Cambridge and the Spanish Connection: The Contribution of Germán Bernácer

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It was not until the publication of Salvador Almenar's fine essay (1999) on the links between Spanish economists and Keynes and Keynesian ideas that the name of Germán Bernácer (1883–1965), Spain's first major economic theoretician since the sixteenth century, came into the domain of modern-day, English-speaking economists. Both in the Spanish and the French languages in particular there has already been a debate upon the anticipatory nature of Bernácer's work and his direct and indirect influence upon Keynes's *Treatise on Money* and *General Theory*. There is no disputing the relevance and importance of Bernácer's writings on period analysis and business cycle theory (see Haberler 1942, xii; and section 2 below), but the extent of his influence upon Dennis H. Robertson and Keynes is more problematical; on the one extreme there are the strong claims of José Villacís (1993) that Bernácer was the font of much economic wisdom and influence, while the claims of Almenar (1999),

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Gumersindo Ruiz (1984), and Henri Savall (1975) are much more modest. The purpose of this paper is to try to find where the balance lies in relation to Bernácer's work on the business cycle and its influences upon the theories associated with Robertson, and through Robertson to Keynes, in the period 1915–36.

Section 1 of this paper gives a brief background on Bernácer and his work, with attention paid to how far English-speaking economists have already recognized his contribution. This is followed by a summary of Bernácer's theory of the business cycle; upon this foundation it is then possible to examine in section 3 the Cambridge connection through Robertson and, in turn, to Keynes's writings.

1. Background

Born in Alicante on 29 June 1883, the son of a shopkeeper, Germán Bernácer had a very productive career as an economist working in Spain. He completed his studies at the Alicante School of Commerce in 1901, where he was awarded the chair of industrial physics in 1905; in many ways his background in physics provides the best clues for his approach to economics, particularly in relation to methodology, but more especially his insistence on the study of economic dynamics and disequilibria, rather than upon general equilibrium and static analysis. He became the first director of the Research Service of the Bank of Spain (1930–55), but there is a general view that his prominence in this role was curtailed because of his political views and also perhaps because of his disagreements about exchange rate policy with leading Spanish economist Flores de Lemus, who commanded more popular support. (See Boianovsky 2007 for more biographical details.)

There is no doubt that his most important and most influential writings were between 1916 and 1926 in the early years of his academic career; his later writings were less penetrating and represented new interpretations and new perspectives on his earlier theories, particularly in the light of the Keynesian revolution. Indeed, by the 1940s, like Dennis Robertson, whom he greatly admired, he was spending too much energy in criticizing Keynesian economics and also in illuminating the anticipatory nature of his own earlier work, rather than refining and developing his own considerable contribution (see, for example, Savall 1975).

It is surprising to find that Bernácer is not much better known to English-speaking economists, for he distributed his publications widely among leading economists in Europe and the United States. For example, he trou-

Table 1 Correspondence in English

Name	Dates	Number of Letters Sent to Bernácer	Number of Letters Sent by Bernácer
Anderson, M. D.	1945–55	17	6
Ellis, H. S.	1941–45	2	2
Foster, O. D.	1948	3	—
Haberler, G.	1945–58	6	—
Johnson, A.	1929–31	9	—
Losa, M.	1940	2	—
McGuire, C. E.	1948–56	8	—
Robbins, L.	1940	1	1
Robertson, D. H.	1940–54	15	21
Seligman, E. R. A.	1927–29	4	—
Selle, J. F.	1946	3	—
Urquidi, V. L.	1946–48	1	3
Wallich, H.	1947–63	30	6

Note: In addition, there are single letters from David Dewey, Fritz Machlup, Evsey Domar, Alvin Hansen, and Frank Paish, among others. Letters in German and Swiss include, among others, correspondence with H. G. Bieri, R. Frei, W. Hoffman, O. Iden, A. Predöhl, E. Schneider, and A. Zottman; in French there is extensive correspondence with Jacques Rueff as well as with L. Baudin, A. Bethune, C. Gide, F. Perroux, P. Pujade, and H. Savall. Italian correspondence includes letters from and to E. D'Alberge, L. Ceriani, E. Facchini, A. Gasparini, C. Supino, and F. Vito. Although not as extensive, there is correspondence also with economists in Greece, Holland, Hungary, and Portugal.

bled himself to send 150 copies of a 1923 offprint (published as a pamphlet) of his 1922 Spanish article, "La teoría de las disponibilidades," together with a French summary, to prominent economists and journals around the world—including not only Keynes, but also Robertson and Ralph Hawtrey. His correspondence shows a variety of exchanges with many of them, particularly from 1940 to his death in 1965 (although most simply acknowledged receipt of the 1922 article at that time). His talents in economics were, to some extent, matched by his linguistic abilities, as he was quite ready to communicate in other main European languages as well as in Spanish. However, as far as writing papers was concerned, he felt much more comfortable with German (14 articles between 1941 and 1956) and Italian (10 articles between 1948 and 1964) than with English (just 1 article, in *Kyklos*, in 1950), apart from 34 articles published in Spanish between 1918 and 1962. He made full use of his linguistic abilities with extensive correspondence (see table 1) not only with Robertson, but also

with Jacques Rueff, Erich Schneider, Henry Wallich, Gottfried Haberler, and Howard Ellis, among others.[1]

Despite these attempts to have his work read by the leading economists, he remained a very modest, indeed shy, person:

> I would like to stress the great humility and modesty that characterized his person; whether his theories were imitated or copied did not in the least bother him, his main preoccupation being that they were not deformed or adulterated. Personal prominence never interested him, although always maintaining a fervent desire to make known by the means within his reach, the results of his investigations. In addition to his early vocation for the Natural Sciences, he felt the need to dedicate himself intensely, as a theme of highest priority, to the Economic Sciences, which he found to be an empirical discipline lacking scientific approach. He longly reflected on the mechanisms that govern them, penetrated their secrets and took on the task of divulging them, endeavouring to attain a better fate for his fellow beings, whose future he augured very sombrely, foreseeing great crises, wars and tyrannies. I well recall a phase he bitterly repeated: ". . . they copied it, but they copied it badly . . . ," referring to his work of 1922 which he diffused amongst the specialists of highest renown at the time.[2]

The turning point in being more widely read by English-speaking economists came in 1940 when Dennis Robertson took it upon himself to have long extracts from Bernácer's 1922 article translated from Spanish to English and, with his own commentary, had it published in *Economica* under the title "A Spanish Contribution to the Theory of Fluctuations" (Robertson 1940b). Robertson had attempted without success to establish contact with Bernácer previously to the publication of the article (see Robertson 1940b, 50). However, soon after the publication of Robertson's article, the journal editor Lionel Robbins managed to discover Bernácer's whereabouts and sent him a copy of the issue of *Economica* (letter of 5 March 1940 from Robbins to Bernácer). Bernácer started to correspond with Robertson after that, and he remained eternally grateful to and exceedingly respectful of him (see, e.g., his letter of 4 July 1947 to Robertson, when he wrote that "thanks to your bounty [*Economica*] has made my name and work known among the anglo-

1. Less significant correspondence exists with, for example, Machlup, Domar, Paish, Robbins, Marget, and Hansen, among others.

2. Letter from his son, Germán Bernácer, to John Presley, dated 7 March 2001.

saxon economists . . . a circumstance which obliges me to you for ever"). Bernácer's hard luck, of course, was that the Second World War diminished the attention paid to purely theoretical discussions, including the 1940 article.

However, the war did not prevent Haberler (1942, xii) from referring, in the Spanish edition of his classic book, to Bernácer's "important and original" contribution to business cycle theory on the basis of Robertson's (1940b) article. On 26 April 1945 Haberler invited Bernácer to write an article on business cycles for the *Review of Economic Statistics*. Bernácer promptly sent Haberler a manuscript summing up his ideas on the topic, but he would disagree with Haberler's request to make several changes in the paper. As pointed out by Haberler in a letter of 30 October 1945, "It was only with the greatest hesitation that we ventured to ask you to rewrite your article so as to make it more understandable for the American public. I realize that that is quite an imposition and cannot blame you for not being willing to undertake such a revision." Haberler then suggested that, "in order to put your ideas before the Anglo-Saxon public we could arrange for a review of your book by a competent economist who knows Spanish."

The book mentioned by Haberler in his letter was *La doctrina funcional del dinero* (*The Functional Theory of Money*) (Bernácer 1945), in many ways a summary of Bernácer's own work to date with comparisons drawn to contemporary work. As pointed out by Bernácer in a letter of 4 July 1947 to Robertson, that book was "entirely born under the impulsion of [Robertson's 1940b] article." Henry Wallich (1947) wrote a comprehensive and perceptive review of *La doctrina* for the *Review of Economic Statistics*, in which he referred to Robertson's *Economica* article and to Bernácer's longtime struggle to be acknowledged by English readers. Some of the more critical points raised by Wallich in his review would be taken up in the ensuing correspondence with Bernácer, as described below. In 1945 Bernácer also corresponded with Fritz Machlup, then editor of the *American Economic Review*. Machlup thanked Bernácer in a letter of 24 September 1945 for reprints of his works, and wrote that "I had been familiar with your most interesting contributions to the theories of money, capital and cycles."

It was probably thanks to Machlup that the *American Economic Review* would publish a review of *La doctrina*, written by the Hispanic-American economist Virgil Salera, in 1947. Although not as thorough as Wallich's review, Salera provided a useful and flattering overview of the

book. Salera (1947, 221) regarded Bernácer as "one of the most capable continental technicians" in the field of monetary theory, but emphasized that the second half of the book concerns itself entirely with monetary controversy, with a critical appraisal of Keynes's work, alongside a less detailed and more sympathetic treatment of both Hawtrey and Robertson (222). In conclusion the review is favorable, suggesting that "students of monetary economics will do well to consult the volume, since virtually the whole of the Keynesian apparatus is subjected to searching—and sometimes highly suggestive—criticism" (223). Bernácer also attempted to have his 1945 book reviewed in *Economica*, but regretted in a letter of 4 July 1947 to Robertson that the journal (then edited by F. A. Hayek) could not find a British economist with sufficient knowledge of Spanish and monetary theory to do the job. That was Bernácer's second disappointment with *Economica* since the breakthrough of Robertson 1940b. He had been disappointed in 1942 by Robbins's decision not to publish an English translation of his 1941 Spanish article "La teoria monetária y la equacion del mercado," where, among other things, he answered to Robertson's (1940b, 64–65) critical remarks about some aspects of his 1922 piece of dynamic analysis.

After this burst of publicity, little was then heard of Bernácer in U.S. journals until 1957, when again the *American Economic Review* published a review of one of his works, this time his *Una economía libre, sin crisis, y sin paro* (*A Free Economy without Crisis and Unemployment*) (1955). The review was by the Cuban economist Jorge Freyre. In *Una economía libre* Bernácer, differently from his 1945 volume, discussed extensively his interpretation of the determination of the rate of interest and its implications for economic policy. At last Bernácer received the kind of acclaim and acceptance that he had been looking for; the book is very much a restatement yet again of earlier books in that it "constitutes an uncompromisingly liberal effort to develop an institutional framework for a free economy. In Bernácer's system, unemployment, depression, and inflation find their cure with a minimum of direct government action. By the same token, the system restores and protects economic liberty, which the author sees threatened by growing interventionism" (Freyre 1957, 436). The verdict is that "the book is brilliantly written." "Bernácer's views resemble those of many neoliberals today. He differs substantially, however, in his pessimism regarding the effectiveness of the interest rate as a device for achieving equilibrium, and in the greater radicalism of his reform proposals. Fundamentally,

Bernácer seems to take a Rousseauesque approach to economics; the market system is good, but some of the institutions which man has created are bad" (437).

Despite all of this, Bernácer remained neglected. Together with his 1950 article titled "Money and Freedom" in *Kyklos*, the 1940b article by Robertson was the only piece written by Bernácer which was ever published in English, where English readers could get direct access to Bernácer's views. However, "Money and Freedom" was mainly a restatement and clarification of the views he had put forward in 1922 and that Robertson (1940b) had brought to light. The *Kyklos* article resulted apparently from Bernacer's failure to have a previous version published in the *Review of Economic Statistics*. In letters of 21 and 26 February 1946 Robertson acknowledged an English paper by Bernácer, which Robertson partly rewrote. Bernácer thanked Robertson on 4 April 1946 for "rewriting in your excellent English the essentials of my paper on the theory of money."

"Money and Freedom" was submitted to *Kyklos* in November 1947. A revised version—with corrections to some of the English and with changes in the argument, both made on the basis of suggestions by W. Stolper, who acted as a referee—was accepted by the editor, H. G. Bieri (letters of 30 November 1947, 23 March 1948, and 29 December 1949 from H. G. Bieri to Bernácer). Bernácer probably sent his manuscript to *Kyklos* because, after his failed attempts to publish articles in the United States and in the United Kingdom, that new journal (started in 1947) was the only one on the Continent in which he could publish in English. Bernácer took considerable time and effort to assist some of his correspondents by having their work translated into Spanish and published; other than the apparent benevolence of Robertson, which is considered later, no one ever took the trouble of cajoling a U.S. or U.K. publisher to accept one of Bernácer's books or papers for translation, even though Bernácer remained persistent through to his death in 1965 in seeking support from major economists to have this done.

2. Bernácer on the Business Cycle

Germán Bernácer developed his theory of the business cycle in books and articles published over a span of ten years (see Bernácer 1916, 1922, 1925, and 1926). His approach to economic fluctuations consists of (1) the study of the conditions of aggregate equilibrium; (2) the investigation of

the dynamics of the economy in disequilibrium; and (3) the formulation of a new theory of the rate of interest. Bernácer's contributions to the business cycle literature can be found in embryo in his 1916 volume, *Sociedad y felicidad*, but only in the 1920s—after the introduction of the key concept of *disponibilidades* (disposable funds) in 1922—were the main ideas put together (see Bernácer's [1945, 199–210] own account of the development of his analytical framework during that period; cf. Ruiz 1984, Villacís 1993, and Almenar 1999).

The starting point of Bernácer's study of aggregate equilibrium is the "national income equals national product" identity of social accounting. As Bernácer pointed out (Robertson 1940b, 55), at a time when social accounting was still very much a contentious issue, the identity between the "value of the produce" (P) and the "aggregate of incomes" (I) is true by the definition of the terms involved (see also Bernácer 1945, 250–59). The main task of business cycle theory, according to Bernácer, is to show how "there may occur a disequilibrium, owing either to the appearance on the market, in demand for goods, of an excess of incomes over those generated by the goods currently offered in the market, or to the converse" (Robertson 1940b, 55–56). The explanation is based on the time lag between "the end of the act of production" (and the respective payment of incomes) and the time when incomes are "converted into demand for goods by their recipients." The phrasing of the argument in the 1922 article is not at all clear, which raised Robertson's (1940b, 64–65) doubts about the precise character of Bernácer's lag. Bernácer (1945, 289–94) clarified the issue when he differentiated sharply his own approach—based on the distinction between received and disbursed income—from the Robertsonian well-known distinction between received and disposable income.

The "Bernácerian lag" follows from his concept of disposable funds (A) at the beginning of the period, which, when added to the income received during the period, give the upper limit of effective demand ($A + I$). Bernácer suggested in 1916 that the purchasing power of consumers is determined by income (*retribución*) received in the period plus wealth accumulated in past periods. However, as he pointed out, assets must be turned into money before they can be used as a source of purchasing power, as "money is evidently the most 'disposable' of all assets" (Robertson 1940b, 51). The new element introduced in the 1922 article is the classification of money balances into three grades, according to their degree of disposability. The first class, with "minimum disposability," is associated

with money demanded to meet consumption; the second ("average disposability") consists of money demanded by businessmen for the conduct of their enterprises; finally, the grade of "maximum disposability" is formed by new savings which have not yet been put by their owners to a remunerative employment. Bernácer uses the phrase *disposable funds* (*disponibilidades*) to refer to the last two classes (51). In order to determine the flow of "effective demand" (D), it is necessary to subtract from A the amount of disposable funds left at the end of the period (A'), which gives the equation

$$I + (A - A') = D,$$

or, since I is identical with P,

$$P + (A - A') = D.$$

The last equation indicates that there is aggregate equilibrium (in the sense that production is equal to effective demand and the output produced is sold at the expected price) if the amount of disposable funds is the same at the beginning and at the end of the period ($\Delta A = O$). A few years later, Bernácer (1925) changed his equations by taking into account inventories (E) held by producers at the beginning and at the end of the period. Production is now equal to aggregate supply (O) plus (planned) changes in inventories ($P = O + \Delta E$), and the corresponding equilibrium condition becomes $\Delta A = \Delta E$. The new equations do not introduce substantial changes in the 1922 argument, except for the fact that (unexpected) changes in inventories are now another influence on the level of production besides unexpected changes in prices.

The key to Bernácer's macroeconomics is his notion that the spending decisions of economic agents (firms and families alike) in any given period of time are constrained by the amount of money they possess at the outset of that period. Bernácer was probably the first to introduce what would become known as the "cash-in-advance constraint" models later put forward by M. H. Simonsen (1964) and R. W. Clower (1967) (see Boianovsky 2002). The idea is also captured in Bernácer's (1926, 29) diagram of the circular flow of income. The idea comes out clearly in Bernácer's (1926, 14) explanation of how a decline in sales brings about a reduction of output in a depression: "The reduction of production happens in accordance with the following mechanism: entrepreneurs are only able to carry on their production, that is, are able to pay factor incomes, because they get back the disposable funds through sales

of their produced goods. If sales are paralyzed, production is automatically interrupted because of the financial inability to produce." The same argument is applied by Bernácer (1926, 7–8; see also 1950, 127) to consumers in the discussion of his assumption that aggregate "demand is a function of income" and the related concept of "effective demand" as involving a reduction in disposable funds. Bernácer's concept of a liquidity constraint is close to Axel Leijonhufvud's ([1973] 1981) discussion of an "effective demand failure" resulting from the fact that "producers with excess capacity cannot bid for labour until they have sold their goods—which the unemployed do not have the cash to purchase" (119). Except for Ruiz's (1984, 55, para. 2) all-too-brief remark, the pivotal role played by a "monetary constraint" in Bernácer's framework has been overlooked by commentators.

The Bernácerian lag may be better appreciated from the perspective of the cash-in-advance approach, that is, the assumption that there is a lag between the disbursement of cash by one transactor and its expenditure by the recipient. This is the core of Bernácer's concept of disposable funds and is behind his interpretation of the business cycle mechanism. As claimed by Bernácer (1945, 202–3), his formula for effective demand (presented above) makes clear the connection between successive periods of time:

> The value of demand in the first [period] constrains the value of production in the following, since entrepreneurs can only produce to the extent of the resources (industrial disposable funds) they hold, and these are determined (apart from credit, which is always contingent and dear) by the magnitude of realized sales, that is, by previous effective demand. The rhythm of change of the latter, a reflex of the accumulation and disaccumulation of disposable funds in the hands of consumers and savers, sets the rhythm of the business cycle, whose expansionary and contractionary phases are explained by the play of the financial market, determined in its turn by the oscillations in capitalist profits.

Bernácer's (1926, 4; see also 1945, 231–33; 1955, 297 and later pages) criticism of Say's law was based on his notion of the role of money demand and disposable funds in a monetary economy. He commented on the fact that "many authors, following J. B. Say, maintain that every supply of a commodity constitutes demand for all other goods, and vice-versa. This is not correct. It would be in a regime of barter. . . . The sup-

ply of a commodity is not demand for all others, but for just one: money. Otherwise, it would be impossible to have the overproduction typical of crises, which is manifested precisely by an excess of several commodities and by a scarcity exclusively of money" (1926, 4). The main feature of crises is widespread "forced [or involuntary] unemployment" (*paro forzoso*, imprecisely translated as "compulsory unemployment" in Robertson 1940b, 59), which is not solved by money-wage reductions, since lower wages will bring about a further fall in consumption demand and ensuing price reductions (1926, 173–74). Furthermore, unemployment in a particular industry will cause repercussions in other industries in a manner that is reminiscent of the multiplier (without convergence to equilibrium, though), for the incomes that are not paid in one industry "represent corresponding reductions in demand [in other industries], which increase the apparent overproduction, reduce prices again, and intensify the magnitude of the industrial disaster" (1926,173–74).

It is worth noting that the demand for capital goods is conspicuous by its absence in the 1922 article. Bernácer usually referred to his *D* as demand for consumption goods (see Robertson 1940b, 56) and to *P* as production absorbed by consumers only (55; cf. Almenar 1999, 104). Apparently, Bernácer had in mind an integrated economy, that is, the production of capital goods as inputs for the productive process is integrated with the production of consumption goods in the same firms.[3] This helps to explain why he did not phrase aggregate equilibrium in the 1922 article as equality between saving and investment. This changed in his 1925 and 1926 pieces, where, in connection with Bernácer's careful examination of the use of money in the market for goods (*circulación productiva*) and in the financial market (*circulación especulativa*), the distinction between saving and investment (*capitalización*) becomes central to the argument. According to Bernácer (1926, 7–8; see also Robertson 1940b, 54; and Bernácer 1945, 28–29, 34–35; 1955, 43, 119), the employment of disposable funds to buy *valores de renta* (income-yielding assets such as securities, real estate, and industrial shares) in the financial or speculative market does not change the condition of disposable funds, as they remain disposable in the hands of the sellers of assets. On the other hand, the use of disposable funds to purchase consumption goods and new capital goods (*capitalización*; see Bernácer 1925, 68 and later pages) brings

3. See, for example, his statement in Robertson 1940b, 58, that "every extension of production requires simultaneously an increase of effective demand and the formation of new capital (capital in the economic sense of means of production)."

about a change in their degree of disposability, as they are turned into money income of the individuals involved in the production of goods. This constitutes "effective demand," as opposed to "potential demand"; the latter does not involve a change in liquidity. Aggregate equilibrium can now be also described by the equality between saving and investment (*capitalización*), which is the case if the saving flow is not directed to the purchase of *valores de renta* (and by that, assuming away inventories, $\Delta A = 0$). However, Bernácer (see, e.g., 1945, 64–65) insisted that what really matters is the aggregate change in A, since from the point of view of effective demand (that is, $I + (A - A')$) it is irrelevant to distinguish between consumption and *capitalización*.

Bernácer's description of the dynamics of the economy in disequilibrium is focused on the effects of excess demand or supply on prices and production. The equations above determine equilibrium in the "goods market" and ensuing changes in the price level of consumer goods, while the rate of interest is decided in the market for old assets ("financial market"). When ΔA is negative in the upswing, prices of consumption goods are higher than anticipated and, since wages and salaries are temporarily fixed, employers will see their "residual profits" increase. The ensuing stimulus to production and employment will cease when, under the impact of an increasing shortage of disposable funds in the "financial market," the rate of interest rises and saving is gradually directed to that market. This way, ΔA becomes positive, which explains the upper turning point of the business cycle (see Robertson 1940b, 57–58; and Bernácer 1955, 140–43). During the downswing, unanticipated falling prices bring about losses, which contribute (together with the constraint represented by a reduction of disposable funds discussed above) to a contraction in production and employment. In contrast with the upper turning point, the lower turning point is not interpreted as a development of the preceding phase of the business cycle; in particular, Bernácer pointed out that the fall in the rate of interest in the "financial market" is not enough to direct saving to the market for goods, as the capital gain caused by the rising prices of income-yielding assets keeps saving in the financial market. The lower turning point can only be explained by some accidental factor (such as technical progress or wars) that increases the price of new capital goods and makes them attractive to savers (see Robertson 1940b, 59–60; and Bernácer 1926; 1955, 134–44; cf. Vallacís 1993, 465–68; and Almenar 1999, 103).

It should be noted that the crucial element in Bernácer's account of the business cycle is not the variability of investment demand by entrepreneurs, but the savers' decisions on how to allocate their disposable funds. The banking and credit system is incidental to Bernácer's framework, which is far from the well-known Wicksellian distinction between the "natural" and the "market" rates of interest (see Bernácer 1945, 310). Bernácer's explanation of macroeconomic disequilibrium is based on another sort of divergence, that is, on differences between the rate of interest decided by the expected rate of return on new capital goods on one side, and the rate of interest determined by the relative yields of *valores de renta* in the financial market. According to Bernácer, the rate of interest prevailing in the market for goods is regulated by the rate determined in the financial market by supply and demand of income-yielding assets. The notion that the rate of interest is determined "outside the system of current production" (as put in Robertson's [1940b, 64] comments) is a crucial feature of Bernácer's approach to the business cycle (cf. Ruiz 1984, 21–27).

Bernácer's theory of interest is based on the idea that the "origin of interest" is to be sought "in the rent of land and in the exchangeability of this asset for others" (Robertson 1940b, 54). The rate of interest can only be positive if a scarcity of disposable funds comes about because of the possibility to employ them outside the production system, that is, in the financial market. The problem of the origin and determination of interest, according to Bernácer, consists in the search for an asset able to yield a "free" rent without any production costs. After he had put forward the main elements of his interest theory in 1916, Bernácer noticed several similarities with what Böhm-Bawerk used to call Turgot's "fructification theory" of interest, but observed that, in contrast with Turgot's, his approach was not based on the physiocratic framework. Bernácer (1925; 1955, 250–51) argued that, if the market for income-yielding assets was assumed away, the increasing employment of saving in the production of new capital goods would soon bring the rate of interest to zero (he is implicitly assuming the absence of net time preference). If, instead, the market for new capital goods was assumed away, saving would be entirely directed to the purchase of *valores de renta*, which would cause some reduction of the rate of interest, without, however, ever reaching zero, as the price of those assets is necessarily finite. The existence of this floor to the rate of interest is a crucial feature of Bernácer's description of

the downturn, for the expected rate of return on the production of new capital goods may become negative in the depression, "while rates of yield of bonds, estate and other assets cannot be negative or even nil" (Bernácer 1950, 135). He further maintained that, since (with the exception of land) the assets that comprise the financial market proceed from transactions with a positive rate of interest, land is the only asset that exists previous to all debt interest and, therefore, is the only possible explanation for the existence of interest. Bernácer (Robertson 1940b, 62; Bernácer 1925; 1945, 311) concluded that it is the existence of a market for income-yielding assets—where holders of disposable funds can obtain the right to a "free rent"—that prevents aggregate equilibrium. The elimination of such a market would bring the rate of interest to zero and the equilibrium between saving and investment at full employment, with the consequent disappearance of the business cycle.

3. Robertson, Keynes, and the Spanish Connection

It is clear from the preceding section that Bernácer made a contribution to the development of macroeconomics and business cycle theory in his own right. The main concern now is whether Bernácer had a direct or indirect influence upon the work of Robertson and Keynes. The argument developed here suggests the following:

- that Bernácer had a *direct* influence upon the work of Dennis Robertson in the 1920s
- that there is an indirect influence upon the working out of the *Treatise on Money* (Keynes 1930) via the effects upon Robertson's work that, in turn, were substantial in their input into Keynes's writings in the 1920s; and that the possibility of Bernácer's direct influence on Keynes cannot be assumed away

The first question to consider is the extent and substance of correspondence between Bernácer on the one hand and Robertson and Keynes on the other. Here the evidence seems straightforward. Both Robertson and Keynes were recipients of the 1922 article, but neither acknowledged receipt nor at that time engaged in correspondence with Bernácer. Indeed, there is no evidence to indicate that Keynes ever wrote, or was aware of, Bernácer's existence or writings, except for the oral memory about a meeting that took place in Madrid in 1930, described below in this

section.[4] But the same is not true of Robertson. There was a great deal of correspondence from 1940 onward, but especially from 1946 to 1954.[5]

The content of the letters is quite revealing. Early exchanges indicate that neither previous correspondence nor meetings had taken place in the 1920s.[6] The initial correspondence relates to the publication by Robertson of Bernácer's 1922 article in *Economica* (Robertson 1940b). This then develops along two lines. First, Bernácer writes on the responsibility of having Robertson's *Essays* (1940a) translated and published in Spanish; therefore the correspondence deals with some of the detail of this. Second, and more important, there is an exchange of views on monetary theory, the business cycle, and the concepts of equilibrium, money, and income.[7] Later in 1951 Robertson openly expresses his opinions of Bernácer's work:

> I hardly know what advice to give about trying to find an English publisher for your views. As you know, while I have always been interested in the more mechanical side of your analysis, and regarded you as one of the pioneers in the modern revival of interest in the analysis of "effective demand" and "liquidity preference," I have also always been very sceptical about the broader, and as it seems to me Utopian, deductions which you draw from your analysis—I do not think that the World is so simple as that! That being so, I'm afraid I must say frankly that I should not be able myself to press your projected book enthusiastically on an English publisher, or give him an assurance that I thought it would excite great interest either among professional economists or the reading public at large. My impression is that it is not at all easy to get a book of this character accepted; and that owing to paper shortages and congestion, even established authors have to expect large delays. (letter dated 10 May 1951)

All of this, if true, leaves us with a considerable puzzle. If Robertson was so averse to Bernácer's economics, why did he take great trouble over having Bernácer's 1922 article translated and published in 1940,

4. There are no letters in either Bernácer's library archive at Alicante nor in the Keynes papers at King's College Library at Cambridge University.

5. Consisting of fifteen letters from Robertson to Bernácer and twenty-one letters from Bernácer to Robertson.

6. This contradicts the view of some family and friends of Bernácer that suggests that Robertson was a "go-between" for Bernácer and Keynes in this earlier period.

7. Letter from Bernácer to Robertson, 28 April 1946, and Robertson to Bernácer, 16 May 1947.

with comments from himself? To understand this, it is important to appreciate what Robertson was trying to achieve between 1936 and 1950. The overriding objective of his publications in this period was to criticize Keynes's *General Theory* and to reestablish his own dynamic approach to economics, which he had developed with Keynes especially in the 1920s (Presley 1978, 1989). He could certainly use Bernácer's article as a stick to beat Keynes, and this is implicit in his comments upon the article. However, one should not also lose sight of Robertson's sense of justice, and he often felt some guilt for not acknowledging the influences upon his earlier work; later in 1948, for example, he reproduced an article by Marcel Labordère, a French economist whose work had influenced him in 1915 but whom he had also failed to acknowledge at that time (see Bridel and Presley 1997).

Unfortunately, in his comments on the 1922 article he plays down his debt to Bernácer. He begins by stating:

> I read, as I now think with insufficient attention, the type-written summary in French by which the pamphlet was accompanied; though indeed it seems possible that I gave it subconsciously more attention than I knew, for there is evidently a family resemblance between the "successive period" method of analysis employed by Señor Bernacer . . . and that which I employed a little later in my *Banking Policy and the Price Level*. (Robertson 1940b, 50)

But he is inclined to conclude:

> It is no disparagement to Señor Bernacer's work to say that it is perhaps, after all, not quite so interesting as at first sight might appear. (65)

If this is the case, why bother having it published in English? Herein lies the dilemma for Robertson: the more credit he gives to Bernácer for influencing his own approach, the less credit Robertson can take for himself. We maintain that Bernácer's 1922 article did have a significant influence upon Robertson and, through Robertson, upon Keynes. Although Robertson never claimed to have read more than the French summary (which unfortunately could not be found in the Bernácer or in the Robertson papers), we may assume that the summary provided a precise account of the main ideas of the 1922 article. Robertson (1940b, 50, 64) suggested that the reading of that summary had been a source of inspiration for his own dynamic method. Bernácer's (1945, 212) own claims of influence on Robertson were based on the latter's reading of

the French summary, not necessarily of the whole Spanish pamphlet. It should also be noted that Robertson was not completely ignorant of the Spanish language, as indicated by his statement, upon receiving a copy of Bernácer's 1945 Spanish book, that "I have every intention of setting down with a dictionary and working through it" (letter of 16 May 1947 to Bernácer). The view that he had some knowledge of the language is also suggested by his comments on how to render into English some Spanish expressions used by Bernácer (Robertson 1940b, 50–51). In any event, the general similarities between Robertson's and Bernácer's frameworks pointed out below suggest that either the French summary was a faithful rendition of the approach of Bernácer 1922, or that Robertson, upon reading the summary, troubled himself to go through the Spanish text. It is difficult to be certain about this influence because of lack of conclusive evidence as to what the French translation contained or whether Robertson did grapple with the Spanish. Our argument here is that the similarities between Bernácer's and Robertson's economic dynamics in the mid-1920s could not have been simply coincidental or interpreted as a "multiple discovery" à la Merton, as discussed in detail in the next paragraphs.

Many elements of Robertsonian economics by 1922 were already present. There are major similarities between Robertson's work to 1922 and aspects of Bernácer's pamphlet, but clearly the pamphlet could not have influenced Robertson's earlier writings. Examples of these writings include a discussion of the role of technological progress in the business cycle (Robertson 1915) and the advocacy of government policies to raise effective demand, as a consequence of unemployment equilibrium. Bernácer could not have been the source of inspiration for such ideas. However, Robertson does make one major change in his analysis between 1922 and 1926, and this is where Bernácer's influence is crucial. Robertson's first book in 1915 and the textbook *Money* (1922) were first descriptive and more important static in their approach. *Money*, for example, was developed around the use of the Cambridge cash balance equation. The coincidence appears to be that having read the French summary of Bernácer's 1922 article (and possibly the article itself), Robertson writes *Banking Policy and the Price Level* (1926), which employs a similar dynamic approach to that in Bernácer's article. The systems of equations developed by Robertson and Bernácer are not identical interpretations of a dynamic economic system, but there are common elements in both in terms of lags between production, receiving income, and spending. While many base

their regard of Robertson as the "father of economic dynamics" (Presley 1978) upon the uniqueness of the dynamic approach in *Banking Policy*, it is clear that Bernácer deserves some credit also for this new dynamic approach to macroeconomics through equational representation, interaction, and use of time lags may indeed be the source of inspiration for Robertson's methodological change in the 1920s.

This methodological change is confirmed by the contrast between the 1922 edition of *Money* and the 1926 *Banking Policy*, as well as between the 1922 *Money* and the 1928 version, especially a new chapter on the cycle. The 1922 edition of *Money* was a textbook for undergraduates and represented Robertson's first thoughts on monetary theory; it employed the traditional, static Cambridge cash balance approach, where k was treated as fixed and there was no real balance effect as in *Banking* and the 1928 version of *Money*. The contrast in approach is brought out most convincingly by Robertson in his correspondence of 7 August 1956 with Don Patinkin. Robertson writes that "I don't regard the failure to perform a little stability exercise in a book of the character of 'Money' . . . as any evidence against me or my teachers! Personally I should have hoped that there might have been accounted to me for righteousness the elaborate account in 'Banking Policy' (p. 49 and App. 1 . . .) of how the public in an inflation performs 'Induced Lacking' to the extent necessary to restore the equilibrium level of its real balances" (see also Mizen and Presley 1996).

As discussed above, Bernácer's contributions to macroeconomics resulted largely from his introduction of a monetary or finance constraint expressed by the concept of *disponibilidades*. The existence of these "disposable funds" was associated by Bernácer with the time lag between received and disbursed income, which also explained how the disequilibrium between aggregate demand and aggregate supply may come about in the market for goods. Changes in the price level are therefore the result of the processes of hoarding (*ahorro atesorado*) and dishoarding, which Robertson (1940b, 65) found an "illuminating" part of Bernácer's 1922 article. Robertson (1926, 1933) shared with Bernácer a sequence analysis through a succession of short periods over time, where the notion of a "finance constraint" is essential. In particular, the sum of the money value of consumption plus the money value of household purchases of securities in any period cannot exceed the money stock at the beginning of that period. Any difference is made up of idle balances held over to the next period, that is, hoarding (see Kohn 1981, 861–63). The concept of hoard-

ing was an important feature of both Bernácer's (1922, 1926) and Robertson's (1926, 45–54; 1933, 400–402) dynamic analyses of the saving-investment process in a monetary economy. According to Robertson (1926, 45–53), "If [a man] neither presents his money-claim himself nor hands it over to another, but simply adds it to his existing money stocks, he may be said to be Hoarding. . . . Suppose that some or all of the public, their incomes not having suffered any change, experience an increased desire to hoard. . . . The result would be a fall in the price-level, and an unexpectedly increased consumption . . . on the part of the whole of the public if the New Hoarding is general."

Robertson's analysis is reminiscent of Bernácer's 1922 discussion of the consequences of an increase in "disposable funds." According to Bernácer,

> If the stock of disposable funds increases, demand is fatally constricted, and there occurs therefore a fall in the prices of the articles . . . ; for the increased economy can only be obtained by imposing a relative loss on their producers. . . .
>
> . . . and thus there may occur a great crisis of unemployment and industrial inactivity, which does not correspond to any diminution in the intensity of wants, still less to any decrease in productive capacity. The cause is simply that production must be carried out in response to previous market demand, and that the capacity to demand is continuously repressed by the exaggerated attempt to accumulate savings. (Robertson 1940b, 59)

It is likely that Robertson was influenced by Bernácer in that regard, although there are differences concerning the role of hoarding in the business cycle mechanism. While Bernácer stressed changes in hoarding caused by the interplay between the level of the rate of interest in the "financial market" and fluctuations of windfall profits in the goods market, Robertson pointed out the connection between hoarding and the several forms of forced saving brought about by price changes. Furthermore, while hoarding is essential to Bernácer's theory of business cycles, it is only one (albeit an important) element in Robertson's approach to economic fluctuations. In the same vein, the similarities between Robertson's (1926, 47–48) discussion of "dishoarding" by the public and Bernácer's (in Robertson 1940b, 57) treatment of what happens "when disposable funds increase" are remarkable. In both cases prices are higher than expected, with a reduction of consumption by part of the public. Robertson,

however, would not agree with Bernácer's claim that money used to purchase old assets remains disposable (letter from Robertson to Bernácer, 3 November 1954).

It was clear enough for Robertson (1933, 411) that the dynamic analysis of the effects of hoarding on income could not be made if saving and investment were assumed as necessarily equal. Such identity "only follows if we insist on identifying the income received in any small slice of time with the income whose expenditure . . . generates the income received in this small slice of time, thus averting our eyes from . . . the essence of the whole matter; namely, the power possessed by the public and by the monetary authority to alter the rates of income flow,—the former by putting money into and out of store, the latter by putting it into and out of existence." This is the same approach deployed by Bernácer, although Robertson (1940b, 64–65) criticized him for not clarifying exactly how a difference between received income (I in the formula above) and total demand (D) could come about. Despite Robertson's (1940b, 64) acknowledgment that he should pay "a tribute of obligation . . . to Señor Bernácer's attempt to think dynamically in terms of time-intervals," he was critical of the treatment of time lags in Bernácer's system of equations.

In particular, Robertson (1940b, 65) suggested that Bernácer (1922) had not attempted to distinguish between the "received" and the "available" income, as Robertson (1926, 1933) himself had. Bernácer (1945) replied to Robertson's comments in chapter 8 ("The Time Factor") of the second part of his book, but the matter was only cleared through correspondence in 1946–47. Bernácer's 1945 reply was based on Robertson's (1940b, 65) remark that the 1922 formulas (although not necessarily the rest of the 1922 article) assumed a lag between the receipt of income and its disbursement. Bernácer (1945, 291) claimed that such a lag was consistently assumed throughout the 1922 piece, for "the existence of disposable funds, as defined by me since the beginning, would make no sense without such a period of time when received income is kept available, that is, when it has not been deployed yet in a real purchase." In a letter of 4 July 1947 to Robertson, Bernácer wrote that his method and Robertson's "will agree if all the producers were to be considered as free workers, whose earnings ought to rely upon the sale of their goods." Bernácer pointed out that Robertson's distinction between received and available income applies only to (windfall) profits, which are received in one period and distributed to shareholders etc. in the next period only. Profit accounting was crucial to the whole argument about disequilibrium between income and demand, as elaborated by Bernácer (1955, 76–78) later on.

Robertson, in a letter of 16 May 1947, noticed that the distinction between received and available income, applied by him to "*all* income," was applied by Bernácer "to profits alone." Although the methodological differences were not completely eliminated by the correspondence, it became clear enough that they were not nearly as large as first suggested by Robertson in his 1940 comments.

Wallich (1947) shared with Robertson some concerns about the methodological foundations of Bernácer's equations. After noticing that the variables in the equations are not *ex-ante* functions or schedules, but absolute *ex-post* quantities, Wallich remarked that "it is not quite clear whether Señor Bernacer intends these equilibrium equations to possess any causal significance. To my mind they have none. All that they imply is a formal statement of the conditions under which prices remain stable" (66). Furthermore, Wallich commented on how an *ex-post* difference between output and income can possibly arise, referring to Robertson's (1940b) criticism and to Bernácer's use of period analysis. According to Wallich, "The device by which Bernácer brings about [disequilibrium] in his equations consists in his apparent decision not to take account of the additional saving resulting from windfall profits" (66), which is close to Bernácer's meaning. In a letter of 13 April 1947 to Wallich, Bernácer wrote that "you have understood very well my point of view against giving any rigorously causal meaning to my equations. For me, hoarding and dishoarding by savers, supply and increase or decrease of inventories by firms, and price changes, are concomitant facts." Nevertheless, Bernácer claimed that "this does not mean that there is no intercausality, in both ways. Savers' decisions, as voluntary acts, generally constrain movements of the price level." In particular, Bernácer agreed with Wallich that "the really difficult point is to avoid falling into tautological definitions of supply and demand" and referred him to an enclosed copy of correspondence with Robertson.

Yet another similarity between Robertson (1926) and Bernácer (1922) can be found in the assumption of the existence of a lag in the production process. The Robertsonian lag in *Banking Policy* depended partly upon

> the length of time which elapses between the date at which their production is taken in hand and the date at which they reach the hand of consumers. (43)

This affected, among other things, the sophisticated forced savings process elaborated in *Banking Policy*. Note the similarity of this to Bernácer's dynamic system, put forward four years earlier and read by Robertson at that time:

> If we concentrate on the identical act of production from which the incomes arise, equation (*i*) expresses a truism; but since *between the time at which the act of production takes place and that at which the product appears on the market there elapses an interval*, and an interval possibly of different length from that which elapses between the end of the act of production and the time when incomes are paid and converted into demand for goods by their recipients, we may suppose that the supply and the demand arising from the same productive operations will not always coincide on the market, and that there may occur a disequilibrium, owing either to the appearance on the market, in demand for goods, of an excess of incomes over those generated by the goods currently offered in the market, or to the converse. (Robertson 1940b, 55–56; emphasis added)

The extent of Bernácer's (direct or indirect) influence upon Keynes is more difficult to establish. We can assume that there was some influence upon Keynes's 1930 *Treatise* via Robertson, given Bernácer's influence upon the writing of *Banking Policy and the Price Level*. To appreciate this it is necessary to establish the depth of the working relationship between Keynes and Robertson in the 1920s.

The 1920s witnessed the pinnacle of the collaboration between Keynes and Robertson and is in sharp contrast to their later disagreement over the *General Theory*. Four books were published in this period on which the two worked very closely together, although none appeared under joint authorship; they are *Money*, *Banking Policy and the Price Level*, *The Tract on Monetary Reform*, and *The Treatise on Money*. Both strongly expressed mutual admiration and indebtedness to each other in the writing of these books. The collaboration reached its height in 1926 with the publication of *Banking Policy*. It was clear that both were thinking almost as one on a multitude of subjects, but, in particular, on the role of banks in the cycle and the integration of saving and investment analysis into a theory of industrial fluctuation; all of this was discussed within the context of a dynamic system incorporating the kind of lags seen in Bernácer's 1922 article.

Keynes began writing *The Treatise of Money* in 1924;[8] the debate that followed between Keynes and Robertson was detailed and complex (Presley 1978); most relevant in the context of Bernácer's influence was

8. Keynes appeared to have started work on the *Treatise* in July 1924; see Keynes 1973,15–16, 121–22.

the fact that the early drafts of chapter 23, which later were omitted by Keynes from the *Treatise*, followed the period analysis of *Banking Policy* and continued to support the elaborate forced saving doctrine until 1928, when this kind of analysis disappeared from Keynes's drafts of the *Treatise*. At that stage Keynes reworked his definitions of saving and investment, his view of appropriate banking policy, and the relationship between saving and investment over the course of the trade cycle. In departing from Robertson's approach in the *Treatise*, Keynes was also departing from the indirect influence of Bernácer upon his work.

Banking Policy is remarkable also for its dissimilarity with the *General Theory*, which was published only ten years later. First, *Banking Policy* is an expression of Robertson's "period analysis," the dynamic approach that Robertson sought to apply to the macroeconomy along the lines suggested by Bernácer's article. Second, it develops a dynamic theory of forced saving based on the classical writings and against which Keynes was to rebel in the *General Theory*. Third, it relates saving to the behavior of the price level, the monetary system, and the finance of investment—at less than full employment. Fourth, at Keynes's instigation, it incorporates a real cash balance effect in the form of "induced lacking" (Presley 1986). The essential point is that Keynes was working out the *General Theory* long before 1931; the *General Theory* may be seen as having "evolved" from the *Tract* through *Banking Policy* and eventually the *Treatise*. It was Robertson, more than any other economist, who was working alongside Keynes in this evolutionary process.

In fact, Robertson very much believed that he was taking the lead in their partnership during this period; he was later to write:

> In the early 1910s and again in the 1920s I did do a bit of scrambling towards the frontier [of economic thought], firmly roped to the man of genius [Keynes] who has perished there. Sometimes, I venture to think, I was even a little bit in front of him; but in the end he went on beyond me and it is my belief—an unpopular one, I know, but I cannot help it—that he got a bit off the track and set the flag in places where it is not destined to rest.[9]

Of course, Keynes was to depart from the dynamic approach of the 1920s in the *General Theory*; it is not surprising therefore that both Bernácer and Robertson spent a good deal of time criticizing the comparative

9. An address by D. H. Robertson to the Conference of Economics Teachers, Oxford, 4 January 1947, titled "The Frontiers of Economic Thought."

static approach of Keynes's economics after 1936 and its departure from their similar views in the 1920s.

Apart from an indirect influence via Robertson, it cannot be assumed away that Keynes was directly exposed to Bernácer´s ideas. Although no correspondence between the two men has survived, there is indication that they met in Madrid in 1930. In June of that year Keynes visited Spain, under the invitation of the Anglo-Spanish Friendship Society, to discuss the economic depression. On 9 June he gave a lecture at the Residencia de estudiantes (which belonged to the Institución libre de enseñanza) in Madrid, titled "The Economic Possibilities of Our Grandchildren" (see Skidelsky 1992, 379–80; and Pina 2002). According to Arturo Pina (2002, 14), Bernácer was present at the lecture delivered by Keynes, who, after the presentation, approached the Spanish economist. Keynes then told, to the astonishment of the audience, that Bernácer's writings had "illuminated and opened new horizons" in his thought. Pina's account is based on oral reports from José Piera Labra (former professor of history of economic thought) and Mariano Alonso-Burón (whose father had been president of the Residencia de estudiantes, and who referred to the oral memory established at the Institución libre de enseñanza about the Keynes-Bernácer meeting). Although there are no written records of the Keynes-Bernácer meeting, the oral memory suggests that Keynes, as one of the many recipients of Bernácer's 1923 pamphlet, may have assimilated, together with and via Robertson, the main ideas of the "Teoría de las disponibilidades."

Interestingly enough, Bernácer (1931) reacted strongly to the publication of *The Treatise on Money*, but there are no recorded reactions to the publication of Robertson's *Banking Policy* at the time. The main reason for that was probably the fact that in the *Treatise*, Keynes (1930), very much like Bernácer, attempted to encapsulate in simple equations the determination of the price level by the difference between saving and investment. Hence, despite the absence of explicit period analysis in Keynes's 1930 book, it caught Bernácer's attention immediately. Bernácer claimed in his 1931 Catalan article that Keynes's "theory, regarded by all as an innovation, is not at all new in Spain. I have argued it for fifteen years, and in an article published in 1922 I gave it a mathematical expression that coincides substantially with Keynes's formula" (286). Bernácer had in mind Keynes's (1930) second fundamental equation, written as $\Pi O = E + (I - S)$, where Π is the price level of the output O as a whole, E is current money income (that is, factor earnings exclusive of abnormal profits), I is the current market value of investment goods pro-

duced, and S is current saving. Bernácer argued that Keynes's equation was very similar to his own equation $D = R + (A - A')$, where we have used Bernácer's original symbols with R instead of I (in the sense of income) as in Robertson's 1940 translation. Since E and R are identical, Bernácer's claim was based on the identity between $(I - S)$ and $(A - A')$, which he would establish in 1945 in terms of his own period analysis: "If we take into account that excess investment can only occur at the expense of the disposable funds or idle resources that existed at the beginning of the period, which have disappeared as capitalist disposable funds, there is no doubt that both differences express a similar concept" (216).

That was followed by a formal demonstration based on the distinction between saving and investment at the beginning and at the end of the period (see also Salera 1947, 223; and Ruiz 1984, 64). Bernácer's 1945 argument was not exactly the same as the one used in 1931, since in the latter he defined D as demand for consumption goods only, following the practice of his previous 1922 article. Hence, $(A - A')$ means saving in Bernácer 1931, instead of excess investment as in his 1945 book. Bernácer (1931) pointed out that, despite such similarities between the formulae, there was no "absolute identity," for windfall profits are excluded from Keynes's definition of income in the *Treatise* (1930). Furthermore, he would observe in 1945 that Keynes's ΠO is the value of production, not of sales as in Bernácer's D. Another "coincidence" pointed out by Bernácer (1931) was the similarity between his and Keynes's (1930, chap. 15) respective distinctions between "productive" and "industrial" circulations on one side and "speculative" and "financial" on the other (see also Almenar 1999, 104–5; and Villacís 1993, 312–21).

In any event, although Bernácer (1931) may have used the word *coincidence* ironically, he did not claim that his 1922 equations were the direct source of Keynes's "fundamental equation" in 1930. In fact, Bernácer (1931) suggested that the several similarities were "sheer coincidence," which in his opinion "shows very clearly the objectivity of our science," for economists working independently and under different circumstances could "reach results that agree so much with each other." However, after the publication of Robertson 1940b, Bernácer would change his mind about the nature of the connection between his ideas and those developed in Cambridge in the 1920s. Indeed, Bernácer (1945, 212–13) claimed (based on Robertson's [1940b, 50] acknowledgment) that there was some direct influence on Robertson, and (by quoting a passage from pp. 170–71 of vol. 1 of the *Treatise*) an indirect influence on

Keynes through his intense collaboration with Robertson in the 1920s. Bernácer (1945, 211–12) did not exclude completely the possibility that "environmental causes" (that is, the common historical context) could account for the fact that different authors in different countries had developed independently from one another similar ideas about the role of saving and the rate of interest in the determination of price level changes and the business cycle. Actually, he suggested that "multiple discoveries" (in the sense that would be fully developed later by Robert Merton [1973]), now no more interpreted just as "coincidences," were the pattern in the sciences in general. However, he submitted that it was more likely that the ideas he had put forward in the early 1920s formed the basis for several aspects of Robertson's (1926) and, indirectly, Keynes's (1930) theories.

4. Conclusion

We have established above that there are important similarities between Bernácer's and Robertson's macroeconomic approaches in the mid-1920s. Such similarities pose the question about whether this should be interpreted as a case of independent multiple discoveries or not. The evidence examined in this essay suggests that Bernácer did influence directly the approach of Robertson, which changed from essentially static analysis to economic dynamics in the mid-1920s. Hence, the major development in Robertsonian economics in the 1920s, that is, the "period analysis" used in *Banking Policy and the Price Level*, is likely to have been brought about by reading the summary of Bernácer's pamphlet in 1923. Bernácer's introduction of the concept of "disposable funds" in that article was based on his notion of a monetary or financial constraint in the payment mechanism, which informed both his and Robertson's analyses of the effects of hoarding and dishoarding on the economy.

If this is accepted then it is reasonable to conclude that Bernácer had an indirect influence upon Keynes in the 1920s via Robertson's work, since through to the *Treatise on Money* Keynes and Robertson were working very closely together in their presentation of the dynamic operations of the economic system. Although the oral memory about a meeting between Keynes and Bernácer in 1930 must be interpreted with care, it reinforces the notion that Keynes may have learned about Bernácer's ideas in the 1920s, directly, or, more likely, through discussions with Robertson. Our conclusion, therefore, supports Bernácer's (1945) view of how his discus-

sion of a monetary economy in terms of period analysis influenced Cambridge economics in the 1920s.

Appendix: Germán Bernácer Archive

The Despacho archivo Germán Bernácer was inaugurated on 16 October 1997 at the University of Alicante. It represented the culmination of many years of labor. The work began with Mrs. Bernácer, who, shortly after her husband's death in 1965, started to compile and classify with great dedication and care her husband's papers. The first collection, of selected correspondence, had been prepared before Bernácer's death and distributed to a number of distinguished economists; even before his death there were frequent inquiries for information about his work. After the centenary celebration for Bernácer organized by Spanish authorities in 1983, there was even more interest from academics, journalists, and others in examining the documents and correspondence kept by his wife. At the time of the centenary, Professor Gumersindo Ruiz made the first really precise classification of Bernácer's publications and doctrinal articles.

With the death of Mrs. Bernácer in 1989, the need to find the means of assuring the conservation of the documents which, duly classified, could be at the disposal of the scientific community, became more crucial. The Savings Bank of Mediterranéo (CAM) and the University of Alicante were immediately interested in the project.

CAM chose the eminent archivist Mr. M. Sanchez Monllor to work on the documents—he spent one year at Bernácer's residence arranging correspondence and classifying books, articles, lectures, notes, etc. The search for material encompassed the archives of the Bank of Spain, where Bernácer was director of the Research Service. This search revealed an archive at the Institución libre de enseñanza that provided details of Bernácer's travels around European countries in 1911. With his typical thoroughness and devotion, Mr. Sanchez Monllor contacted a considerable number of individuals and institutions who had connections and correspondence with Bernácer.

As a consequence, 105 personal documents related to Bernácer's professional work were collected, with 183 titles relating to conferences, books, and articles in English, French, Italian, and German (many handwritten). In addition, the collection includes 61 fully worked documents and 225 less complete and unedited documents.

The archive contains 585 letters from England, the United States, Germany, Switzerland, France, Spain, Latin America, Greece, Holland, Hungary, Portugal, Sweden, and Italy, most of them from important economists in the development of economic thought. There are 181 letters that Bernácer wrote in response. From his private library, 387 volumes were gathered, mainly about economic science, many of them dedicated by their authors.

The whole of this stock of documents, as well as Bernácer's private writing desk, furniture, and paintings, several items of memorabilia, and the typewriter that Bernácer used for a great part of his work, were donated to CAM by his siblings by notarized agreement in July 1997. CAM agreed with the University of Alicante to lodge the archive in the Department of Economic Sciences building, which bears the name Germán Bernácer Building. The entire archive has been deposited, recreating the atmosphere in which the economist worked throughout his life.

The Despacho archivo Germán Bernácer was solemnly inaugurated with the assistance of the president of CAM, the rector of the University of Alicante, and the governor of the Bank of Spain, and attended by university personnel. It is now available for use by all serious students and scholars of economics interested in the life and work of Germán Bernácer.

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