT INDEX

	1990	2019	**2019/1990**
Regions			
Arab States	0.556	0.705	1.27
East Asia and the Pacific	0.517	0.747	1.44
Europe and Central Asia	0.662	0.791	1.19
Latin America and the Caribbean	0.632	0.766	1.21
South Asia	0.437	0.641	1.47
Sub-Saharan Africa	0.404	0.547	1.35
Least developed countries	0.353	0.538	1.52
World	0.599	0.737	1.23
Central African Republic	0.334	0.397	1.19

Source: http://hdr.undp.org/sites/default/files/hdr2020.pdf

However, in relative terms compared to the world, Sub Saharan Africa improved its HDI 9.8%; but its purchasing power capacity grew less than the world's, and in relative terms it lost 31.6%, see Table 9.4[176]. Thus, its quality of life compared with the rest of the world is going down. Against the High-Income countries, it lost 18.8%. Which means that the average inhabitant of this region is losing his place in modernity - despite the drastic increase in its HDI in absolute terms of 35%.

An even more dramatic example of why the HDI, while useful, does not give us the full picture about poverty is the case of Central African Republic. Its HDI improves in absolute terms 19%, almost as much as the world's average, which improved 23%. However, its purchasing power capacity against itself went down 21%, against the world's 122.2%, and against High-Income countries' 100%. It is certainly difficult to argue that people in this country are better off.

[176] (1.75/1.33)-1

TABLE 9.4. GDP PER CAPITA, PPP (CONSTANT 2017 INTERNATIONAL $)

Region	Level		Region %	World	
	1990	2019	1990	2019	2019/1990
Arab World	9694.67	14602.94	1.00	0.86	1.51
East Asia & Pacific	5089.10	17723.81	0.53	1.05	3.48
Europe & Central Asia	23539.50	35257.65	2.43	2.08	1.50
Latin America & Caribbean	10809.79	16355.77	1.12	0.97	1.51
South Asia	1908.46	6224.51	0.20	0.37	3.26
Sub-Saharan Africa	2838.37	3782.33	0.29	0.22	1.33
Least Dev,Count. UN Clas.	1521.49	3045.91	0.16	0.18	2.00
High income	31678.17	49899.43	3.27	2.95	1.58
World	9678.15	16913.91	1.00	1.00	1.75
Central African Republic	1201.68	944.87	0.12	0.06	0.79

Source: WDI, World Bank, Last Updated 12/10/2020. https://databank.worldbank.org/source/world-development-indicators#

Multidimensional Deprivation

The global Multidimensional Poverty Index (MPI) is an international measure of acute multidimensional poverty covering over 100 developing countries. It complements traditional monetary poverty measures by capturing the acute deprivations in health, education, and living standards that a person faces simultaneously. The MPI index was developed in 2010 by the Oxford Poverty & Human Development Initiative and the UN Development Programme. The MPI assesses poverty at the individual level. If a person is deprived in a third or more of ten (weighted) indicators, the global MPI identifies them as 'MPI poor'. The extent – or intensity – of their poverty is also measured through the percentage of deprivations they are experiencing[177].

Multidimensional poverty actually reflects properly the poverty that exists in Sub-Saharan Africa and in the Central African Republic. In 2018, 55% of the population in Sub-Saharan Africa could be defined as multidimensional poor, and 79.4% in the Central African Republic, See

[177] https://ophi.org.uk/multidimensional-poverty-index/#:~:text=The%20global%20Multidimensional%20Poverty%20Index%20%28MPI%29%20is%20an,that%20a%20person%20faces%20simultaneously.%20Source%3A%20OPHI%20%282018%29.

Table 9.5. In 2018, 1291 million people in the world were suffering multidimensional poverty.

TABLE 9.5. MULTIDIMENSIONAL POVERTY

	Index Value	% Population	Mul. Poverty
Regions			Million
Arab States	0.077	15.8	53.025
East Asia and the Pacific	0.023	5.4	110.514
Europe and Central Asia	0.004	1	1.156
Latin America and the Caribbean	0.031	7.2	38.165
South Asia	0.132	29.2	529.846
Sub-Saharan Africa	0.299	55	558.42
Total (2017)			1291.126
Central African Republic	0.465	79.4	3.703
World	9678.15	16913.91	1.00
Central African Republic	1201.68	944.87	0.12

Source: http://hdr.undp.org/sites/default/files/2020_mpi_statistical_data_table_1_and_2_en.pdf

Therefore, as for the second illusion, the HDI is trending upwards, but that does not mean that human quality of life in relative terms is improving in developing versus developed countries. We must not deceive ourselves, improving the HDI index should be one of the global development goals, and it is necessary - but it is not sufficient. The main goals have to be: a) to eliminate multidimensional poverty; and b) that Sub Saharan Africa and the poorest regions and countries in the world improve their quality of life in modern terms, compared to the rest of the world. This critique, however, does not mean that the Millennium Goals are irrelevant or that we should discontinue efforts to improve the HDI. Such efforts are very welcome; they do a lot of good to many people, but again they are not enough.

Underdevelopment: The Unresolved Problem

As for the third illusion: that the underdevelopment problem will be solved by itself, it is true that the global income distribution is improv-

ing and that it is due to the fact that the between country inequality is decreasing. Therefore, it is true that the underdeveloped countries are converging towards the developed ones, but it is not true that this will solve the underdevelopment problem. Convergence is relevant because the countries involved are heavily populated; but it is a very limited phenomenon in terms of the countries participating. And while it is true that the ICT Revolution will continue, and that it may expand to other populated countries in Asia, even if this happens it will still be a concentrated phenomenon. There is discussion as to whether the global convergence is due primarily only to China, some more recent data seem to indicate that it may include other countries – but still they are a limited number (and all of them relate to the Asian Economic Growth Model). The most likely scenario is that the ICT Revolution will expand only to a limited set of countries.

Is the improvement in the global income distribution a relevant phenomenon? Of course, because it involves large populations. Will it solve the problem of underdevelopment? No, because its limited character. Moreover, we should not loose sight of the fact that in terms of the global income distribution, despite its relative recent improvement, the world is a very unjust place. Any way we measure it, it is less equal than the most unequal countries on earth. The truth is that the world today is very inegalitarian; the citizenship rent is as high as always, the nation in which one is born explains most of the future income that one will have. Convergence, even if it continues at a proper speed, will not solve the inegalitarian problem of the world, at least not in a foreseeable future.

The Global Income Distribution

The fact that the global income distribution has been improving recently should not be confused, as we said before, with the statement that the poor countries are converging towards the rich ones. The global income distribution is an average which has been heavily influenced by China, due to the ICT Revolution, but if we take away China and India the rest of the world does not necessarily converge.

Will the world become more egalitarian? On average most likely it will, although we cannot define the speed of convergence, and there are many reasons to believe that it will slow down such as: 1) increasing protectionism in developed countries, mostly due to their refusal to grow

their trade account indefinitely; 2) the uncertain political future in China; 3) the uncertainty as to how well China will manage to become a Middle-Income Country; 4) we do not know to what extent will other largely populated Asian countries incorporate themselves efficiently into the ICT Revolution. But even if convergence continues on average at a proper speed, that does not mean that the poor countries are developing as they should – and much less that the world is growing near its potential.

At a minimum, the world should implement a developing program aimed at developing the poor countries, but the world could even go further than this. The developed economies should finance the developing of the whole underdeveloped world, and they will become the first beneficiaries.

Programs to improve the income distribution in developing countries are important, and social programs to fight extreme poverty and improve the HDI index are welcome and necessary, but all of these are not sufficient. An economic development Marshall-like program is required; whose goal has to be that in relative terms developing countries grow their GDP PPP Per Capita more than the developed countries. Development in terms of economic growth is required to improve in a sustainable, long-term way the quality of life of human beings.

Historical Contributions:

Sen's intellectual framework was a major breakthrough in the economic understanding of poverty – it was seen for the first time as the lack of capabilities and/or the presence of multideprivations. And thanks to the work of many international organizations, we have today a much better quantitative view of what poverty means.

As for income distribution, as we saw in chapter four there have been several significant economic theories of income distribution such as: Kuznets, Piketty, Milanovic, and others. There has also been an interesting analysis of the institutional and cultural determinants of the income distribution like for example: Acemoglu and Robinson.

Future Economic Theory:

Many of the explanations of poverty imply one or another sort of discrimination[178]. The world has not accepted (and will not accept) any real responsibility in eliminating poverty. Humanism is nationally bounded, and it will remain so. It is not out of duty or benevolence that poverty will be eliminated; if it is ever eliminated, it will be out of selfish interest. Eliminating international poverty would be highly beneficial for the

[178] Obregon, C ., 2021. *Poverty and Discrimination,* op.cit.

developed countries; but for this to happen a new global institutional arrangement has to be developed – one capable to prevent non-Paretian moves, so that the countries investing in eliminating international poverty can reap the benefits. This is a major task for future economic theory.

As for income distribution, more theoretical work has to be done as to its institutional determinants. It is for example surprising that Piketty and others insist on the relevance of the income distribution before taxes, transfers and government's expenditures, while the crucial determinants of the income distribution in developed countries in the last one hundred years have been precisely the rapid growth of taxes, transfers and government expenditures due to the rise of the democratic power of the middle class. The economic system does not operate in isolation, it interacts all the time with the power system and the integrative system. And all three systems are crucial in the determination of the income distribution, more economic analysis in this direction will be required in the future.

Economic Policy:

The income redistribution consequences of the ICT Revolution in developed counties have to be addressed through distributional policies. The NE marginalist view of the world has had pernicious consequences on this issue, because the erroneous belief that each person gets what he/she deserves because of his/her own economic productivity creates an environment in which huge economic transfers to correct the redistributional problems created by the ICT Revolution are resisted. Instead, the accepted idea is to make these groups of people productive again by protectionist policies (which could be as strong as Trump's policies or as mild as Biden's "buy American"); but this is inefficient – because it damages both the whole population of the protectionist country (because productivity goes down and prices go up) and the global economic growth. It is much cheaper to transfer whatever is needed to compensate the losers of the ICT Revolution.

The NE conception that the developing countries will develop by themselves has influenced even critics like Piketty; who argue that the global income distribution is not a problem because the between countries distribution is rapidly improving, and focus on the within country income distribution, mostly in the developed countries. But as we have argued this is not true, the between countries income distribution is an unresolved problem. Underdevelopment and poverty would have to be addressed in the future by global economic policies; but for that to happen, further theoretical developments are required, and a new global institutional arrangement would be in place.

III) GLOBAL GOVERNANCE: JUSTICE AND INTERNATIONAL CRIME

The boom of transnational criminal activities, involving more than one country, is a clear example of the negative consequences of the lack of proper global governance. Due to the ICT Revolution, the nature of crime has changed. It has become global, and more prominent. Previously unrelated criminal activities had become interconnected. The new powerful Global Criminal Groups (GCGs) are involved at once in diverse transnational and national criminal activities such as: drug trafficking, human trafficking, counterfeit and piracy, the plundering of natural resources, and many others. Their abundant financial resources allow them to buy high caliber armament – fueling the trade in smuggled weapons. They defy the governments in many developing countries and have gained control of many cities around the world, where they charge the businesses to let them operate, practice selective kidnapping, control prostitution, human trafficking, and establish the illegal exploitation of natural resources. They use their power to bribe customs and establish a profitable import -export criminal activity. The GCGs use fiscal paradises for money laundering. And besides investing large amounts in the developed countries through trade-based money laundering, and other schemes, they bring some money back to their own country. Which they use to buy economic assets, and to finance political campaigns to obtain political power. Today's crime spreads violence in many countries. In some cases, they collude with guerrilla fighters. Cyber crime in the web has exploded. And cyber-terrorism threatens state security. Crime cannot any longer be seen as a national phenomenon; nor are different criminal activities independent from each other. The developing economies can no longer fully control the GCGs,

Confronted with this new globally organized criminal activity, national government's efforts to fight crime are insufficient; and global governance either is inexistent or disjointed. There are no proper global agreements, no adequate rules for authorities' behavior, and global mechanisms to monitor compliance are -to say the least- incomplete. Something needs to be done.

The Costs of International Crime

How much is global crime worth? Estimates are difficult to obtain, given the illegal character of the activity, and there is a wide range of guesses; but all of them concur that the numbers involved are very significant. The Global Financial Integrity Group based in Washington estimated in 2017 that the average value of transnational criminal activities was 1.9 trillion dollars, which was 2.3% of the World's GDP or 8.3% of the World's exports of goods and services. In terms of purchasing power transnational criminal activities equal the whole economy of France[179]. We are talking about big, big numbers. This makes global crime the eight most powerful economy in the World. Just unacceptable!

Fiscal Paradises and Money Laundering

Fiscal paradises have six purposes. 1) To allow international companies to maintain profits offshore avoiding *legally* tax payments in their corresponding countries. 2) To allow wealthy individuals to have sophisticated *legal (or illegal)* inheritance procedures to avoid the payment of inheritance taxes. 3) To allow wealthy individuals to *illegally* avoid tax payments in their countries of origin. 4) To allow corrupt money from politicians and authoritarian regimes to *illegally* leave their countries. 5) To disguise *illegal* bribes given from private companies to politicians so that they do not appear in the company's accounts. 6) To allow criminal money from GCGs to be held offshore from where then it can be deposited in major banks around the world, and be used for real estate or trade transactions and many other forms of money laundering (Bitcoins are of course an ideal vehicle for money laundering, because up to now they have not been regulated). While purposes 1) and 2) may be legal, all the other purposes are illegal. Fiscal paradises do move great amounts of money, between 30% to 50% of the inward foreign direct investment flows of the main developed economies come from fiscal paradises.

There are many bilateral exchange information mechanisms and there are both global and national efforts to identify dirty money, but

[179] The World's GDP in PPP constant international dollars is 1.5 times the World's GDP in current dollars. Multiplying 1.5 by the 1.9 trillion we get 2.85 trillion PPP constant international dollars. France's GDP in PPP constant international dollars is 3.0 trillion.

they have been clearly insufficient. Fiscal paradises are used by the elites around the world, and that is why it is so difficult to legislate against them. But the social costs of their existence are too high. Anonymous companies are utilized by CCGs, authoritarian corrupt political regimes, military revolutionary movements and terrorists alike.

The costs of transnational crime are enormous, in terms of purchasing power they represent the eight most powerful nation in the world. Crime activities are interconnected and GCGs operate in most of them; and they have globalized themselves. Fighting each one of the lines of criminal activity at the regional level is the wrong strategy, because GCGs have the ability to move between regions and to change from one criminal activity to another. Crime has become a global issue and given the lack of proper global governance it is very difficult to combat it. The most efficient mechanism that there is to stop GCGs is to attack their financial structures, because reducing their financial flows jeopardizes their operational capacity. This strategy, however, has not yet been very successful, mainly because of the lack of proper regulation of fiscal paradises; and attempts to impose one are often stopped by powerful groups with vested interest in these locations.

What to do? It is required to have both international law and international courts accepted by all national members. Unless there is the international possibility to sanction countries nothing will change. Its sanction capability was the key to the temporary success of the WTO, which did not last for the reasons presented before. International organizations without sanction capabilities cannot make any difference in the real world. Anonymous companies must disappear, and fiscal paradises must be under the obligation to report to involved countries any transaction done by other countries' citizens. The most efficient way to cause true damage to GCGs is by jeopardizing their capacity to move and use their financial flows.

The world's institutions are not well prepared for the huge changes that the ICT Revolution has been bringing about. When many legal and illegal activities can be globalized and managed from offshore, the absence of a clear international law with international courts and judges is a big minus. But again, national interests, as expected by Game Theory, have blocked consistently any serious advance in this direction. The United States and other developed nations insist on seeing their national, local law as the global standard, and their judges and courts as having an international reach. There is of course today a sophisticated international

law, but it is quite insufficient when international courts are not recognized by all the participants.

One of the biggest consequences of such an international legal vacuum has been the growth of fiscal paradises, which today intermediate a significant percentage of the foreign direct investment that enters the developed countries. This is bad news, because a large portion of this money does not have licit origins. In the least, it does not pay taxes properly in the country of origin, and in the worst case it is money from criminal activities and terrorist groups. It has become vey difficult for governments to increase taxes on capital income or inheritances substantially, because capital can escape the country through fiscal paradises, and ends up investing in another country. This has become a serious restriction in implementing a redistributive fiscal policy. And it is unfair for those that do pay their tax share. The global trafficking of people, arms and drugs could be diminished to a great extent if there was not a way to hide the associated financial flows. Thus, the disappearance or strict supervision of fiscal paradises would bring to the world many benefits; but it cannot occur as long as there is not full global coordination, accepted by all the nations, in legal issues – through laws, courts and judges.

Historical Contributions:

Justice and international crime is a good example of the interrelatedness between the integrative system, the power system and the economic and exchange system. Because the international power system is based upon nations, and there is not an adequate global integrative system, fiscal paradises, and everything they stand for – like the implicit acceptance of criminal financial flows - are the consequence. There have been many theoretical and empirical contributions to the understanding of crime[180]; but we are still in need of a true global integrated theory that highlights clearly the consequences of the lack of global governance.

Future Economic Theory:

As mentioned, we are lacking adequate economic theory that puts together the integrative system, the power system and the economic and exchange system. In particular, the lack of global governance is an impediment for a Marshall-like plan to help developing economies, because as we said there are no international institutions capable to guarantee that the developed countries providing the help will reap the benefits of the additional economic growth of the developing economies.

[180] See Obregon, C., *Social Order*. University Editions. Amazon.com; also available at Research Gate.com.

Economic Policy:
Given today's nationalistic biases, it will be very difficult to implement global governance.

IV) GLOBAL ISSUES: HEALTH AND ENVIRONMENT.

Trump abandoned the Paris Accords and Biden has joined them back, which shows how fragile the environmental policies really are. Here, like in many previous topics, the national interest and "the wrong games played" have prevailed over optimizing the common interest. With Biden's new policies, it is expected that there will be future advances in this area; but they will always be limited, as long as there is not a proper international "common" legal arrangement. As for health, as we discuss below the 2020 GP has shown the weakness of the global health system and the huge costs associated with this situation.

Health

The developed economies have never been truly committed to strong global health institutions. The WHO is part of the UN, which a highly bureaucratic institution. Most of the fundamental international decisions are not really taken in the UN; they are consequence of agreements between the rich countries. Almost immediately after forming the UN, the US created the IMF, the WB and the OTAN, institutions in which the US had significantly more control over their outcomes than in the UN. Thus, from the beginning the UN was condemned to be quite irrelevant for the key global decisions. In terms of health, like in many other issues, the richer countries rely on their own national institutions. The WHO plays a very minor role in developed economies. Most of the tasks of the WHO, for years, have been related to the health problems of poor countries. The consequence is that the WHO does not have the political stature to deal with a global pandemic, like the 2020 GP which involved the advanced economies. To give an idea of the dimensions involved, the 2020 budget of the US' CDC was 8 billion dollars[181] versus 2.4 billion

[181] https://www.cdc.gov/budget/documents/fy2020/fy-2020-cdc-operating-plan.pdf

dollars of the WHO. The WHO has a budget of the size of a large US hospital[182].

The 2020 GP has clearly shown the weakness of the global health system:

I) After forty years of positive experience of mask wearing in Asia, the WHO had not performed any scientific analysis of the mask's merits. It recommended not to use mask to the public in general, based on four scientifically unsubstantiated Western prejudices shared with the US's CDC: a) that people would not wear masks correctly, and that they would touch their eyes and nose more often because of the mask; b) that people would run to buy N-95 masks and that they would become scarce and unavailable for professionals; c) that people would feel safe with the masks, and would no longer follow the recommended social distancing and hand washing instructions; d) that airborne transmission was irrelevant. A great deal of evidence in three fronts accumulated, which showed that the prejudices against mask wearing were wrong and misleading. 1) Scientific evidence on the importance of masks to prevent dissemination of Covid-19 – it was shown among other evidence that airborne transmission is relevant. 2) The low number of deaths in Asia due to mask usage. 3) The reduction in the number of deaths of other countries, regions, or states that increased mask usage. Finally, on April 3rd 2020, the CDC reversed its position and recommended mask wearing. And still, unbelievable as it may seem, the WHO waited until June 5th to reverse its position.

II) A strong WHO should have had a global strategy designed to control Wuhan's contact with the rest of the world, as well as the initial responses of the Western countries - that ended up being mistaken in many cases. The widespread range of Western responses to the pandemic clearly indicates the lack of an integrated global view. The cost in terms of human lives has been enormous. An independent panel of 13 global experts, appointed by the same WHO due to a petition of its members, has concluded that the consequences of the pandemic could have been avoided[183]. Obregon and Mariscal have esti-

182 https://www.cdc.gov/budget/documents/fy2020/fy-2020-cdc-operating-plan.pdf

183 AFP, Ginebra Suiza (12-may-2021).- 0.750 hours.

mated that if the rest of the World had followed the population weighted average strategy of Indonesia, Thailand, Korea and Japan, it could have prevented 87% of the deaths[184]. And additionally, at least twenty-five percent of the incurred cost of the economic recession could have been avoided. But an integrated global health strategy required a much stronger WHO. And to have had such a stronger WHO, required the open support of the advanced economies, particularly of the US and the EU. The price paid for national egoisms, and for underappreciating the global institutions and what they can do, has been -to say the least- unacceptable. It is time to change. The cost involved in the 2020 GP does not leave any doubt that proper global health governance is required. In the following section we review the 2020 GP, its causes, and what could have been done better at the global level to prevent it. We compare the enormous costs of the pandemic with the costs of a strong WHO, which in comparison look very, very small. We review three types of costs: human lives, economic growth costs, and fiscal costs incurred. The world has had already two large crises in only fifteen years; we have to learn the lesson, and change the global institutional arrangement; of which health is of course a central issue.

Differential Policy Strategies

To control an exponential phenomenon like Covid-19, the critical issue is to start early. The longer a government waits, the higher the cost to battle down the pandemic. The basic strategy to stop the pandemic is well known and includes: 1) Identifying (by testing or traditional methods), contact tracing, and isolating. 2) Mask wearing. 3) Social distance. 4) Hand washing. 5) Selective lockdown of nursing homes and other critical places. 6) National lockdown for a brief period. 7) Opening with selective lockdowns and social distance management in public places, plus masks, plus sanitizing and hand washing. 8) Maintain all the time communication and public awareness of the risks involved. 9) Scientific research in vaccines, antivirals and treatments. 10) Vaccinate rapidly the population

[184] Obregon and Mariscal, 2020. op.cit.

as early as vaccines are available. Obregon and Mariscal[185] showed that the most successful early differential strategy was adopted by a group of Asian countries, such as Japan, Korea, Indonesia and Thailand, and was characterized by emphasizing mask wearing. The second-best strategy was adopted by a group of European countries, such as Germany, Denmark and Norway, and was characterized by testing, contact tracing, and isolating. The third best strategy was adopted *late* by another group of European countries, such as Italy and Spain, and was characterized by aggressive national lockdowns. The least successful strategy was adopted by countries that also acted *late* and did not pay the price of aggressive lockdowns; and in addition did not follow other key points of the basic strategy mentioned before, such as mask wearing, or aggressive identifying, contact tracing and isolating. In a later state of the pandemic the vaccination strategies adopted have clearly made a difference.

The main problem when comparing countries is that the procedures to report Covid-19 deaths and confirmed cases are not standardized. Many people died at home or without being tested. And confirmed cases are closely related to the level of testing, which in most countries is clearly insufficient. Therefore, any meaningful comparison has to make an effort to standardize the official national statistics. Given the level of testing in most countries it is impossible to standardize confirmed cases, therefore the best route is standardizing Covid-19 deaths. The only correct way to do it is to look at excess deaths. Excess deaths are obtained comparing actual deaths, for any reason, in 2020 with the average in the previous four years. The assumption is that all the excess deaths are either directly or indirectly (due for example to crowded hospitals) consequence of Covid-19. Unfortunately, the data on excess deaths differ between diverse sources, and are not available for all countries. The IHME (Institute for Health Metrics and Evaluation) in Washington University has recently (May 13, 2021) made a study in excess deaths. Several interesting results were obtained. First, globally the number of Covid 19 deaths was calculated at 7.1 million, more than twice the 3.33 million reported by the countries. This result seems on solid grounds as the British magazine The Economist's model reported (May 15, 2021) between 7.1 million to 12.7 million deaths. Second, there are clear, significant differences in the outcome obtained following diverse strategies. While at the global level, the IHME estimates that the cumulative total COVID-19 death rate is

[185] Obregon, C and Mariscal, J., 2021. *Covid 19 The Self Inflicted Tragedy*. University Editions. Amazon.com; also available at Research Gate.com.

91.7 per 100,000, Vietnam has the lowest total COVID-19 death rate at 0.1 per 100,000. And thirteen countries, on the other hand, have total COVID-19 death rates higher than 400 per 100,000, The range is quite wide, and it does not depend on the level of income. Mexico, Peru and Kazakhtan are in the 450-500 range. India and Indonesia in the 40-55 range. The US, the UK, Spain and Italy in the 250- 310 range. Germany and Egypt in the 140 – 170 range.

In The Economist's Coronavirus tracker's last update (May 11, 2021)[186] most Asian countries have zero or negative excess deaths per 100 K which means that the Covid deaths were low and compensated by a reduction in other deaths, due to lockdowns and good hospital and medical care. In this group for example, we find: New Zealand, Taiwan, Japan, South Korea, Phillipines, Malaysia and Singapore; we also find in this group Norway and Denmark. In a second group, that registered between 0 -100 excess deaths per 100 K, we find very diverse countries like for example: Australia, Costa Rica, Canada, Jakarta (Indonesia), Paraguay. In a third group, with 100-200 excess deaths per 100 K, we find: Austria, Switzerland, El Salvador, Colombia, US, UK, Slovenia, Italy and Spain. In a fourth group with 200 - 300 excess deaths per 100 K we find: Portugal, Brazil, Hungary, South Africa, Bolivia, Poland. And finally in a fifth group with more than 300 excess deaths per 100 K we find for example: Lithuania, Ecuador, Russia, Mexico, Bulgaria and Peru. Clearly there is no relationship with the level of income, the deaths are explained purely by the quality of the management of the pandemic. Some countries just did it much better than others. Which clearly shows that the world at large could have done much better than it did.

Global Human Costs

There are many ways to evaluate whether or not the world has acted properly confronting the 2020 GP. In what follows we will discuss several of them.

The first one is to estimate what would have had happened if the WHO had been a strong international organization, capable to isolate Wuhan in relation to the rest of the world, the same way that the Chinese government isolated Wuhan from other Chinese provinces. Unfortunately, we do not have an estimate of excess deaths for China, and

[186] The Economist, May 15, 2021. Tracking covid-19 excess deaths across countries.

therefore this result is on shaky grounds because the numbers might not be comparable. Anyway, the answer for what it is worth is as follows. The World's deaths would have been 49,191 (including excess deaths)[187]; which against the actual World's deaths of 7.1 million (including excess deaths), would have represented saving 7,050,809 lives or reducing deaths by 99%.

Now assuming, as it happened in reality, that the WHO did not contain the pandemic in the rest of the World as China did in its territory. What would have been the deaths if the rest of the World had followed Indonesia's strategy (a poor country which has only 70% of the average global GDP Per Capita[188]) still 53% of the deaths would have been saved. Obregon 2020 calculated that if the world had followed the average strategy of Indonesia, Thailand, Korea and Japan (which average GDP Per Capita is 36% higher than the world's) 81 % of deaths would have been saved.

One of the key strategies in which the world acted inappropriately was mask wearing. Given airborne transmission and the known fact that gaseous clouds can travel up to 27 feet, social distancing is not enough, masks are required. Harvard has required face masks all the time while on campus; and in its instructions to its personnel, it emphasizes *that mask should be worn even if physical distanced*[189]. IHME in June 2020 estimated that if 95% of the population were to use masks, 50 percent of future Covid-19 deaths could be avoided[190]. De Kai [191] has created a mask simulator, available in the web, which clearly shows why masks are important in reducing the spread of the contagion[192]. The key message of the simulator is that masks should be used as early as possible in the pandemic. The US National Health Institute released a video that shows that mask

[187] This calculation assumes the same excess death in China than in the average of the World and uses data from Worldmeter as to the accumulated deaths up to today in the world versus China. The world has 433 accumulated deaths per million while China has only 3.

[188] In 2017 PPP international dollars from the World Bank, consulted May 15, 2021. https://databank.worldbank.org/reports.aspx?source=world-development-indicators#

[189] https://www.harvard.edu/sites/default/files/content/06022020_coronavirus_facecoverings_A.pdf

[190] Covid – 19: What's New for June 25, 2020. IHME. *Main updates on IHME COVID-19 predictions since June 15, 2020*. http://www.healthdata.org/covid/updates.

[191] An American computer scientist with joint appointments at UC Berkeley's International Computer Science Institute and at the Hong Kong University of Science and Technology.

[192] http://dek.ai/masksim/

wearing greatly reduces the risk of spreading Covid-19[193]. A Lancet's meta-analysis concludes that face mask use could result in up to 85% reduction in risk of infection: 96% for N95 respirators, and 67% for other masks[194]. A Virginia Commonwealth study did multivariable analysis of 194 countries and found a negative correlation between mask wearing and the rate of growth of infection of Covid- 19. They found that "In countries with cultural norms or government policies supporting public mask-wearing, per-capita coronavirus mortality increased on average by just 7.2% each week, as compared with 55.0% each week in remaining countries"[195]. Obregon and Mariscal using case analysis compared Japan versus Germany and the US and found that the superior performance of Japan (one death per two in Germany and eight in the US) is uniquely explained by mask wearing.

It is noteworthy that the WHO did not study the efficacy of mask wearing in forty years of Asian experience, and that in only a few months so much scientific evidence in favor of mask wearing has been accumulated. And despite so much evidence, and the fact that the CDC reversed its position and recommended mask usage since April 3rd 2020, the WHO did not recommend them until June 5TH. Even today masks are not mandatory in many locations, and several presidents did not – and still some do not – wear them in public. All the evidence on mask wearing suggest that deaths would have been much less if they had been mandatory from the beginning. De Kaïs mask simulator in fact shows that mask wearing could have stopped the pandemic if it had been used extensively within the first fifty days of contagion.

Thus, although there is not a unique best way to evaluate whether the world has acted properly confronting the 2020 GP, all of the ways that can be measured concur in that the pandemic could have been controlled much better.

In summary: the cost in human lives is much higher than the one officially reported, because excess deaths are significantly higher than Cov-

[193] Link, nejm.org

[194] *Physical distancing, face masks, and eye protection for prevention of Covid-19,* by C Rayna MacIntyre and Quanyi Wang. The Lancet, Elsevier Inc. Public Access. Volume 395, issue 10242, P1950-1951, June 27, 2020. DOI: https://doi.org/10.10216/s0140-6736(20)31183-1

[195] *(2) (PDF) Association of country-wide coronavirus mortality with demographics, testing, lockdowns, and public wearing of masks (Update July 2, 2020)*. Available from: https://www.researchgate.net/publication/342655031_Association_of_country-wide_coronavirus_mortality_with_demographics_testing_lockdowns_and_public_wearing_of_masks_Update_July_2_2020[accessed Jul 26 2020].

id-19 deaths. The best guess is that it is 2.2 times the reported deaths. And highly likely, between 80% to 90% of the deaths could have been avoided. It is difficult to forecast with precision how many more people will still die in the future from Covid-19, but the projections are worrisome.

Other Human Costs

Besides the deaths, many of the people that got seriously ill present sequels, which today we do not yet know how severe they will be. Additionally hundreds of millions of people have seen their life significantly altered, and there will be clear psychological consequences to many of them, because of the extensive isolation they had to endure. These additional human costs also would have been significantly smaller if the pandemic had been handled properly.

Economic Costs

Obregon 2020 makes an estimate of the economic costs involved in the pandemic. The costs are astronomical. The conclusion is that: "Costs that could have been saved with an optimum strategy that isolated the pandemic from the beginning are around 80%. Even after the pandemic was allowed to expand, costs still could have been reduced by around 53%. If the cost had been reduced by 80% that would have meant 11.2 Marshall plans. Still enough to abate poverty and give a definitive economic impulse to EE, with the long-term benefits for the global economy that it would have entailed"[196].

For a long time, nobody has really cared about the global health system. The WHO was just seen as a conduct to donate to poor countries. The world leaders have underestimated the global connections brought about by the ICT Revolution. The developing world has gotten closer and closer to the advanced one. The process of production has become globalized, and communications between the developing and the developed world are intensive. Pandemics are not anymore just a curiosum that can be seen from a comfort seat in an advanced economy. Today we all live together, and we all get sick together. The global governance in health issues is today inadequate and unacceptable.

[196] Obregon 2020, *Global Order,* op.cit.

Historical Contributions:
There were warnings by several people as to the possibility of a devastating global pandemic[197], and there are serious studies about previous pandemics; but the world was anyway ill prepared for the Covid 19 pandemic and its consequences.
Future Economic Theory:
There are no proper theories of the economic consequences of distinct global institutional arrangements. It is necessary to understand that the ICT Revolution is rapidly globalizing the economic system of the world and that the integrative global system has been left behind and it is not longer adequate. New theories are required.
Economic Policy:
Given the lack of global governance, it is difficult to enact the proper global economic policies, however the Covid 19 pandemic has shown the world the high costs involved in not improving the integrative system. Because of the ICT Revolution health issues have become global, and they should be treated as such. Vaccination however has up to now happened mainly with a nationalistic perspective, only 0.3% of the vaccine doses administered globally have been given in the 29 poorest countries[198]. The proposal backed up by the Biden administration of liberating the patents of the vaccines is a good starting signal, but there is still much to be done. It all boils down to the clear understanding that markets by themselves do not create a proper economic equilibrium and therefore adequate institutions are required. The global economy is not an exception.

What to do? There has to be a strong WHO (just the opposite of what Trump proposed in his administration). It is necessary to have a global presence to detect problems like the pandemic in Wuhan on time. And it is also necessary to have global authority to delineate a global strategy. That means a true effort of the advanced economies to share research with the WHO, and to support and guide its actions. The world could have learned a long time ago the benefits of mask wearing; there were more than forty years of experience in Asia. But again, this would have had required a global perspective. The West's arrogance is unsustainable in the new ICT World. A global perspective is a must.

[197] For example Bill Gates.

[198] The Economist weekend briefing, May 15, 2021.

The Environment

The environmental crisis is a definitive huge cost of the lack of proper global governance. We will first briefly explain what the environmental crisis consists of and what are its consequences, then we will quickly review the international steps taken to prevent it, and finally we will discuss the potential solutions through adequate global governance – which again will require international organizations with sanction capabilities.

The Environmental Crisis and Its Consequences

The earth climate is changing; global temperature is rising. This climate change threatens food production and promotes rising sea levels that increase the risk of catastrophic flooding.

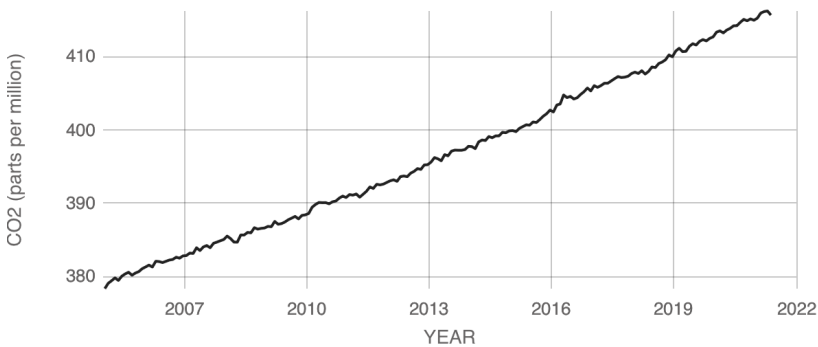
In what follows we will review the evidence, causes, and effects of this weather change. The summary presented in here is based on the NASA's (National Aeronautics and Space Administration) analysis of these subjects[199].

Evidence is compelling: I) Global Temperature Rise: The planet's average surface temperature has risen about 1.62 degrees Fahrenheit (0.9 degrees Celsius) since the late 19th century, a change driven largely by human-made emissions into the atmosphere. **II)Warming Oceans:** The oceans show warming of more than 0.4 degrees Fahrenheit since 1969. **III) Shrinking Ice Sheets:** The ice sheets have decreased in mass. Greenland lost an average of 286 billion tons of ice per year between 1993 and 2016, while Antarctica lost about 127 billion tons of ice per year during the same time period. **IV) Glacial Retreat:** Glaciers are retreating almost everywhere around the world. **V) Decreased Snow Cover:** Snow in the Northern Hemisphere is melting earlier. **VI) Sea Level Rise:** Global sea level is accelerating slightly every year. **VII) Declining Arctic Sea Ice:** Both the extent and thickness of Arctic sea ice has declined rapidly over the last several decades. **VIII) Extreme Events:** The US has seen both higher number of record high temperature events, and increasing numbers of intense rainfall events. **IX) Ocean Acidification:** The amount of carbon dioxide absorbed by the upper layer of the oceans is increasing by about 2 billion tons per year. And as a consequence the acidity of surface ocean waters is increasing.

[199] https://climate.nasa.gov

Causes: 1,300 independent scientific experts concluded there is a more than 95 percent probability that human activities over the past 50 years expanded the *greenhouse effect* and warmed our planet. The *greenhouse effect* occurs when certain gases in the atmosphere block heat from escaping. Gases that contribute to the greenhouse effect include: 1) Water steam. 2) Carbon dioxide (CO2) - produced by deforestation and burning fossil fuels. It is the most relevant one, accounts for 70% of global GHG (Greenhouse Gas) emissions due to fossil fuels. It has increased 47% since the Industrial Revolution. See Figure 9.1. 3) Methane - produced by rice cultivation and domestic livestock. 4) Nitrous oxide produced by soil cultivation and fossil fuel combustion. And 5) Chlorofluorocarbons (CFCs) - Synthetic regulated compounds of industrial origin.

FIGURE 9.1 CARBON DIOXIDE DIRECT MEASUREMENTS: 2005-PRESENT



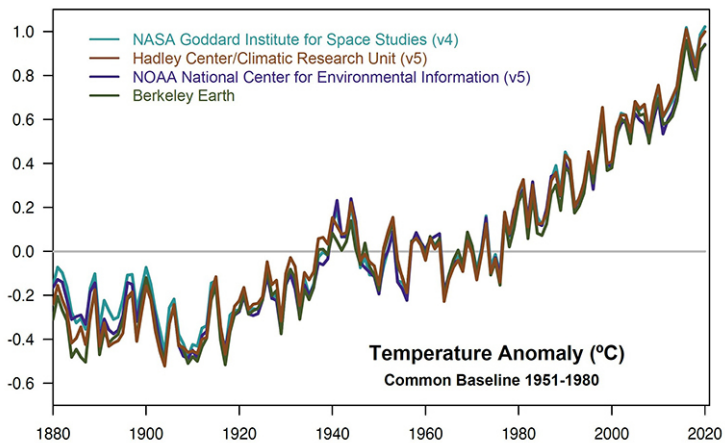
Source: https://climate.nasa.gov/vital-signs/carbon-dioxide/

Effects: Earth's climate is warming – see Figure 9.2. The world is experiencing loss of sea ice, accelerated sea level rise and longer, more intense heat waves. A recent Ohio State University study argues that the ice loss is now so great that it has triggered an irreversible feedback loop: the sheet will keep melting, even if all climate-warming emissions are miraculously curtailed200. The Intergovernmental Panel on Climate Change (IPCC) forecasts a temperature rise of 2.5 to 10 degrees Fahrenheit over the next century; and argues that the net damage costs of cli-

[200] https://www.economist.com/graphic-detail/2020/08/25/the-greenland-ice-sheet-has-melted-past-the-point-of-no-return

mate change are likely to be significant and to increase over time. Among the future effects are: change will continue through this century and beyond; temperatures will continue to rise; frost-free season (and growing season) will lengthen; changes in precipitation patterns; more droughts and heat waves; hurricanes will become stronger and more intense; sea level will rise 1-8 feet by 2100; the Arctic is likely to become ice-free.

FIGURE 9.2 SCIENTIFIC CONSENSUS: EARTH'S CLIMATE IS WARMING



Temperature data showing rapid warming in the past few decades, the latest data going up to 2020. According to NASA data, 2016 and 2020 are tied for the warmest year since 1880, continuing a long-term trend of rising global temperatures. The 10 warmest years in the 141-year record have occurred since 2005, with the seven most recent years being the warmest. Credit: NASA's Goddard Institute for Space Studies. Source: https://climate.nasa.gov/scientific-consensus/

International Steps Taken to Prevent Global Warming[201]

United Nations Framework Convention on Climate Change

In 1992, the UN (United Nations) in its "Earth Summit" produced the United Nations Framework Convention on Climate Change (UNFCCC). Today, it has near-universal membership. The 197 countries that have ratified the convention are parties to the convention. The ultimate aim of the Convention is to prevent "dangerous" human interference with the climate system.

Kyoto Protocol

By 1995, the countries adopted the Kyoto Protocol. The Kyoto Protocol legally binds country parties to emission reduction targets. The Protocol's first commitment period started in 2008 and ended in 2012. The second commitment period began on 1 January 2013 and will end in 2020. There are now 197 Parties to the Convention and 192 Parties to the Kyoto Protocol.

Paris Agreement

At the 21st Conference of the Parties in Paris in 2015, Parties to the UNFCCC reached an agreement to combat climate change and to accelerate and intensify the actions and investments needed for a sustainable low-carbon future. The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping the global temperature rise this century well below 2 degrees Celsius above pre-industrial levels, and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. There are now 186 countries that have ratified the Paris Agreement.

[201] This section is based upon https://www.un.org/en/sections/issues-depth/climate-change/

2019 Climate Action Summit

The Summit focused on key sectors where action can make the most difference—heavy industry, nature-based solutions, cities, energy, resilience, and climate finance. In closing the Climate Action Summit, the Secretary-General said "You have delivered a boost in momentum, cooperation and ambition. But we have a long way to go." "We need more concrete plans, more ambition from more countries and more businesses. We need all financial institutions, public and private, to choose, once and for all, the green economy."

Historical Contributions:

While these global efforts are welcome and must continue, they clearly have been insufficient as figure 6.1 shows. Much more has to be done. A group of independent scientists evaluated the results obtained so far and concluded that they were not satisfactory[202]. The main conclusions obtained in their report are as follows: 1) An environmental and economic disaster derived from human-induced climate change is on the horizon. 2) To achieve the Paris Agreement's most ambitious goal of keeping global warming below 1.5°C (2.7°F) above pre-industrial levels requires reducing global greenhouse gas (GHG) emissions by 50 percent by 2030. An analysis of current commitments to reduce emissions between 2020 and 2030 shows that almost 75 percent of the climate pledges are partially or totally insufficient to contribute to reducing GHG emissions by 50 percent by 2030, and some of these pledges are unlikely to be achieved. 3) Emissions from the top four emitters combined account for 56 percent of global GHG emissions –China (26.8 percent), the United States (13.1 percent), the European Union and its 28 Member States (9 percent) and India (7 percent). Of these, only the European Union may comply. 4) China is expected to reduce its carbon intensity (the amount of CO2 emissions per unit of GDP) by 60-65 percent from 2005 levels by 2030. However, China's CO2 emissions increased by 80 percent between 2005 and 2018 and are expected to continue to increase for the next decade given its projected rate of economic growth. 5) In 2015 the United States committed to reduce GHG emissions by 26-28 percent from 2005 levels by 2025. However, the Trump administration, then in office, announced the United States' withdrawal from the Paris Agreement. 6) The European Union and its 28 Member States committed to reduce GHG

[202] https://drive.google.com/file/d/1nFx8UKTyjEteYO87-x06mVEkTs6RSPBi/view

emissions at least 40 percent from 1990 level by 2030. The EU and its Member States are on track to cut GHG emissions by 58 percent by 2030. 7) India's emissions are growing rapidly. Its pledge is to reduce the emissions intensity (of all GHGs) of its GDP by 30-35 percent from 2005 level by 2030. However, India's GHG emissions increased by about 76 percent between 2005 and 2017 and, like China, are expected to continue to increase until 2030 due to economic growth. 8) The Russian Federation, the fifth largest GHG emitter, has not even submitted its plan to cut emissions yet. 9) From the remaining 152 pledges, 126 are partially or totally dependent on international finance, which has not materialized. 10) In summary at least 130 nations, including 4 of the top 5 World's largest emitters, are falling far short of contributing to meeting the 50 percent global emission reductions required by 2030. 11) The impact of the shortfall are economic losses from weather events influenced by human-induced climate change escalating to at least $2 billion per day by 2030. In addition to the cost, weather events and patterns will continue to change, and will adversely affect human health, livelihoods, food, water, biodiversity and economic growth.

Future Economic Theory:

The first thing to understand is that reducing gas emissions has a direct and significant cost in terms of GDP growth. Therefore, climate change due to global warming, because of the greenhouse effect, will not be solved by the UN's Climate Action Summits. They do not have any sanction capacity. And if there are no costs imposed on gas emissions, there is no economic incentive for a given country to stop them. This situation is a typical Game Theory problem. In the first place, the countries' benefits from the reduction in gas emissions are not proportional to the costs that they have to incur to reduce the emissions. In the second place, if N-1 countries comply with the accords, the one country that does not comply receives practically all the benefits, anyway. Thus, there is a substantial economic motivation to violate the accords. There are many games to be played that lead to suboptimal Pareto solutions, and that will predominate in the outcome. The Trump administration's withdrawal of the US made this point obvious in a dramatic way. But the other major players, as we have seen in the previous section, are not complying either. The UN's accords are not working.

There are two ways out of this dilemma. The first one comes from a suggestion made fifty years ago by economics Nobel Prize winner Wassily Leontief. He suggested shadow prices as a general solution for pollu-

tion problems, according to which companies would have to pay the social costs of pollution that they generated. This model will also work for the countries' emissions of gases – and within each country, the diverse companies responsible for gas emissions will have to pay. The problem of course is that this solution requires a decisive global governance from which we are still far away – there is nobody to impose the sanctions. Moreover, it will imply reducing today's global GDP growth drastically to benefit future generations, an intergenerational transfer difficult to implement at the global level.

The second way out is that, instead of passing the social costs to whoever is producing the gas emissions, we simply change the production technology to adopt clean technologies, processes and methods, which has already been proposed by some authors[203] and is now strongly being pushed by the Biden administration. The report of independent scientists mentioned in the previous section argues that Green House Emission (GHG) could be reduced by 49% within the next decade by switching electricity generation to renewables sources and away from coal. This will reduce Carbon dioxide (CO2) emissions by 70% by 2030, and since they account for 70% of GCH emissions, a total reduction of 49% will be achieved. This would require a five-fold increase in wind and solar energy, as well as closing 2,400 coal-fired power stations globally within the next decade. Which is viable and cost-effective. Yet, they point out there are 250 additional coal units under construction[204]. This second solution is very good for at least two reasons: 1) It makes compatible high levels of GDP today with low emissions of gases, therefore avoids the problem of intergenerational transfers; and 2) The costs associated with transforming the economy to a green one will only be temporal, and in fact will boost a faster economic growth during the reconversion. There will of course be losers and winners, but for the society as a whole the reconversion cost will be more than offset by the short-term boost in GDP

[203] See Howard A Latin; Climate Change Policy Failures: Why Conventional Mitigation Approaches Cannot Succeed. https://doi.org/10.1142/8194 | May 2012.

[204] They also point out that improving and increasing energy efficiency can reduce CO2 emissions by 40 percent by 2040 –something we can all contribute to. Households worldwide could also save more than $500 billion dollars per year in energy bills (electricity, natural gas for heating and cooking and fuel for transportation). And that in addition, efforts must also be made to reduce the emissions of carbon dioxide from land-use change, primarily deforestation in the tropics, and emissions from other GHGs, primarily methane and nitrous oxide. Of course, the problem is that these voluntary efforts are not happening and there is no reason to expect that they will happen.

that it will imply, even without taking into account the long-term benefits. But again, because there will be losers, many countries will not enter the reconversion unless there are sanctions associated with not doing it. We cannot escape the need of a proper global governance.

The Nobel Prize winner John Nash taught us that economic games can generate all sort of non-optimal equilibriums. Related to the climate change problem, business and country leaders have the wrong incentives. Unless there is proper global governance capable to realign such incentives, the problem will not be solved. The possibility that countries were not going to comply was theoretically expected. The solution will not be achieved by advocating voluntary consumption changes from households, nor by voluntary country agreements, and neither by business leadership. It requires proper global institutions that provide adequate incentives to the participants. In this issue, like in the rest discussed in this book, the lack of global governance results very expensive for humanity.

Economic Policy:

Biden's administration is proposing the right set of policies for the environment, and it seems clear that in the US he will be successful. It is still too early to be able to forecast how influential Biden's policies will be at the global level, but the lack of global governance would be most likely an unsurmountable impediment.

EPILOGUE

Economic theory has changed the world in which we live. In economics there are two trends of thought that seem contradictory, but which in reality are complementary: the neoclassical theory of free markets and the institutional theory. Contemporary developments in neoclassical theoretical models in Welfare Economics, General Equilibrium Theory, Information Economics and Game Theory have shown that there is not one unique optimal market equilibrium that maximizes social welfare. Therefore, it is clear that the actual economic equilibrium obtained also depends upon the institutional arrangement - as institutional economics have always argued. The study of institutions and their impact on the economic activity has to be a major concern for economists. But the role of institutions has to be to foster efficient markets. The main goal of economics is to improve human wellbeing in a broad sense, the quality of human life; but the second goal is to improve the microeconomic efficiency of the system. Capitalism has expanded mainly because of rapid technological change, which has allowed the economies to avoid the classical economists' Stationary State. And technological change depends upon the enlargement of the markets, which happens for two main reasons: free trade and the changing preferences of a growing middle class. But free trade happened before capitalism, therefore what really distinguishes it is the second mentioned element. However, it must be noted that the changing preferences of a growing middle class imply both: 1) free markets that allow the middle class to express its preferences (which is done individually in the markets); and 2) the existence of a middle class with social power (which allows it to impose the economic conditions for its reproduction and enlargement – such as taxes and social expenditures), which slowly consolidated historically due to the institution of democracy. The Asian Growth Model, as we have seen, is a dependent model; it exports to the Western middle class. Therefore, the long run economic growth of the world depends on the enlargement of the international middle class. However, as far as a country is concerned, economic growth may be related to a different set of institutions – which are required to incorporate the country efficiently into the patterns of

global trade (today dominated by the ICT Revolution). Democracy and free trade are not enough at the country level, as the Mexican case has shown us. Other institutions which we have called the Asian Growth Model were required, and democracy was not a necessary feature for the countries that adopted this model.

The success of the Asian Growth Model clearly points out the relevance of institutions, but it is a dependent model which still requires of an ample international Western middle class. We should not lose sight of the fundamental contributions of the free markets, and of neoclassical economics which have seriously influenced the digital and financial revolutions that have allowed the ICT Revolution to happen. Individual freedom and creativity are critical for the success of capitalism. But they do not happen in a vacuum, institutions are required.

The future of economic theory and policy will be defined by contributions in three fronts: pure theoretical models of free markets, institutional models, and models capable to integrate the interaction between free markets and institutions in the final determination of the actual economic equilibrium.

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