

# **Medical and Mechanical Metaphors in Germán Bernácer's Theory of Business Cycles (1916-1936)**

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## **1.- Introduction**

The analysis of the economic crises was not, indeed, a common topic in the Spanish literature of the 19th century. Few economists paid attention to this phenomenon of crises. When they did it, like Alvaro Flórez Estrada, they referred to crises experienced by foreign countries. Even at the end of the century, when the phenomenon of economic crises became more apparent, the Spanish economists put the focus on the repercussion of the crises in the Spanish agricultural productions and in phenomena like pauperism and the institutional reforms needed to face them up. However, they were not particularly interested in the causes and mechanics of economic crises.

During the early 20th century, the absence of theoretical analysis about the economic crisis continued within the community of academic economists who were brought up basically in the faculties of law. However, a heterogeneous group of researchers who, in high contrast with the mainstream of economics in Spain, had a mathematical, statistical, or natural sciences background, began to be interested in economic crisis. Amongst them, it is worth highlighting G. Bernácer, who developed a theory of economic fluctuations in a monograph and a series of articles mottled with metaphors and analogies coming from his natural sciences background.

## **2.-The Spanish economists and the economic crises**

### **2.1- The economic crises in Spanish economic literature during the 19th century. Crises as an alien phenomenon**

The late 18th century was a flourishing period for political economy in Spain. The great reformers and economists of the period like Jovellanos, Campomanes, and many others gave a shift to the economic discourse. They left behind the old debates of the 17th and 18th centuries by introducing new challenges like the agrarian reform, the monopoly of the colonial trade, the freedom of trade, the abolition of guilds and entailed dominions, the tax reform and the liberalization of the corn trade. These debates, together with the discussions about the problems of the Spanish public finances and the growing public debt, continued in the 19th century, particularly during the two parliamentary periods (1812-1814 and 1820-1823). Nevertheless, the Spanish economists did not pay particular attention to economic crises in general and did not refer to any crisis of the Spanish economy during the early 19th century.

There were, however, some exceptions. In 1823, absolutism reestablished in Spain, and many liberals exiled abroad, mainly in London. It is here where we find some interest in the phenomenon of economic crises. The most significant work on this respect

was Flórez Estrada's *Reflections of the Mercantile Distress experienced in Great Britain and more or less affecting other nations on the Continent of Europe, &c. &c.* published in London in 1826 and later translated into Spanish (Flórez-Estrada 1826). This work enjoyed some success as it was republished three times in London, and Jean Baptiste Say critically reviewed it in the *Revue Encyclopédique* (Prados Arrarte 1982: 30). After describing the consequences of the London Stock Market crash in 1825 on employment, production, trade and public finances, Flórez discarded some factors handled by the public opinion in Britain and affirmed that the monetary shortage in the Latin American republics that brought to an end the coming of precious metals to Europe was behind the crisis in Britain (Flórez Estrada 1826). Nevertheless, there are not analogies, with the exception that he uses the medical term "symptoms" and the wicked term "evil," to describe the crisis.

Flórez was not alone when discussing the economic crisis. The leaflet "Five Questions on the Actual Mercantile Distress," by the almost unknown Pablo Pebrer is the result of his expertise as a successful merchant in Britain. As Flórez, he does not accept the contemporary interpretations of the crises as a result of the operations of the Bank of England suggesting that the crisis was "more imaginary than real" by using an empirical analysis that relies more on "facts" and figures of trade than in abstract pre-conceptions (Pebrer 1826: 18). From our point of view, we find here the first mechanical analogy of the crisis when Pebrer says that "...the mercantile machine suffered in its rotation: its accelerated movement stopped" (Pebrer 1826: 16). Additionally, Pebrer also describes the financial distress and bankruptcies by using the metaphor of a torrent that sweeps along the banks, which was the most visible aftereffect of the crisis. No doubt that Pebrer by using such a metaphor aimed at stressing the violence and suddenness of the phenomenon of the financial crisis (Besomi 2019: 373).

It is not up to the mid of the century that one does not find any other mention of the economic crisis in the writings of the Spanish economists. By then, the free-trade – protectionism debate had monopolized the economic disputes. Luis Maria Pastor, indeed, a supporter of free trade, made a historical account of the financial distress during the 19th century without deepening in its causes. Nevertheless, he referred to the crisis as a "social illness" as if the crisis were an exogenous phenomenon (Pastor 1850). A more moderate proponent of free trade, Colmeiro also refers to economic crises as an "accidental phenomenon," which has no periodicity. The policy of free trade may contribute to overcoming it (Colmeiro 1873: 172). A complete analysis of crises, however, is found in the entry "Commercial crisis" of the first Spanish general encyclopedia by José Joaquín de Mora, who was one of the old liberals exiled in London. When describing the "commercial crisis," Mora, probably by remembering his experience in the 1820s in London, points out that the psychological mood of social classes in such a situation is called 'panic' in England. This term, indeed, looks like being common in contemporary works (Besomi, 2011). The entry summarized the agenda of the supporters of free trade and linked the commercial crisis to protectionism. This link was usual in French works circulating in Spain at the time like Rossi's *Curso de Economía Política*

(Rossi 1840). However, generally speaking, the economic crisis was a phenomenon that Spanish regarded as alien to the Spanish economy of the mid-19th century<sup>1</sup>.

The free trade-protectionist controversy increasingly gave up prominence to a series of debates like the rearrangement of the public debt, the integration in the Latin Monetary Union, the issuing monopoly and the monetary policy of the Central Bank, and above all, the debate about the so-called social question referring to the social consequences of industrialization. Something changed, however, in the light of the 1870s crisis. The account given by most of the Spanish economists looks to be down to earth interpretations as they merely described the path of economic events, its obvious causes (overproduction caused by overseas production and globalization), and their consequences on the commercial policy (San Julián 2015). On the other hand, many remarked the structural problems of Spanish agriculture, which impeded the modernization of productions that paved the way for the strong impact of the international crisis. The view of some critics of individualism like Estasén, Azcárate or Piernas Hurtado, who appreciated -besides the protectionist's policies implemented by the European countries-, a more profound and general moral or ethical crisis behind the economic distress symbolizes the low analytical level of the account of the crisis given by the Spanish economists (Azcárate 1789, Piernas 1882: 73-74). At the end of the century, however, a few economists like Villaverde and Sanz de Escartín insisted on the monetary origins of the depression and particularly to the falling money supply as a result of demonetization of silver in bimetallic monetary systems (San Julian 2015: 880). All this was not but a faithful reflection of a period of a true detachment of Spanish economists from the new developments experienced by economics like marginalism or historicism. Most economists focused on policy and practical questions, and they did not show particular interest in theoretical advances and even less in the theory of business cycles.

## **2.2.- The early 20th century.**

During the early 20th century, things changed dramatically, and the Spanish political economy experienced a period of modernization. The key-figure of this process was A. Flores de Lemus, who was highly influenced by German neo-historicism. Flores gathered together a large group of disciples that worked dispersed in the faculties of law, where they taught political economy and public finance. All of them adopted an empirical methodology that proved the influence of German neo-historicism by analyzing the functioning of the Spanish economy, the problem of economic backwardness, and by suggesting reforms in the structure of Spanish public finances and administration. Besides historicism, marginalism played a secondary role in the modernization of the Spanish political economy thanks to J.M. Zumalacárregui, who had been influenced by the

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<sup>1</sup> The exception was again Pastor who published in 1848 the leaflet *La Bolsa y el crédito* where he described the financial distress in the Madrid Stock Exchange market which he attributed to the political events in Europe and the policy of the government of restraining credit (Pastor 1848).

Lausanne school. An overview of this literature until the late 1920s reveals no interest in the theory of business cycles.

Paradoxically, some economists who were far from the academic circles and the faculties of law were those who first paid attention to economic crises. The mathematician and statistician O. Fernández Baños who had been strongly influenced by the Italian economists L. Amoroso and E. Barone taught a course in 1925 entitled *Nociones fundamentales de economía matemática* –Foundations of mathematical economics- that included an appendix on the periodical crises of capitalism (Fernández-Baños 1925). Later on, in the 1930s, he interpreted the British economic crises following the abandonment of the Gold standard. However, he did not use any metaphorical language apart from the mathematical formalism. The Catalan Josep Antoni Vandellós, who also had a statistical background, proved to be interested in economic crises when he published in *Revista Nacional de Economía* the article *Patología Económica* –Economic Pathology- (Vandellós 1925). He understood by economic pathology the analysis of the economic organism in abnormal periods, that is, when the organism is sick, in high contrast with economics that analyzed the organism during the regular periods of the economy. This use of the biological metaphor for describing the economic crises was not original as the article was not but a lengthy summary of the lectures given by the Italian statistician Corrado Gini at the Bocconi University in Milan when the Italian had adopted the methodological approach known as neo-organicism (Cassata 2008). However, the tone of the article suggests that Vandellós was assuming the continuous medical metaphors used by Gini, to whom he recognized as a master. During the Great Depression, he got a position in the Catalan Institut d'Investigacions Econòmiques in Barcelona and wrote a vast number of articles on business cycles, but by then, the metaphorical language had vanished completely. (Pascual 1991: 8). The third and most extraordinary exception was the economist Germán Bernácer, who designed up the only distinctive Spanish contribution to the theory of economic cycles between 1916 and 1926.

The Great Depression was generally interpreted as “someone’s else problem” as it did not impact in Spain as in most of the European countries. Therefore, few economists paid attention to the economic distress that suffered the world economy during the 1930s, and when they did it, they usually relied on borrowed accounts from the leading economists at the time. L. Olariaga, for example, gave an Austrian account of the economic crisis<sup>2</sup>. Others, like M. de Torres and Vergara, both specialized in agricultural economics, focused on the agricultural origins and its repercussions in Spain. Perpiñá Grau and Torres both analyzed the Spanish economic crisis by using a structural analysis based on a generic notion of equilibrium (Zabalza 2012). There were, however, some original attempts of interpreting the depressions like the monograph *Dinero, rentas y paro* by the prolific economist L.V. Paret (Paret 1930). Paret held that capitalism has a continuous disruption of economic equilibrium caused by the fluctuations in the volume

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<sup>2</sup> He also had analyzed the consequences of the drastic reduction in public works that have affected the metallurgical industry and the whole Spanish economy. However, he was not concerned with the impact of the multiplier process on aggregate demand (Zabalza 2012)

of credit, which in turn came from the requirements of the gold standard. Apart from this, Paret took an under-consumption approach to economic crisis inspired by Foster, Catchings, and P.W. Martin (Paret 1930, 1935). Nevertheless, we have not found any use of metaphorical language in these works with two exceptions.

The first one is the above mentioned J.M. Zumalacárregui, who gave a comprehensive historical account of the theories of business cycles by categorizing them according to the different analogies and metaphors used to illustrate the cyclical movements (medical, astronomic or mechanical). In this respect, it is worth remarking that he regards the term crisis –used by classical economists and organicists like Schäßle– as anachronistic and erroneous. According to him, the term conveys a medical metaphor that remarks on the exogenous origins of a crisis that leads the economy to an abnormal state, an illness of the economic organism. Illness, he affirms, has not a regular rhythm and is not subjected to prediction or calculus, and therefore has nothing to do with business cycles (Zumalacárregui 1933: 628). Therefore, he suggests substituting it by the term “coyuntura” (conjuncture), which he takes from the German economist and statistician Wagemann, who, according to him, gave a different lexicographical content to the term by using it in prosperity and depressions. (Zumalacárregui 1933: 632-633). The second exception, as mentioned, is Germán Bernácer, the main subject of this article.

### **3.- The metaphors and analogies in Bernácer’s theory of economic fluctuations**

#### **3.1.- Germán Bernácer’s theory of economic fluctuations**

G. Bernácer (1883-1965), a canonical example of a self-taught economist, was born in the peripheral town of Alicante (Spain). After graduating at the School of Commerce of his hometown in 1901, he taught in the same educational center Physics, Chemistry, Natural History, and Industrial Technology, having, therefore, a natural sciences and technological background (Oliver Narbona 1983: 33-45). On the other hand, his friends were successful local musicians, painters, and writers, but none economists or social scientists belonged to his closed circles. Therefore, how Bernácer approached economics remains a mystery. The most reliable hypothesis, however, refers to the social and political convictions that lead him to have an intellectual interest in Henry George and *Georgism*. His first publication, the monograph *Sociedad y felicidad* (1916) (*Society and Happiness*) attempted an early interpretation of the cyclical nature of capitalism and advanced some ideas that he would develop in a series of articles published in the 1920s. The most significant of them was “Teoría de las disponibilidades como interpretación de las crisis económicas y del problema social” (“Theory of Disposable Funds as an Interpretation of Economic Crises and the Social Problem”) that provided the first formal account of his theory of economic fluctuations (Bernácer 1922). Further articles and a monograph on the theory of interest in 1925 helped to complete the theory by 1926 (Bernácer 1925, 1926, 1926a)<sup>3</sup>. Nevertheless, the publication of Keynes’s *A treatise on Money* (1930), whose main ideas he considered to have advanced, led him to rearrange

the model based on new formal rhetoric in a series of articles that he published in the journal *Economía Española*. By then, he was a member of the Research Department of the Bank of Spain, where he drafted a series of weekly reports between 1932 and 1936 to advise the board of the bank about the world economic and monetary events of the 1930s based on his theory of disposable funds. This activity came to an end when the Spanish war broke out in July 1936.

Bernácer, however, remained alien to the circles of Spanish economists, and he did not get any position at the Spanish universities as an economist. Even when Dennis Robertson published in *Economica* an article that included excerpts from Bernácer's work in 1922 and suggested that the theory of disposable funds may have inspired his time-lag theory of business cycles and indirectly Keynes's one, Bernácer did not get an academic recognition in Spain (Boianowsky et al. 2006). In fact, after the Spanish Civil War (1936-1939), he undertook a campaign to spreading abroad the theory of disposable funds by publishing a wide range of articles in international journals. Likewise, Bernácer prepared some monographs in which claimed that he had advanced the model of economic fluctuations in *A Treatise on Money* and firmly believed that the path that Keynes has taken in the *General Theory* led him the wrong way.

Bernácer's model of economic fluctuations took different formal accounts. However, the essentials of the model did not experience significant changes from 1922 onwards, and a brief and simplified account of its central tenets would be enough for our purposes. Once the different economic agents have perceived the remunerations of their contribution to production, these "disposable funds" –which may be augmented by new ones coming from, for example, an increase of money supply by the central bank- might be allocated to the "productive fund" (the production-consumption cycle) or the unproductive fund. In the first case, it does result in effective demand. However, the "disposable funds" might be allocated into the unproductive fund (whether they hoarded –"floating disposable funds" or allocated in what he called "valores de renta" (income-yielding assets), that includes land and industrial shares in the stock exchange market (Bernácer 1926: 10-11; Bernácer 1935: 6).<sup>4</sup> In this case, the disposable funds do not transform into effective demand.

The dynamic development of the model results in a cyclical structure of the economy, which moves away from economic equilibrium. The determining factor behind the breaking of the economic equilibrium is the "... attraction and repelling of disposable funds by the income-yielding assets market", which leads to a shortage of disposable funds in the credit and real investment markets that eventually results in falling demand (Bernácer 1935: 25). Once the demand falls, there is a need to reduce the stock of goods by reducing prices. As sales are made at a lower price, the value of production plummets. In this context, companies limiting costs will improve technical organization and dismiss

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<sup>4</sup> In this respect, the time lag between the perception of these payments in monetary terms by the economic agents and the precise moment in which they are converted into effective demand or not is crucial (Bernácer 1933: 2–20). This time lag is key to Bernácer's model of economic fluctuations and is the basis on which he might have anticipated Robertson and Keynes's theory of business cycles in *A Treatise on Money* (1930).

workers, leading to industrial unemployment – a central feature of the depression – and, thus, to further reductions in remunerations resulting in the typical downward spiral that characterizes crisis (Bernácer 1934a; 1935: 17). During the depression, the growing inflow of disposable funds to the financial market may reduce the rate of interest, which paves the way to the return to prosperity. However, the distrust caused by the crisis, which incentivizes hoarding and compels the industry to demand higher margins concerning the rate of interest, together with the size of the fall in demand, impedes the automatic return. The turning point, according to Bernácer, is usually the result of some “fortuitous event” that absorbs the purchasing power existing in the unproductive or reserve fund and reintroduces it to the productive circuit (Bernácer 1934: 19). Such phenomena may be a war, a technical innovation, or even a public calamity.

### **3.2. The use of metaphorical terms and analogies in Bernácer’s writings**

Bernácer’s writings from the very beginning profusely employ the metaphorical language for illustrating many aspects of the theory of disposable funds as an explanation of business cycles. Paging through *Sociedad y Felicidad* (1916), we find several examples of resemblances and similarities between some aspects of the economic crises, which may be classified as metaphors or analogies. For our purposes, we will not discuss the nature of these similarities, whether metaphors or analogies, and we merely tried to identify them, how they fit with the model of disposable funds and why Bernácer used them for illustrating different aspects of the economic crises.

As early as in the introduction, Bernácer convincingly affirms parallelism between the “Physic and Social Mechanics” (Bernácer 1916: 14), which might be expected given the full title of the book: *Sociedad y Felicidad. Ensayo de Mecánica Social* –Society and Happiness. Essay on Social Mechanics-. Bernácer’s natural sciences background may have somehow influenced on drawing up such parallelism. Nevertheless, Bernácer himself provides indications in *Sociedad y Felicidad* about the possible influence of George in this respect. In the very introduction he outlined the basic principles of economics and: human wants are diverse and to meet them, they demand to human beings a painful task called labor; human beings meet human wants ultimately, but with the minimum effort possible; growing human wants are a manifestation of human progress. Afterward, he makes parallelism with some physical laws “...the first one assimilates to the mechanic’s law of inertia; the second one, with Henry George, ... may be related to the second axiom of mechanics: the independence of the physical forces, ... “(Bernácer 1916: 20)

However, while not denying George’s influence on the parallelism between physic and social mechanics adopted by Bernácer, we tend to think that besides George, the influence of the American sociologists Lester F. Ward was crucial in this respect. Ward was a prominent American sociologist who, before becoming interested in social sciences he established a minor career as a botanist and natural science writer. Afterward, he joined the scientific community that later on would form the basis of the US

Geological Survey, the Bureau of Labor Statistics, and the Smithsonian Institute (Lybeck 2013). Therefore, his approach to sociology was autodidactic, remained relatively isolated from currents in academic, social science at the time, and drew up parallelism with natural science. His *Outline of sociology*, without doubt, is behind the term “Essay on social mechanics” used by Bernácer as the subtitle of the monograph *Sociedad y Felicidad*. Ward’s monograph takes part of an agenda to make sociology a scientific discipline, and in doing so, he analyzed the links and similarities between sociology and natural sciences, that is, between “physical phenomena” and “social phenomena” (Ward 1898: 164). The latter is governed by “...true natural forces and obey all of the Newtonian laws of motion” (Ward 1898: 166), and therefore “... to regard social structures as a mechanism is a luminous point of view for the treatment of social mechanism” (Ward 1898: 171)

Bernácer applies such parallelism to the phenomenon of economic crisis by using two physical metaphors. The first one compares the development of the economic crisis with the “flood waves originated by the throwing of a stone in the pond” (Bernácer 1916: 234). The second one looks like being more sophisticated in order to remark the fact that, even though the economic crises does begin at a small scale, the process develops in an accumulative way resulting in an incommensurate phenomenon which, notwithstanding, does not lose the causal links with the original thrust:

“The physical phenomenon which most closely resembles the economic crisis is the “exothermic decomposition.” The little original cause is not, but an initial stimulus or preliminary work, which, once completed, continues by itself, resulting in disproportionate effects regarding the original cause” (Bernácer 1916: 235).

Both metaphors suggest a regular transmission of the initial impact on the most advanced phases of the cycle. Moreover, they remark causal links between the origin of the cycle and its development. Nevertheless, they do not pretend a complete description of the cycle, and nothing they suggest about periodicity or the turning point of the cycle.

The second stage in the development of Bernácer’s theory of business cycles begins with the article “La teoría de las disponibilidades líquidas” (1922). This article is behind the reputation of Bernácer as a forerunner of the Cambridge time-lag theories of the business cycle (Boianowsky et al. 2006). The article shows a different formal face with regard *Sociedad y felicidad* as it focused on the economic model itself, leaving aside any sociological or anthropological issues that had characterized his first work. By then, Bernácer had situated his theory of economic fluctuations in the spectrum of economic theories. As soon as in 1918, he had criticized the *marshallian* paradigm by considering that the demand and supply analysis and their “complex curves” were not enough for accounting for the prices of goods as they do not take into account the changes in money value. He compares *marshallian* economics indeed to the state of physics before Galileo calling it: Ante-Galilean economics (Bernácer 1918: 252). By using this term, Bernácer

wants to remark the existence of a new theoretical system that is able of replacing the neoclassical orthodoxy (Besomi 2019: 362)

From our point of view, it is worth remarking that Bernácer exemplified critical relationships of the economic variables using physical but, mainly, medical or biological metaphors. This change is a significant one regarding the metaphors used in *Sociedad y Felicidad*, but we have not observed any significant evolution in his thought, and nothing happened that may lead him to introduce this new sort of metaphors. Perhaps the different audiences of *Sociedad y felicidad* and *Revista Nacional de Economía*, the journal where the article was published, may have something to do in the new rhetoric adopted in 1922. We know, notwithstanding, that Bernácer has used the term “social organism” from the very beginning. This term, which continuously repeated in Bernácer’s writings, comes from Herbert Spencer, but possibly he knew it through, again, an *Outline of Sociology* by Ward (Ward 1898: 187)<sup>5</sup>.

As seen above, the final allocation of disposable funds plays a central role in Bernácer model of economic fluctuations. The different uses given to these disposable funds determine their migration to the productive fund or the unproductive one, having, thus, different effects on the level of economic activity<sup>6</sup>. Therefore, while “...the loan, the speculative investment or the purchasing of income-yielding assets does not change the objective nature of disposable funds, “... as they move within the limits of the unproductive fund “... the allocation of them in the industry to pay wages, assets, interests, rentals, [...] transform them into retributions,” and thus, changing their nature (Bernácer 1922: 543). Bernácer compares such a process to the metamorphosis, which does not describe, but also to the biological metabolism:

“Thereby, what does it see from outside as an equilibrium that barely oscillates, it is in the innermost, a state of dynamic activism, similar to the material equilibrium of human livings, which is maintained by assimilation and de-assimilation, and therefore, the reserve tissues –in this case, disposable funds- increase or decrease depending upon the two reverse aspects of metabolism” (Bernácer 1922: 544).

Adipose or reserve tissues play a central role in regulating the energy of the organs and the whole body itself. Furthermore, they are indeed stores of energy in the form of lipids, which also distribute all over the body and act as an endocrine organ producing numerous bioactive factors and modulate a range of metabolic pathways (Luo-Liu 2016). We do not know how deep was Bernácer’s background on biology, but the metaphor was quite sophisticated for the regular readers of *Revista Nacional de Economía*, basically businessmen. More than the regular reader of the journal, it looks like the article targeted the academic spheres, as the journal regularly published articles by the leading economists of the country. However, most of them taught at the faculties of law, and the analogy used

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<sup>5</sup> The metaphor “social organism” was profusely used by the German historicist who were profoundly influential in Spain. However, Bernácer escaped completely from this influence rooted in the faculties of law and around the figure of Flores de Lemus.

<sup>6</sup> The terms “productive fund” and “unproductive fund” were introduced by Bernácer in 1926.

by Bernácer may not clarify things. We cannot advance any clear hypothesis on this, but it looks like Bernácer wants to stress the scientific nature of his contribution in the face of the Spanish academic community that had utterly ignored Bernácer's work on business cycles.

Bernácer also uses a physical metaphor for representing the instability of productive configurations, which depends, as mentioned, of the final allocation of disposable funds, which eventually depends on the decisions of the money holders. Thereby, if they change their "wishes" and "plans," it will result in the "... shifting of the activities of one industry to another like the magnetized needle moves around" (Bernácer 1922: 537). The metaphor adds some aspects missed in previous ones. The movement of the magnetized looks like suggesting a quick movement towards crisis, but does not convey the asymmetric shape that takes the cycle in Bernácer's theory as the movement towards equilibrium or the prosperity phase does not happen automatically.

Bernácer completed the theory of disposable funds in 1926, and afterward, he left theoretical issues apart by focusing on some lively debates that took hold in Spain about the possibility of joining the Spanish currency to the gold standard. The metaphors related to the economic crisis vanished utterly, but he continued using physical and meteorological metaphors for epitomizing the relationships between the rate of exchange, the level of domestic prices, and the balance of trade (Bernácer 1929). When he came back to economic theory in 1933, however, he opted for medical metaphors to characterize the economic crisis. In this way, when he analyzed the causes of the economic crisis, he uses the term "etiology," and when describing its development, he referred to it as a "pathologic process" (Bernácer 1934: 18). Likewise, Bernácer returned to make a prolific employ of metaphors when he drafted a series of reports as a member of the Research Department of the Bank of Spain to advise the members of the council of the bank about the main economic and financial events of the Great Depression.

Medical metaphors are, by far, the most frequent in the reports. The term "disease of the economic organism" in the different acceptations of the term in the Spanish language (*dolencia*, *enfermedad*, *males del organismo*), is very often used to denote, generically speaking, economic crisis. However, Bernácer makes a precise gradation in the use of the term "illness," depending upon the specific episodes of the economic crisis and how they affect peripheral or core aspects of the model of disposable funds. Thereby, when he reports about the evolution of the price of the stock market securities, or even about the level of rate of interest he talks about "symptoms of the economic organism" which might be advancing a period of prosperity or depression (Banco de España 1932, December 29; 1935, November 29). In some cases, when referring to the early stages of economic crisis, he used the terms "germ" or "embryo" (Banco de España 1932, March 9; September 22; December 22). However, when Bernácer qualifies the term "illness" as "the capital disease of the economic organism" or "the deepest sickness" (Banco de España 1932, February 3, April 21), he refers to the disposable funds feeding in a large scale the unproductive fund. Such a flux is caused basically by deflation, which makes the disposable funds to migrate from the productive fund to the unproductive fund and

basically to the income-yielding assets. Furthermore, he also used the term “cancer” for referring to that episode, which is central in the model of disposable funds (Banco de España 1932, March 23).

There are many other analogies for referring to particular aspects of the crisis. As Bernácer was particularly interested in warning the board of the bank about the repercussion of the lousy management of the policy of the rate of exchange, and more specifically on the overvaluation of the Spanish currency, he paid particular attention to the troubles experienced by the countries in the Gold Bloc, and more in particular to France. When Bernácer criticized the exchange rate policy of the French franc, he was indirectly referring to the debates in Spain at the time, as the Spanish currency was in 1933 pegged to the French franc and, therefore, indirectly to the Gold Standard. Although the management of the exchange rate was not by then in the hands of the bank, he wanted to influence on the members of the board of the bank, highly considered in the Spanish economic circles, for preventing the crisis from striking the Spanish economy, which had remained relatively isolated from the global crisis.

As soon as 1933, he used many metaphors, usually medical metaphors, for criticizing the proponents of the Gold Standard about the problem of currency stabilization. The latter proposed the return to gold as the mean for stabilizing the currencies during the turbulent 1930s, and Bernácer strongly opposed them by handling two metaphors. An “elastic rubber meter rule” is used for exemplifying how an international monetary system based on variable rates of exchange may lead to the stabilization of the currencies. Bernácer wants to illustrate that gold is not a stable measure of the prices as its value –or the value of goods- is continually changing up and down. On the other hand, he claimed that anchoring the currencies to gold resulted in the instability of domestic prices. As with Keynes, Bernácer highly disbelieved the quantitative theory of money and regarded the instability of domestic prices as harmful. The critical point was that the parity to gold, as it is known, carried instability to domestic prices. Bernácer exemplified so by using the metaphor of the “umbilical cord” that channeled disequilibrium to the domestic prices. Therefore, disconnecting the two bodies by cutting off the “umbilical cord” that joins them together, paves the way for the stability of domestic prices (Banco de España 1933, June 22).

Bernácer regards the deflationist pressure put by the parity to gold as a barrier for fighting efficiently against the depression. Such a problem, and in particular, the distress of the French economy, is repeatedly remarked along with the reports. In this vein, when he described the deflation suffered by the countries of the Gold bloc, and more in particular France, he declared that they “... suffer a strain that assimilates a recurrent fever. These countries perform as a chronic patient that is consumed by the successive attacks”...(Banco de España 1935, May 29). The survival and resilience of the French economy are possible due to the “... natural inertia or the instinct of self-preservation that is innate to any organism” (Banco de España 1935, December 27). The term “chronic patient” remarks the impossibility of recovering in the context of the gold standard, but also the conviction that the illness may only be worsening if the original cause, that is,

the high level of the rate of exchange, is preserved. The limits of such a metaphor are obvious for giving an account of the economic cycle, but it looks entirely appropriate for illustrating the consequences of the wrong rate of exchange policies. Something similar may be said when he compares the impact of the parity to gold to the effects on a person's breathing when pressure is put on his chest. Once the currency devalued: "... the effects are similar to the relieving of the pressure put in the chest on breathing" (Banco de España 1935, June 14).

Nevertheless, Bernácer also used a physical metaphor for illustrating the effects of deflation: "In the period of turbulences, the countries that have stabilized their currency, cannot devalue it under the rate that they have adopted, and –as in Economics like in Mechanics the energy conservation principle is valid-, thus, the effect is put forth on the 'intimate' parts of the economic mechanism" (Banco de España 1935, September 27). Bernácer refers, obviously, to domestic prices. The metaphor indeed tries to show how the mechanism of the gold standard works and how a fixed rate of exchange does not prevent the disequilibrium from striking the domestic economy.

Summing up, Bernácer made use in the weekly reports of a wide range of metaphors to epitomize central or peripheral aspects of the economic crises. The variety of the metaphors suggests that Bernácer chose them with the purpose of persuading the members of the board of the bank about the economic consequences of bad economic policies<sup>7</sup>. This fact may explain the simplicity of the metaphors themselves, whether medical or mechanical, easily understandable for the members of the board of the bank, and simple enough for remarking the links between the policy of the rate of exchange and deflation.

#### **4.- Final remarks**

Economic crises and cycles were not indeed a popular topic among Spanish economists who were engaged in tackling the economic backwardness and the reform of the Spanish economic institutions for building up the liberal state. Therefore the economic literature barely refers to economic crises and even less to the theory of economic fluctuations. It is not up to the early 20th century that we find some contributions to the theory of crises by heterodox economists. G. Bernácer's theory of disposable funds is, by far, the most valuable of them. Moreover, it is also from our point of view for the extensive use that he made of metaphors and analogies.

Bernácer's natural sciences and technological backgrounds may have something to do with the abundant use he made of these isoforms. Nevertheless, the influence received from Henry George and the American sociologist Lester Ward, highly contributed to accept parallelism between the law of physical mechanics and the laws of society, which, obviously paved the way to the use of metaphors and analogies. The metaphors, however, are varied. In the very beginning, the physical and mechanical metaphors prevailed to describe the economic crisis, but later on, he introduced medical

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<sup>7</sup> See the pedagogical role played by metaphors in Klammer-Leonard (1994).

and biological metaphors referred to what he calls “economic organism.” From then on, its writings are mottled with the terms “organism” and “mechanics” for referring to the economy as a whole and its different processes, respectively.

Bernácer employs metaphors for illustrating some specific aspects of the model of disposable funds. He does not pretend that metaphors fully replicate all the elements of the economic cycle, but exemplifying partial aspects of the process through which crises developed. On the other hand, the use of metaphors taken from Mechanics and Medical science try to vindicate the scientific nature of economics and probably to contribute to making clear the methodological differences with the mainstream economic science in Spain, which by then was heavily influenced by German historicism and practiced by economists with a legal background.

Finally, the metaphors that Bernácer used in the weekly reports that he drafted as a member of the Research Department of the Bank of Spain have a different nature. The audience was a restricted group of financiers and businessmen who had a relative but not complete influence on monetary and rate of exchange policies. Bernácer interpreted the international financial and monetary events in terms of his theory of disposable funds, which probably was not known by the audience of the reports. Furthermore, it looks reasonable to think that they were not able to understand it fully. Therefore, Bernácer uses mostly straightforward medical metaphors as a vehicle to making understandable the complex relationships of the model of disposable funds. All these metaphors are straightforward and unambiguous without leaving room for any other possible interpretation. Nevertheless, behind all them relies upon a methodological approach that sharply remarks the similarities between the physical and organic realms and the economic one, which Bernácer, without doubt, strongly believed.