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From Kuznets Theory to a New Global Governance, Using a Mathematical Concept of Relations between Wealth-Creating Kuznets Cycles and a Kondratieff-Inspired System of Management

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Abstract

Debates concerning the significance of economic cycles proposed by Kuznets, Kondratieff, and Tugan-Baranovsky are helping to shape a unifying economic theory, one that also borrows concepts, ideas, and models from neo-Marxist, monetarist, and other neo-classical schools of thought. These theories of economic cycles reveal a structure of the economy which gives perspective to both economic statics and dynamics. Specifically, Kuznets cycles will aid in the assessment of a permanent new leadership in the global economy, while Kondratieff cycles, by pointing to the existence of long periods of crisis, will make explicit an understanding of how to recover from these long periods of crises. In combination, these insights will provide a top-down model of governance, one of which will include both global and institutional objectives. In order to allow for an empirical and theoretical convergence in using such a method we also have to learn from European economic thought before the division into economics and econometrics in the 1930s.

Keywords: *Kuznets swings, Kondratieff waves, global governance, monetarism, Marxism, crises, economics, econometrics.*

In a book, French essayist Alain Minc describes the economists as ‘prophets of happiness’ (Minc 2004). It is true that this discipline emerged among Scottish moralists such as Adam Smith (1999 [1759]) and David Hume (1946 [1740]) during the Era of British and French Enlightenments, as well as among the lawyers of the gentle trade, and is supposed to spread happiness and harmony among people, as David Ricardo (1817) stated. This science also developed an early focus on dimensions related to the social contract (Locke 1985, quoted by Berthoud 1988; Locke 1979, quoted by Giacometti 1984; Dang 1997; Hobbes

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1651; Rousseau 1963 [1762]; Turgot 1970, quoted by Giacometti 1984). And at the same time the West kept under wraps an older source of this focus in Spain as a consequence of religious thought and the concept of attrition due to the contributions of the School of Salamanca.^{1, 2, 3} These Atlantic pathways were

¹ Tortajada (1991) provides a good discussion of the contribution of the School of Salamanca to the creation of economic science in Western Europe. As any human science, it draws initially its arguments from law, and also from the culture of the very religious late Middle Ages Era. As was shown by Bergson (2008 [1932]) in his *Les deux sources de la morale et de la religion*, at the time of the triumph of sociology in France and of the separation of powers between the state and the Church, we look back centuries and see the source of religious thought in the creation of Economics (School of Salamanca). Also, it is worthwhile to remember that the source of moral philosophy came from Scotland, a century or two after the first sources of inspiration from Salamanca. What might appear today as a rather boring phenomenon is very important to clarify the beginnings of the capitalist system. It is perhaps in order to no longer remember, or even deliberately conceal the source of religious thought, that economists have undertaken to relate their mathematical discipline to natural science. Around the time of the general equilibrium theory of Léon Walras (1874), they tried and rejected as much as possible the historically constituted discipline and logical links with the humanities. But still, the sources of Scholastic religious thought related to the education system in the Middle Ages (de Roover 1971; Sierra-Bravo 1975) can contribute to analyzing or decomposing the mechanisms of contracts (especially those involving trade and commerce rather than the organization of manufacture or large industries).

² The interest rate was generated in response to scholarly considerations of time, society, wandering merchants, calculations owners, and tribulations diplomats working for states or for the Church of Rome. The interest rate was 'created' as opposed to the practiced hitherto current rate of usury. And this major legal innovation was probably marked by the desire to weigh 'souls', and to save a maximum [we mean an economic function whose result should be maximized; the result is produced through time and human effort and is a combination of a qualitative part saving one's soul and a quantitative part improving level of life for one's children placed in the future (and the third 'capitalistic formula' which relies on personal organization in order to keep in balance these two parts is kept secret and mainly private and also possibly belonging to a national social model and other community projects); by convention, we will state that the combination will be evaluated quantitatively – so through maximization function – because there is an accumulative process of hope and well-being over time and centuries which is constitutive of the initial concept born in the late Middle Ages] on earth through finance [of course, the link with our former explanation 'maximize what?' is: finance can be defined as commerce made on promises], and therefore the Western economy and capitalist economy! [In a sense the 'legal' part of such a project was not authorized to appear clearly connected with its intellectual and spiritual sources, because the one part of that naturally belongs to religion and the other part belongs to moral sciences, and all in all history of the underlying 'link' (if we can really speak of a 'link' which is not obvious as it would be an unconscious and psychoanalytical one) was the long historical walk by the Western World towards the secularization process]. The influence of the School of Salamanca in the law prior to the birth and development of the capitalist system – first historically being a merchant capitalism – was a coherently packaged legal corpus. With the concept of 'balance of pleasure and pains', it led the way to the doctrine of 'fair price' (Gomez-Camacho 1985; Lapidus 1982; de Molina 1981 [1593]), well before the utilitarianism.

³ But such a concept understood in the sense that the Spanish had in mind arrived too early on the scene to be put into the law. It is notable that this allowed time for the Church in Spain to think in depth about the question of social poverty (de Vitoria 1928, 1934, 1933–1935). Centuries later, Schumpeter and Keynes both felt that it was necessary to think about the relationship between law and economics before laying the foundations of macroeconomics (Keynes 1932; Schumpeter

crossed by a tension at the outset.^{4, 5} The Scottish and Spanish funding pathways had one day to confront a more continental approach, making the social subject not polemic, but the main focus of research. The School of Vienna *et al.* eventually confronted the challenge of a social perspective in economics, notably via the research program of the value of human action (von Mises 1985 [1949]), and also the Social Liberals in Frankfurt (Eucken 1989 [1940], 2004 [1952]), Marx (1983) as early as in the 19th century, as well as thinkers of cycles, such as Lachmann (1937, 1938, 1939, 1940, 1943, quoted by Longuet 1999) in Austria,⁶ Tugan-Baranovsky (1894–1904, quoted by Makasheva 1993) in Ukraine, Chuprov (1889, quoted by Makasheva 1993) in Russia, *etc.*

It took some time before the founders of the economic cyclical theory started this specific debate in a historically troubled period (see Kleinknecht and van der Panne 2006) was between the Russian Kondratieff and Ukrainian Kuznets. But, paradoxically, given the scope of the topic, and the dominant economy, since 1945 the main representatives of this debate have been Ameri-

1954; see also Dempsey 1948; Lapidus 1987; Melitz 1971). After Keynes and Schumpeter, the 20th century macroeconomics was more interested in the industrial sector than in merchants or grossers.

⁴ The French and the English of the same period were less influenced than their Spanish counterparts in their thought by religion and by the Catholic Church. They followed their own original paths and initiated separate calculations. They had in common, however, the sources of social consensus. They mainly appreciated (in England and Scotland), or quite exclusively accepted (in France) such a social consensus. It consisted initially in the definition positioned between moral sciences and religion on the basis of reflection concerning human understanding (Locke 1979). Here we may detect the historical foundations for a solid economic theory the Spanish at that time on the concept of ‘fair price’! Macroeconomic theory has less to do with the definition of currency or even of what macroeconomics is: it is much more concerned with actual recommendations in respect of the macroeconomic theory, which, generally speaking, can barely solve its perspective issues with other sciences, with linguistic and sometimes with national conventions put it in legal terms.

⁵ One could include here also the use of restrictive preconditions – once ‘reasonable’ equations have been accepted about anticipations. In particular, the number of circuits in question will be rather limited in practice for reasons of policy effectiveness due to their quantitative nature. The credit channel may appear to rely more on national conventions – although they evolve extremely fast – than on channel currency officially unique to the institution. During the sixteenth and seventeenth centuries the English and Scottish claimed that the price of currency was a consequence of convention... All other prices would result more due to contracts than due to convention: basically, there would be commercial contracts. According to Locke (see Berthoud 1988; Dang 1997), the average human being uses currency as a marker of their ownership which links in an open game morality, money and property, which in turn is expected to deliver a ‘natural price’ for money. For the French economist Turgot, money would instead be more an opportunity for each individual in a society to express feelings related to social life (Giacometti 1984; Turgot 1970 [1769]).

⁶ After the National Revolutions took place in 1848, Longuet (1999) argues that Lachmann had thought about the major economic fluctuations that are often linked to major historical shocks, whereas the ideas of Keynes would have been more suitable for the relatively average magnitude of fluctuations in the context of an already stabilized financial institution.

can scholars including Kuznets himself who chose to immigrate to the United States. This scientific debate has become relatively diverted from its initial path. The theory of economic cycles has become one of the main paths of economic heterodoxy, providing much evidence of a sociological construction of economic institutions since year 1000 in the World and in Europe (Polanyi 1984), which ultimately implies integration of this phenomena of dependence in the modelling of economics (Kalecki 1987).

That initially masked the debate which have resurfaced in an unexpected way – while some researchers (Diebolt *et al.*) have called it the ‘the Loch Ness Monster’ (Diebolt 2002: 11–16). I also suppose that the concept of economic cycles rears its ugly head from time to time like the Loch Ness Monster. At the same time in the 19th century the existence of economic cycles did not receive due attention. It was considered a strange object of research, which is a characteristic of the phenomenon of national economic development and how economic development is associated with such economic institutions as international trade, or the establishment of central banks, or education, in the cycles of human life. Hence, the first vague indication appeared arising from the ‘cycle of trade and business’, that put us on the path of commercial or financial insurance techniques of merchants. This can affect companies – which rarely brag (about their own information systems and/or the founding source of their capital) – and also affected the analytical framework of the national model, which guided the long path leading to social progress, before financial globalization is tempted to take over.

The objective of sustainable capitalistic foundations (both legal ones and purely financial ones) of companies is to integrate the phenomenon of a ten-year cycle because the typical ‘business cycles’ last ten years on average. At the end of that period of time, companies need to maintain the confidence of their stake holders (employees, banks, advisors) to find the right words to describe the cloud of side effects (legal risk, risk of bankruptcy, business interruption, loss of business, *etc.*), all in order to protect their business with care and discretion, in case they should suddenly face unexpected losses. For instance, if a company gets bankrupt at the end of a business cycle, the company may be bought at a discount price by a competitor, but when times are difficult, chances to survive the next crisis not only depend on the quality and performance of the manufacturing process, but also on the quality and performance of management of the company, which consists in the detail perception of the potentially dangerous defaults of vision of links between legal robustness of the structure, commercial environment of the company, and economic cycles. Specifying legal interests of the stakeholders gives more chance to buy some competitors at a low price, and to detect accurately when to be advised to show legal aggressiveness towards such competitors and with appropriate corporate communication, legal communication, trying to provide the impression that it would

not be a crisis communication. This cycle is basically a market cycle and the beginning of the term between seven and eleven years for the stock exchange and certainly a bit longer, twelve or thirteen years perhaps, for real estate, from which the actors – helped by their analysts – will try to establish assumptions of expectations of significantly greater complication and involving a longer period of time, which will integrate various modes of rationality (administrative, strategic, political, economic, *etc.*). At the same time, the myth of the ‘end of civilization’ begins from the late 19th century, with its foreseeable consequences embedded in the vocabulary of economics.

These debates show more and more: the image of the ‘Great Depression’ or ‘Great Depression, End of the Century’ ... ‘The evil of the century’ as represented by poets, physicians, and sociologists which occurred a century after the first Great Depression was observed in Europe dated by most historians to the period 1873–1896. The genius of the late twentieth century coming a century later and speaking at the outset of the ‘crisis of civilization’ (Amin 1980, 1988, 1991; Morin 1977, 1980, 1986, 1991, 2001; Modelski 1983) which is side by side with dependence (military, financial and economic dependence of South America on the United States America, and again a very comparable situation is coming soon for the European Union with respect to the United States of America) (Cardoso 1977; Herrmann and Tausch 2001; Tausch 1986, 1989, 1993, 1997a, 1997b, 1998a, 1998b, 2002, 2003, 2004a, 2004b, 2006a, 2006b), and this is observed in a context of rising risks (Beck 1986, 2001). This implies the need for new analytical frameworks (institutional economics, theories of regulation, multiple statistical analysis submitting their criteria to varied relationships with their games and challenges) in order to lay a solid basis for a new beginning, a new system which is richer, more globalized, more financialized, and also crippled with multiple risks, now more or less properly taken into account and supported, by the national states, their technical institutions, and the EU28. The delay for such a project, that betrays these anxieties (Ayres 2006: 55–71; Mensch 2006: 80–90; de Greene 2006: 10–21), would not be fatal to the extent that we speak of a future system that will be very readily expanded in complexity and size compared to the old system. So, beware of the risk of ‘a geopolitical tsunami!’ (*e.g.*, the old prediction of geopolitologists that ‘no country is allowed to take total control of resources in Eurasia’ would be placed in default; as a consequence of such a traumatic event, a nuclear strategic negotiation would be bound to start between the United States of America, Russia, Iran, other regional political powers; and at the end the European Project would find it difficult to master one’s own developmental timetable, and would experience various difficulties to correctly cope with the questions related to one’s very identity [What does ‘Europe’ mean? How can a European social project and a European social model be founded and defended?]). Now we should not

continue to speak of ‘the possibility of risks’, we ought to face their arising all together (Beck 1986, 2001).

In light of the possibility of financial collapse, we will focus on the contribution of a Nobel Prize Winner in Economics (in 1971), Professor Simon Kuznets, with special reference to the famous academic dispute (see Kleinknecht and van der Panne 2006: 118–125, quoting Kuznets 1940) between him (Kuznets 1930: 10) and Joseph Schumpeter (1939), but from the perspective of time some eighty years after the famous dispute.

Since the first observations and empirical statistics of the phenomenon of cycles (Parvus 1901; Tugan-Baranovsky 1894), we rather see that the phenomenon of a ‘strange attractor’ of this uncontrolled theory which is used as the starting time of the Great Depression (1929–1953) provides an explanation of this mass phenomenon, both theoretically and statistically. Kuznets believes that one type of cycles exists for sure, one with an 18-year period. He estimates other possible lengths ranging from about 12 up to 30 years. But he suspects the other cycle, a Kondratieff cycle of 54 years, cannot be proved to exist, considering the state of science (both empirically and theoretically) at the eve of the second part of the 20th century. We will show that both approaches – of Kuznets and Kondratieff – are not inherently contradictory, since the essence of the first one shows leadership in the creation of wealth, while the second one indicates the needed direction of the guidance of this phenomenon.

1. Theory

A. Yesterday

As Kuznets wrote (Kuznets 1940: 267) about the Kondratieff cycle theory:

To establish the existence of cycles ... one must first demonstrate that we take here fluctuations which occur lasting approximately regular, simultaneously with the movements representing various important aspects of economic life ... and secondly, there should be an indication that external factors or features of the economic system would be sufficient to account for these recurrent fluctuations. As the old framework of analysis of economic life will be in effect, the concept of such a cycle could be accepted without questioning the cohesion of economic life in general ... If the second condition, theoretically, is not met, we cannot establish a link between the findings on empirical observations concerning a certain type of cycles ... with the broader context of existing knowledge. Neither of these two conditions has never been satisfactorily completed in terms of Kondratieff cycles ... The prevalence of cycles of fifty years has not been demonstrated in the volumes of production or employment, or more in the physical commercial part, ... no satisfactory theory has been offered to explain these swings of 50 years that are supposed to return.

The future winner of the 1971 Nobel Prize in Economics, Kuznets, when he created the NBER in Chicago, which over the following 50 years was the most prominent Institute in the World to apply methods in National Accountancy Systems, really developed all bridges between the basic legal private companies' accountancy and the way to measure the broad equilibrium measurement tools of national accounts, was honest and quite tough – in other words, still conceptually rigorous – in such a global acceptance on the theory stated by Kondratieff. In fact measuring national balances and account is a sophisticated art, which supposes first the indication of how we measure a profit or a deficit in foreign commercial exchanges. It is certainly not an easy task, for it implies giving accurate expert advice on all aspects treating of the foreign commercial trade including some sophisticated legal and other conceptual aspects. Which is the more difficult to build – or, when built, to deconstruct, because time has changed and organizations have changed – might be the bridges in human team work and technical, accountant and legal organizations. Kuznets said in 1940 it was impossible to say if Kondratieff's theory was true or false. As a consequence it would have proved impossible at that time to build a legal, administrative and accountancy system on it. But 80 years after this important dispute, we ought to remember that Kondratieff, just as Kuznets and Slutsky, was among the founders of the International Econometrics Society. And if the length of the announced Kondratieff cycle appeared to be too long, so as to build administrative bridges on its premises, one of the main reasons is that the World System was not so open as it is today, so it would have not been realistic to manage the World System directly. And any administrative system was more dependent on legal historic national traditions than on a true scientific basement, as Slutsky proved that often fallacious regressions can be identified in place of a cycle that is 54-years long. That is why we can reasonably think that everybody used the Kondratieff theory, but they preferred not to recognize it. From, say, 1945 to 2015, we can reasonably think that mainly due to the worldwide tax evasion of the MNCs and avoiding of different legal, accountancy and administrative traditions, the Kondratieff theory was a collateral victim of a sort of 'Loch Ness Monster effect', and world economic organizations used its reputation to promote 'semi-fallacious-regressions' and was as close as possible to the place where one could invest industrially and make money but without being the first to pay cash! God Save the Loch Ness Monster then... by all means!

B. Today

With respect to Kondratieff's theory, it was recognized first by those who consider innovation as the main source of growth (*e.g.*, Schumpeter 1939), growth which is motivated by the Kondratieff cycles, with scheduling depending on a pendulum effect. This position is more motivated by pedagogy than by true

pure researches in economics; it is rigorous but would seem to evade the more complex aspects of an open World Society and World Economy that failed to exist at this time. Schumpeter's approach appears to be quite mechanical in its effects. Nowadays a number of psychological aspects in an open World should absolutely be brought into consideration in addition to a more complete explanation and should be a key to build the needed bridges on the theoretical side of the scientific trial. At the same time, when on the administrative tools' side of things, we should start from the new world situation and again confront technical points from both Kuznets and Kondratieff, including this time the new possible necessary condition to eliminate interpretations inspired by 'fallacious regressions'. After doing so, the next step is taken by Mensch (1979) who always assigns the role of innovation as the main causal factor explaining growth. However, by saying that innovation occurs constantly, whether during the periods of rapid growth or during the periods of 'depression' when growth is slowing, Mensch believes that new thinking could one day help overcome the inevitable long depressive phenomena.

New education also helps to skillfully mask indirect economic functions (e.g., cultural or media-intermediated) of society: for example, hegemony (the explanation of long waves by political factors like hegemony), the World System (the center overlooking the suburbs), training and organizational planning issues, *etc.* This 'recovery' (trying to justify an ideological position by putting forward the so-called 'central function' of the global economy or the occidental society) may manifest the domination of the newest, upcoming or recently occurring factors, possibly including the factor represented by the economic system itself, the factors of another completely different nature (economic policy); and this influence can lead to two important practical consequences for the formalization of the research. There may be displacement of this research program by another research program, especially in political science. However, this risk seems rather limited, because we live in the age of interdisciplinary research. So, we allow ourselves to address these aspects, because it is a way for us both to report the presence and the existence of complexity and to describe a normal way to address this complexity and scientific processing. However, this issue is important in econometrics. We cannot just say that since econometrics has grown massively, since roughly the 1970s when it was used first to conduct tests to compare theories and classify them in order to advise economic policies, now those who use econometric results would need a new historical narrative accepted by all in order to validate the methods and the use of statistics. These methods should work simultaneously on theory (which may include input from what history teaches us facts like this that can teach us the history of ideas), and also on methodology, which also opens new epistemological questions, which do not necessarily arise as a possibility of prior reflection, but may also arise (to reflect new insights in response to the use of statistical

tests and the results made) during and parallel to ongoing research. This is the guarantee of a search process based on solid foundations and in a cultural context of the 21st century in which we prefer to postulate open-mindedness. We must then report the consequences of this on 'the maintenance' of econometric systems. Traditionally, if we perform statistical tests in order to test these theories, this methodology emphasizes the analysis of statistics based on stylized facts, then some forecasts and finishes with a review of decent policy implications in terms of recommendations. Gold is always a cause of problems that an econometrician cannot always deal with.

Theoretical choices are then of great importance. We chose to focus on the following assumption of the existence of long monetary cycles (Jourdon 2010a, 2010b). These long monetary cycles are motivated, insured, and re-insured by Management Systems of Property Rights, which in each new cycle indeed contribute a new social project. Each new key currency in comparison to the succeeding one constitutes and attributes to support such a social project. The end of the Kondratieff cycle is always characterized by a loss of coherence, the practical consequences of which are manifested through foreclosure effects felt by all stakeholders in solidarity with the World System. Here we see, with the end of the long cycle of the currency called US dollar, which is both a national currency for the USA and a support for developing commercial, financial and monetary exchanges all over the planet, and also a cause of the phenomenon of tax evictions, tax and social competition in Europe, and increasingly sophisticated financial technologies to avoid taxes. These include refuge in tax havens whose number continues to grow, refuge in sectors such as real estate shelters, refuge in the energy business which suggests geopolitical shocks and a difficult transition to another long cycle. As a consequence, we may evoke financial wealth grabbing along with private information or innovations which were also deprived of small businesses by multinational companies in order to pay less tax. (As for 'private information', let us on the political side of things, mention the strange attitude of a talented French politician, Mr. François Hollande, who officially took over as first secretary of the French Party, Parti Socialiste, for eleven years in succession, but on a day-to-day basis seemed to orally intervene as if he had been not his first secretary, but his official porta-voice [is there a 'hidden imam' in French Parti Socialiste?...]; if we rather speak of business, private information means the brutal market for top executives in the 1980s and more clearly in the 1990s, which became a world market, so these high pressured executives accepted their jobs in exchange for generous bonuses, because the value-chain had become worldwide without people being properly informed of that; after this hidden turning point occurred, 'private information' means in the spirit of Institutional Economics that there were a lot of asymmetries of information, for strategic reasons and also for protection of the citizens and sometimes a global fight against terrorism). Ultimately, the social consequences

such as indebtedness and loss of access to bank credit will be overwhelmed. In particular, we agree with the analysis (Mensch 2006) saying that a long depression is not necessarily inevitable. These phenomena can be juxtaposed with nondestructive forms of social and even economic – or political – innovations such as participatory democracy (Jourdon and Tausch 2009), sustainable development (Chistilin 2006: 100–108), the Dialogue of Civilizations, Global Democratization, and Global Development. But this only confirms one thing, that the development must be globally administered.

That is why we believe the debate between Kuznets and Kondratieff must now take a completely different form. Kuznets said that Kuznets cycles existed anywhere except in China. It was the era of confrontation between two political models which also politically defended their economic efficiencies: the U.S. capitalists and the Soviet Union of Real Socialism. But even other Communist powers of that time were opposed to these two approaches, the industrial and planning approach towards the future of the USSR (1917–1991), on the one hand, and the Chinese approach (1949–2014), on the other hand. This also applies to China emerging from underdevelopment implying the necessity of walking on two legs, those legs being agriculture and industry. However, almost all the theories in the economics of development are based on a structuralist reading of the economy with the core areas and sectors more or less industrialized as well as with established infrastructure and finally with a domestic or informal economy. Kondratieff's theory is also sectorial, according to the teaching of Schumpeter, regarding his concept of 'creative destruction'. But his structuralism is different in nature; statistical structure seems to create a prism through which one should pass to read a secondary reality. If we adopt today a comprehensive approach to development without separating the developed and developing countries, we should be able to compare the views in order to adopt the perspective of the Dialogue of Civilizations. Clearly then, China's point of view of its civilization appears in many respects to be a Civilization of Commerce, as this has always been. This point of view can cause service wealth creation for the world. Kuznets cycles in their life cycles coincide with periods of transport and also with periods of construction. These interfering processes in their internal functioning (the construction industry is a kind of working draft form of these interfering processes, as each project is a new company that must first sell service logic and simultaneously manage industrially the issues of timeliness, quality, and cost control; transportation is, thanks to new forms of energy, a new source of the revival of each long cycle, but this new source also implies hidden costs with respect to the service of economic organization) contain some features of a globally regulated economy and society.

Transport. In the early history of the modern economy, the elasticity of the market was calculated from distances, which created the costs of transportation. Even the interest rate reckoned by bankers (Chilosi and Volckart 2009) at the

nerve center of Europe (Rhine, Swiss German, Czechoslovakia) were based on the travel distance to reach potential customers, both physically and through information channels, and now at the age of information and communication revolution the transport issue arises increasingly in two directions at once, physically and intangibly. The result of this will affect the movement of money to manage portfolio, and also raises issues of transportation of people. All this complexity invites us to compare the transportation system to the nervous system of the economy. Provided that transportation is a highly important constituent of the fixed costs of organizations, and because of the importance of those organizations, they must be properly insured!

Construction. This is the primary distinction between ecology (home management) and economy (trade management in both professional and private areas). So, it would appear to be the first element of heritage that underpins much of the overall security of the economic system. Therefore, it is to be compared to 'the backbone of the economy'.

The discovery of the Kuznets cycles and their importance clearly confirms the importance of these two sectors for the health of the economy. As the French proverb says: 'Quand le bâtiment va tout va!' (When the building goes all goes!). Of course, this is not inconsistent with the fact that China can be an engine of wealth creation around the world through trade. Factors guiding the creation of wealth in China's direction may come from structuring sectors such as construction, transportation, logistics, advertising, marketing, trade. Maybe we can dare to assume today that the Kuznets cycle, around 1940, was not very noticeable in China, which was fighting to get out of underdevelopment. However, today when the world is changed, as Aristotle would say: 'The truth is in the middle'. There would exist Kuznets cycles, as well perhaps in China. Even in 'l'Empire du milieu' there would exist Kuznets cycles. The symbol of rationality, 'four directions', would exist in the place where everything can be sold for money (including children wrapped in carpet, little prostitute girls, goods issued from counterfeiting).

2. Methodology. Epistemology

A. Yesterday

For Kuznets, inequality is understood to be represented by an inversed U-curve. At the beginning of its development inequality grows quickly, because entrepreneurs playing a pioneering role are likely to get rich much faster than the rest of the population. In the second period, when society became more structured, it was consequently better managed. As a result, it may well pay more in wages and benefits associated with social protection mechanisms that must accompany them. Income gaps between all the agents are reduced through the increase of the mass of properly treated employees. Today, many countries emerging out of the Third World show more dynamism – both economic and

demographic – than industrialized countries that hardly continue to retain their technological edge. We can then say the problem should now be addressed at the global level. Is there an inversed U-shaped inequality [^] acting globally? If yes, then how is it possible to manage? The theory of Kuznets shows the path of hope – the increase of wealth – and then hope that these resources would be better administered, managed, shared ... but unfortunately, how this can be accomplished in the very long term or in the part of the World System that has become very complex and currently subject to a series of serious crises – financial, food, energy, geopolitics, social, and so on...

The second approach developed by Kuznets seems rather to give us a direction that will address the phenomenon of wealth creation. But this does not seem to offer technical alternatives to avert risks that could accompany that phenomenon of wealth creation. Unlike Keynes (1969: 112–152), Kuznets assumes that when a country's GNP increases, the propensity for consumption by agents as long as earnings, increases even more. This leads us to believe that the increase in the propensity to consume more than the rate at which income grows is also accompanied by a growth of the size of inequalities that are likely to occur in phase with the growth of income when in times of crisis the center of the world economy (debt, crises closer to the center of the global system as the financial crisis in 2007 and the subprime crisis the following year) is hurt. These changes in growth would not find solutions without a new system of administration. But given the unconscious factors at play⁷, is not it necessary then to focus attention on finding the causes of the phenomenon from the beginning?

B. Today

It is about time and constructing calendar that the actions of different agents can coordinate. The only Nobel Prize in Economics who has spent his entire academic career in France, Maurice Allais, was once severely criticized for its introduction of the mathematics in economic models in France. As in many countries, in France the teaching of economics was a teaching in method and critical thinking by getting in touch with moral philosophy, law and economics itself. The whole of economics was so minimally mathematized. As an example, even the *General Theory of Employment, Interest and Money* (Keynes

⁷ If the lower turning point can be easily calculated, assuming that one has even been able to determine if it was a problem of price or quantity of the image ...from the 'Loch Ness Monster of economic theory' proposed by C. Diebolt [2002: 11–16] sometimes appear to be sound!; we mean 'lower turning point' implying that in the mathematical space associated with our theory there certainly exists a lower turning point associated with a 'price' interpretation of the studied situation, and an upper turning point associated with a 'quantity' interpretation; or, on a purely mathematical point of view, it may be an upper turning point linked with a 'price' interpretation and a lower turning point linked with a 'quantity' interpretation; in fact, it all depends on the mathematical design of the space we are confronted with. In any case the final synthesis between 'price' and 'quantity' interpretation will be concerned with the nature a global 'tax' design.

1969) does not include a single equation. Consequently, it seems that building an economic system of equations as complex as those of Astrophysics would not pose difficulties if only two criteria are at the same time also met in the strictest possible way. These criteria are as follows.

The question of timing. Tell us where it is: What is the space-time mathematical global design we are working in, in our model? Where are we today in the process of deduction of the predictions made by the World System Theories? Usually, the hegemonic power (since 1945, it has been the United States of America) generates the master calendar. This gives the hegemonic power a monetary authority to fix the price of money and control the actions of most agents and how those agents are coordinated. The rejection of economics or its mathematization is often the rejection of the possible consequences of the sense of control by the 'Big Brother' imagined by George Orwell (1994). Time is likely to be a conditioning parameter for understanding the course of the series we are studying (by 'series' we mean a series of events linked to the World System theories, *e.g.*, in Goldstein (2006) they are sparrings, war, inflation,⁸ stability, sparrings again which begin a brand new cycle, *etc.*); and, at the same time, for those who reject the power that goes with it, it is possible to consider it – even if it is a parameter and not a single variable – as a discrete parameter, and it goes without saying that we would not limit the need to clarify the existence in the equations. The economy then runs the risk of slipping into a non-computational or even informal way of being. Sometimes by circumstances of extremely cold conjuncture, awareness of the mystical dimension of time emerges, and it will relate more readily to the 'time of the universe', that of nature or cosmological equations, better than that of 'World Time', that is of constructed actions and society started by humans, then we might be led to reject the international currency and all that goes with it.

The issue of self-beliefs. Hence, our second criterion: our recommendations must also be able to apply the equations in a space that is institutionally recognized in the economic system, a space where self-belief in human beings is respected. These beliefs are of religious or humanistic essence, or even atheistic as long as they relate to a provable moral paradigm... one with beliefs, with preferences (these often come second in contradiction with the materials) and with strategies (these are the result of the 'precipitation' of chemical inter-

⁸ Works by Goldstein are particularly interesting to show how analyses can be in depth developed from an econometric point of view. Goldstein (2006: 137–144; 139, table) shows a general presentation of his theory with four phases: expansion, war, stagnation, rebirth. Goldstein shows an analytical presentation by including the turning points, which as a result produce six transition phases: price, innovation, real wage, production, investment, war (Goldstein 1988: 257–274; 259, table); and also a dynamic presentation of one's theory including eight poles each one with each other moved by attraction and repulsion mechanisms: war severity, social memory of war, national capabilities distribution, prices, real wages, production growth, capital investment, innovation (*Ibid.*: 274–278; 275, table).

actions between the first two, even by including the strategies themselves, which are constantly forming, reforming, and changing as a result of collective action or individual actions). If we should consider autonomy of the person in relation to the individual games, there would be no problems using 'astrophysical equations', provided that one knows 'where we are'. Therefore, we would also know the origin, the repository from which we begin to measure and study the series of events, with the intent of trying to clarify the 'nature' of the events described.

3. 'Econométrie' vs. 'Econometrics'

A. Yesterday

Since the 1970s, 'économétrie' has developed. It was used to compare schools of thought in economics and political economy in particular in order to look at the consequences of applying their recommendations. Thus, the natural development of the model was to go with the consequences of policies based on the application of the model. In doing so, this would subject the model to appropriate testing. We will always model the consequences of some possible decisions and at the same time understand the consequences to the model, and do so as if the underlying cause was necessarily known and controlled. The idea here is to add the scientific tools of statistics to clarify discussions about representations of reality and their possible actions. The objective here, clearly, is to avoid falling into pure ideology.

The second major reason for the massive development of the use of statistics, except the development of the technological tools themselves, with the creation of econometric software, was the growing complexity of an economy that has become multifunctional and multi-purpose. Many companies have tended to create their own 'system', whether of information or decisions. With regard to multinational firms, they tend to make the behavior of the macroeconomy contradict the opinion of the creators (Galbraith 1989 [1967]) of macroeconomic theory. The macro-open economy that has begun to develop over the last decade of the twentieth century does force the development of the analytical tools of econometrics, which were ever altered in order to mathematically predict the consequences of the combined effects of several factors acting simultaneously.

However, logically, when one considers the future consequences of potential decisions still to be taken, it may often happen that one approaches or has the impression of being closer to the discovery and understanding of the causes. Sometimes one may have the impression of discovering a fundamental underlying cause, or, the ultimate cause, in analyzing reality. Therefore it was pedagogically useful to distinguish 'économétrie' (the French most common word) and 'économétrique' ('econometrics' captures both French concepts). The first expressive concept acts as a general theory of statistics applied to the study of

a phenomenon which can easily measure profitability with respect to its financial, productive, and physical aspects, and link these to a representation of political economics which is known to be fairly well expected in terms associated with moral philosophy. With regard to the second concept, on the contrary, given the intertwined phenomena, the approach here is to screen the risk of calculating profitability. One example of this very frequently confronted difficulty may be when material productivity contradicts with financial rentability: in such a case the management should screen the risk, for instance, if the differential between productivity and rentability is low leveled, the management may present the end of exercise accounts in a way that would put light on a particular aspect of the company's strategy, which in turn would repay full consistency of the company's main activity. If the differential is medium-leveled, probably some specific measures in the tax policy or account policy of the company should be easy to enhance. Then if the differential is high-leveled (due to the rapid change in technology, or some cyclic or contra-cyclic behaviors of the prices which rapidly vary and are particularly in purely commercial activity in which the presentation of things is so important), it is necessary for economists to try to plan precisely how to model the changes between the 'trend' and the 'cycle', and when changes occur, what part is for financial aspects and what is for productive aspects, and maybe the remaining aspects – primarily unstated in the model – being for human specificities (part of the shared history of the team) ... and for other miscellaneous factors. The second example is when it is difficult to define, which activity of the company is the main one (when it is a multi-activity company), then the filter or computer screen may calculate profitability incorrectly, because the support of the calculations, that is the product, is not so clearly established in this case; it would be highly preferable to start studying the profitability of the company by the 'observed-risk-aspect' than by the 'predicted-profitability' aspect, in order to have in mind an order-list of priorities in decisions (but probably in some sectors, particularly connected with public markets, other aspects should come into play, because these markets cannot be really 'transparent', and it is possible that in such cases it would be preferable to partly 'hide' the decision-making process instead of having an order-list... because the decision-making process is supposed in such cases to be 'public' ... so that there is no one sole decision-maker...). These reflections identify the point at which the tools for screening risk can be applied (it helps to be systematic): 1) to avoid taking useless risk; 2) to have a method to confront the 'risks-aspects' and purely 'profitability aspects'; 3) to adapt and even constantly improve the company's strategic processes and make the company feel more rational in regard to its corporate identity. However, we hope to go further in understanding the ultimate cause, thanks to the improved visibility of reality that gives us a proven ability to filter the risk and overcome the obstacle that is

part of reality. In theory, of course, this must allow us to go further in understanding the ultimate cause.

B. Today

Wolff (1993: 233–246) pointed out already that any statistical theory begins by accepting the more or less affirmed existence of a series of events associated with cyclic economic behavior (of a market, of natural disasters, financial cyclically observed minor or major bumbles, booms, crashes...). This decision of acceptance can be achieved in a ‘search for the frequency’ of a style of research in comparison with a landmark event which always recurs with some frequency. It can also be understood as a ‘residuals-diversion’ style of approach of an existing series. So, if one understands that a deterministic series of events is a factor of the system, that is a root of mathematical explanation, one can then hope to reconstruct the inferential function and constitute a ‘residue’, even if sometimes the latter appears as an undesired initial consequence. Then, by mathematically integrating the residue, one can hope to reconstruct a vision, a more concrete model, which is consistent with reality and a scientific theory.

Many researchers have recently put their focus on spectral analysis methods in order to deduct a genesis-type logic in the very detail of the ‘root-residue’ – and to link the aspects of the residue with the aspects of frequency – all the more importantly since it appeared to be probably the only solution to treat a very long series in time. But these methods imply that you use a lot of complex technical details in the mathematical treatment of the series. So, currently, spectral analysis as it was has the potential for confusion. Spectral analysis acts on the frequency of observed events under scrutiny, assuming that the phenomena, which are presumably found, ought to correspond to the existence of a ‘memory’ of the entire system. However, if these phenomena are found through this filter actually to be comparable in form, but possibly different in nature and structure, then we could not only acquire more ‘memory’ to serve the entire system, but also increase the risk of misinterpretation! In biology we know the example of plants that, viewed from outside, seem to belong to the same family, although they are genetically very different and cannot interbreed, unlike other plants, which look very different, belong to the same family, and are interfertile.

These new methods do not suffice to explain a phenomenon like that of Kondratieff cycles, which manage to create a ‘structure’ by subsequently serving as a statistically grounded ‘filter’ for scientific interpretations. By construction through four different types of parameters, this theory resurrects an old mathematical mystery at the very foundation of the building of some famous civilization – the ‘four elements’ of the Greeks ... a base that becomes five in Chinese. For a Chinese in addition to air, water, earth and fire, he would immediately add wood, which allows even more factors to act on the living nature of

things and the ability to act generally as paid humans. The transition from four to five aspects in the spirit of fostering better actions may be, however, conceptually not easy to reach – beyond any description other than switching to a dynamic, inclusive (and potentially itself included) paradigm for the social sciences. In the other direction, to find a semblance of unity, a drop from four to three aspects could be little easier: allowing us to achieve that ‘squaring the circle’? The practical solution adopted by many researchers could be ‘calculating a direction’ for the ‘creation of wealth’ ... and reasoning based on three elements of ‘direction’ ... in failing to not concern the ‘meaning’ to be intended to be the systematic ‘fourth’ element. This fourth element acting as a horizon of research would be devised to give meaning to the first three. It could well stabilize the whole system.

In fact, when the system with four elements would change from a passive state to an active state, it could discern the existence of a fifth vector. This vector will represent the action whose effect is produced by a single vector system, and that effect will be to expand the size of the entire system. The reverse operation is also possible: the fourth parameter can be ‘inhibited’ by the entire system, sometimes due to simple ‘statistical noise’ made about this vector by the overall system, because such a faulty understanding of its members emerged of the ins and outs of the system. In this case only three vectors will be clearly visible... as the carrier of meaning would be hidden. Probably, that is why Kuznets was more recognized in the West than Kondratieff is: this method calculates directions of profit, regardless of when it comes to address the tax dimension of things – including globally.

* * *

Thus, for our part, we prepared an *Economic History of Europe* showing the progressive income collected by *homo monetarius* since 1800, a *Monetary History of Europe* (Jourdon 2009a) showing the concerns of the Central Bank in securing and diversification of the income of the *homo monetarius* within the World System since 1800. Our theory: it should partially rewrite the history of money to reflect this new agent, *homo monetarius*. Our theory should address the following: 1) make decisions allowing it to diversify and take financial risks; 2) increase sense that a new political philosophy ought to be designed; 3) perform information transfer with the environment and with a monetary character of this information so as to better ensure the system. The next monetary Long Cycle (1992–2090) is the cycle of the new key currency, the euro (Jourdon 2011a, 2011b). It follows the respective cycles of pound sterling (1848–1945) and the dollar (1917–2015). The EU euro will specify its reservations vis-à-vis the system embodied by the US dollar (1980–2020), becoming the first reserve currency in the world while bearing the debt-load of the World System (2015–2055), then weaken, decline, and pass the baton to another key

currency (2050–2090). The EU euro brings with it a new social project: the balance between private property, social property, and self-property, thus following the projects of the US dollar (a balance between private ownership and social ownership) and the UK sterling pound (liberalism in defense of private property). The works of Kuznets, as that of Kondratieff, remarkably fit into our perspective. They enrich it. If the Kuznets cycles show wealth creation, and those of Kondratieff the best way that is humanly imaginable to administer them, how to think about the borders between sectors, countries ... in order to enhance coordination. An approach of semi-monetary long cycles (Jourdon 2008: 95–122; 2009b: 13–26) or monetary rethink could help both series of cycles – Kuznets and Kondratieff – find new paths of convergence.

Clearly, the long cycle of the US dollar does not take completely into account the potential for lasting justice. On the contrary, the miracle of the last fifteen years is that, from a more technical point of view, the holders of economic interest accurately managed their investments, while moving them towards new growth-areas in order to reduce taxable income; this strategy was successful... And, at the same time, these holders of economic interest contributed (*e.g.*, the American magnate Warren Buffett, who holds one of the most prominent hedge funds in the World, is regularly contributing to the public by readdressing more than 80 % of his gains, according to the French Newspaper *L'Expansion*; the second richest captain of industry in the World, the American citizen Bill Gates, generously funds a number of causes in the Third World). If we consider these facts and arguments from the perspective of history, we could put it in parallel with the opinion-influencing public behavior of such British personalities as Lord Keynes and more recently Tony Blair ... Being a leader in international monetary negotiations, Keynes was as important a personality in probability reasoning in economics (in which he used to be a generalist). Tony Blair, being an initiator of actions in the Gulf War, was highly criticized for that in Continental Europe, but being a leader, he also had to assume his position and role in front of history. So from an ethical point of view, I suppose, the Gulf War is not a case where we could try to assert his, if any at all, moral duplicity. We only say that the long process of post-modernity with collateral effects on sex and gender, on finance and tax, and on social and societal characteristics seems, according to us, to deliver one important lesson, that finance is not the villain in international professional relations, but any attempt to regulate it – certainly needed – would mean to put it into historical and global perspective first before discussing any further detail. To this statement on the more general point of view that there is a current consensus on a relative stabilization – perhaps, the calm before the storm... in political discourse, we observed these effects in Europe: the so-called ‘the single thought’ approach (1990–2005) within which the right and the left defended the same values for tightly managing the EU macroeconomics, which seems a remarka-

bly empty historical *doxa* with respect to positions asserted on a separate original social project (or maybe on the very contrary notion that it may have been a more than a perfect legal arborescent architecture which resulted as a consequence of its very logical construction in both ‘as if empty content’ and ‘as if empty box-of-social-and-societal-values’). More than ever, Kuznets and Kondratieff become inseparable in their paradise of Great Economists: the world today, which is 50 % democratized (Modelski 2006) and 50 % monetized (Jourdon 2010b), requires prudent management, but also some innovative method to bridge unpredictable differences.

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