

THE SUBSISTENCE FUND IN LUDWIG VON MISES'S EXPLANATION OF THE BUSINESS CYCLE*

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Resumen: Hasta hoy, la teoría del crédito circulatorio de los ciclos económicos ha sido uno de los temas centrales en la Economía Austriaca. Su objeto principal de investigación es la expansión artificial del crédito circulatorio y su influencia en el sistema económico. En este artículo se objeta que Ludwig von Mises, el autor que planteó de dicha teoría, no la expone de forma homogénea. Mientras que en la versión original acentuó el papel del fondo de subsistencia, sustituyó este concepto por otros en publicaciones posteriores. Se mostrará que, por lo menos en lo que se refiere a esta relación, la versión original en *Theorie des Geldes und der Umlaufmittel* es más coherente que las posteriores, incluso más consistente que la elaborada exposición desarrollada en su obra más importante, *La Acción Humana*.

Palabras clave: La Teoría Austriaca del Ciclo Económico, Ludwig von Mises, Historia del Pensamiento Económico, Fondo de Subsistencia.

Clasificación JEL: B13, B31, E32.

Abstract: To the present day the circulation credit theory of the business cycle is one of the central themes in Austrian Economics. Its principle examination object is the artificial expansion of circulation credit and the influence the latter has on the economic system. In this paper it is argued that Ludwig von Mises, the originator of this theory, did not expound his theory homogenously. Whereas he stressed the role of the subsistence fund in the original version, he substituted it by other concepts in later publications. It will be shown that, at least in this respect, the original version in *Theorie des Geldes und der*

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Umlaufsmittel is more consistent than the later ones, even than the elaborated exposition that can be found in Mises's most important work, *Human Action*.

Key words: Austrian Theory of the Business Cycle, Ludwig von Mises, Subsistence Fund, History of Economic Thought.

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I INTRODUCTION

In 1974 Friedrich von Hayek has been awarded the Nobel Prize in Economics for his contributions to the circulation credit theory of the trade cycle. The first exposition of this theory goes back to the year 1912. Ludwig von Mises expounded it rather shortly in his habilitation treatise entitled *Theorie des Geldes und der Umlaufsmittel* [Theory of Money and Fiduciary Media].¹ To the present day this theory is one of the central themes in Austrian Economics. For this reason, it is very often called the «Austrian» theory of the business cycle (ABCT). It is mainly concerned with the effect that the financial sector —especially the monetary policy of the central bank or the banking system— has on the «real» sector. Its principle examination object is the artificial expansion of *circulation credit* and the influence the latter has on the economic system. Although circulation credit originates in the *financial* market, ABCT maintains that it has devastating effects on the *real* economy. In short, an expansion of circulation credit is supposed to cause an artificial lowering of the interest rate which provokes entrepreneurial malinvestments that, sooner or later, will lead to an economic crisis as the malinvestments will have to be liquidated.

In this paper it is argued that Ludwig von Mises, the originator of this theory, did not expound his theory homogenously. During his career, he changed the way he explained the feedback between the financial and the real sector rather substantially. Whereas he

¹ Mises (1912), translated as «The Theory of Money and Credit» (Mises [1912] 1953).

stressed the role of the subsistence fund in the original version, he substituted it by other concepts in later publications. It will be shown that, at least in this respect, the original version in *Theorie des Geldes und der Umlaufsmittel* is more consistent than the later ones, even than the elaborated exposition that can be found in Mises's most important work, *Human Action*.

II COMMODITY CREDIT AND CIRCULATION CREDIT

In order to understand the ABCT it is necessary to grasp a distinction between two different kinds of credit first made by Ludwig von Mises himself.² The first one, *commodity credit*, is, in Mises's opinion, the healthy kind of credit. Somebody saves out of his income and transfers the savings to somebody else, mainly by means of financial intermediaries. As this kind of credit necessitates savings, it involves an exchange of present goods for future goods.³ In the words of Mises, credits of this kind are

characterized by the fact that they impose a sacrifice on that party who performs his part of the bargain before the other does – the foregoing of immediate power of disposal over the exchanged good.⁴

In short, before commodity credit can be granted, somebody must have saved up goods or money that can now be lent to the debtors. The sacrifice of the savers is the necessary condition for this kind of credit.

The second kind of credit Mises calls *circulation credit*. In his opinion, it constitutes the unhealthy kind of credit. It does not stem from anybody's savings, but from the power of banks to lend additional money into existence. It is not necessary to go into the details of fractional reserve banking here. That this

² See Gentier (2003), p. 46.

³ See Mises ([1912] 1953), p. 264.

⁴ *Ibid.*, p. 264.

kind of banking is able to create additional credit via lending out its own bank notes (in earlier times) or demand deposits that are at any time convertible into money is generally accepted by economists.⁵ The phenomenon is called the money multiplier. Mises's point is that this kind of credit creation does not presuppose savings and therefore causes nearly no costs to either the issuing bank or anybody else. This

group of credit transactions is characterized by the fact that in them the gain of the party who receives before he pays is balanced by no sacrifice on the part of the other party.⁶

According to Mises's definition, what he calls circulation credit is not a proper credit transaction from an economic point of view. «[T]he essential element, the exchange of present goods for future goods, is absent.»⁷ No savings and no sacrifices are necessary:

If a creditor is able to confer a loan by issuing claims which are payable on demand, then the granting of the credit is bound up with no economic sacrifice for him.⁸

Now, in all of his versions of the ABCT, Mises maintains that an expansion of circulation credit, as distinguished from an increase of commodity credit, causes a boom that must ultimately result in a bust. So far, the earlier and the later versions are homogeneous. However, they differ in the way that Mises explains the effect that an expansion of circulation credit has on the economy. It will be shown that it is on this point that Mises's first theoretical book, *The Theory of Money and Credit*, has to be preferred to all of his later writings.

⁵ See Huerta de Soto (2012), pp. 182 ff., Belke/Polleit (2009), pp. 29 ff., Dornbusch et al. (2008), pp. 395 ff.

⁶ Mises ([1912] 1953), p. 264.

⁷ Ibid., p. 269.

⁸ Ibid., p. 265.

III
THE EXPOSITION IN MISES'S
THEORY OF MONEY AND CREDIT

1. The role of the subsistence fund in the exposition of the ABCT

In *Theorie des Geldes und der Umlaufsmittel*, Mises explains the influence of circulation credit on the economy in terms of the so-called *subsistence fund*. This fund—which consists of saved-up consumers' goods—looms large in his then exposition of the production process. To explain the subsistence fund theory in a few words: Consumers' goods are a necessary pre-condition of every production process. Without something to eat, something to drink, clothes, and so forth, nobody will participate in production. The owners of the originary factors of production, most notably workers, need to be furnished with consumers' goods during the production process. The subsistence fund is especially important when it comes to determine the possible length of the production processes. It is this point which Mises stresses in his 1912 book:

The period of production [...] must be of such a length that exactly the whole available subsistence fund is necessary on the one hand and sufficient on the other for paying the wages of the labourers throughout the duration of the productive process. For if it were [longer]⁹, all the workers could no longer be provided for throughout its whole course, and the consequence would be an urgent offer of the unemployed economic factors which could not fail to bring about a transformation of the existing arrangement.¹⁰

He further states that the «national subsistence fund is necessarily altered by the increase of savings.»¹¹ Thus savings, in

⁹ Mises here says «shorter» which must be a typo.

¹⁰ Mises ([1912] 1953), p. 360; Mises (1912), p. 428.

¹¹ Mises ([1912] 1953), p. 347.

influencing the size of the subsistence fund, determine the way production is organised in the economy:

A lengthening of the period of production is only practicable [...] when either the means of subsistence have increased sufficiently to support the labourers and entrepreneurs during the longer period or when the wants of producers have decreased sufficiently to enable them to make the same means of subsistence do for the longer period.¹²

So in the *Theory of Money and Credit*, it is the subsistence fund, the fund of saved-up consumers' goods that determines the length of the period of production.

Entrepreneurs, when they evaluate the profitability of the different investments and decide about the production processes they want to implement, of course do not orientate themselves by the size of the national subsistence fund. They have probably never heard of such a thing, and even if, they surely could not determine its size. Instead, they are guided by the *interest rate*. Yet, in the *The Theory of Money and Credit*, the interest rate bears a close relationship to the subsistence fund. It provides the entrepreneurs with the information as to how lengthy the production processes can reasonably become, that is, it informs them about the size of the subsistence fund. This can be seen especially in Mises's exposition of the ABCT.

As was already indicated, in 1912 Mises expounds the ABCT in terms of the subsistence fund. In expanding the amount of circulation credit, the banking system decreases interest below the rate that is indicated by the amount of savings.¹³ So despite the fact that the subsistence fund has not increased, i.e., that «there is no possibility of lengthening the average period of production», nonetheless «a rate of interest is established in the loan market which corresponds to a longer period of production.»¹⁴ As a consequence, in creating the illusion of the profitability of

¹² Ibid., p. 361.

¹³ See *ibid.*, pp. 361 ff.

¹⁴ Both quotes from *ibid.*, p. 362.

new investment possibilities—the longer production processes—«[c]redit expansion initially can produce a boom.»¹⁵ However, as the subsistence fund has not increased at all, «there cannot be the slightest doubt as to where this will lead:»¹⁶

A time must necessarily come when the means of subsistence available for consumption are all used up although the capital goods employed in production have not yet been transformed into consumption goods. [...] The means of subsistence will prove insufficient to maintain the labourers during the whole period of the process of production that has been entered upon. Since production and consumption are continuous, so that every day new processes of production are started upon and others completed, this situation does not imperil human existence by suddenly manifesting itself as a complete lack of consumption goods; it is merely expressed in a reduction of the quantity of goods available for consumption and a consequent restriction of consumption. The market prices of consumption goods rise and those of production goods fall.¹⁷

As can be seen in the preceding quotes, in the *Theory of Money and Credit* the subsistence fund plays a prominent role. Its size has a crucial effect on the production process as it limits the length of the production period. The entrepreneurs are informed about the size of the subsistence fund by means of the interest rate. In expanding circulation credit, the banking system artificially lowers the interest rate and thusly creates the illusion of an increased subsistence fund. Subsequently, entrepreneurs behave as if the subsistence fund had increased, i.e., they embark upon long-term investment projects. Ultimately, these projects turn out to be malinvestments as they require an amount of the subsistence fund that is not available. So after the rate of interest has fallen because of the additional circulation credit and has caused a boom, at last a counter-movement sets in. With higher consumers' goods prices and lower producers' goods prices, the

¹⁵ Ibid., p. 422.

¹⁶ Ibid., p. 362.

¹⁷ Ibid.

interest rate rises again.¹⁸ It turns out that the increase of the subsistence fund has been an illusion. The consequence will be an economic crisis. Some of the longer processes of production have to be abandoned; with the higher rate of interest they cease to be profitable. A part of the new production goods «cannot be withdrawn and must therefore either be left entirely unused or at least be used less economically.»¹⁹ So, to quote Mises once more,

there has been a loss of value. Economic goods which could have satisfied more important wants have been employed for the satisfaction of less important; only in so far as the mistake that has been made can be rectified by diversion into another channel can loss be prevented.²⁰

To sum up, according to the theory as contained in The Theory of Money and Credit, additional circulation credit creates the illusion of an increase of the subsistence fund. This way, entrepreneurs are trapped into malinvestments.

2. Some smaller inconsistencies in the exposition

It must be pointed out that even the 1912 version is not formulated unambiguously. As long as Mises employs the term «means of subsistence,» it is clear what he is talking about. These means are definitely «available for consumption» and he contrasts them with capital goods.²¹ But Mises is not totally clear when it comes to define and employ the term «subsistence fund.» On the one hand, he employs it synonymously to the «means of subsistence.» As was shown above, what he says about the subsistence fund and its role in the business cycle is consistent with this interpretation. On the other hand, he takes the term over from Böhm-Bawerk, who wants it to include all kinds of goods, not only

¹⁸ See *ibid.*, p. 363.

¹⁹ See *ibid.*, p. 364.

²⁰ *Ibid.*

²¹ See *ibid.*, p. 363.

consumers' goods.²² A point which indicates that Mises, at least sometimes, endorses this interpretation is the fact that, for him, the «quantity of metal available for industrial purposes,»²³ which definitely is no consumers' good, is part of the subsistence fund. Furthermore, at one point he even formulates his theory not in relation to either the subsistence fund or the means of subsistence, but to intermediate products:

[D]espite the fact that there has been no increase of *intermediate products* and there is no possibility of lengthening the average period of production, a rate of interest is established in the loan market which corresponds to a longer period of production;²⁴

To be sure, shortly after he has written this sentence he again speaks of the *means of subsistence* that are missing. Yet, it can be seen from the quotes given that, even in *The Theory of Money and Credit*, his theory does not always and consistently run in the terms of the subsistence fund as a fund of consumers' goods. At some places, a different interpretation seems permissible.

IV

FURTHER DEVELOPMENT OF THE ABCT BY MISES

1. The evolution of the theory up to 1936

It has been shown that even the 1912 version is not formulated unambiguously. Over the following decades, Mises changed the exposition of the ABCT. In 1928, Mises further developed it in his *Geldwertstabilisierung und Konjunkturpolitik*. At this point, he still uses the terms «subsistence fund» and «means of subsistence» as part of his explanation. He describes their role in the same way as in 1912:

²² See Böhm-Bawerk (1921), pp. 391 f.

²³ Mises ([1912] 1953), p. 346.

²⁴ *Ibid.*, p. 362.

Roundabout methods of production can be adopted only so far as the *means for subsistence* exist to maintain the workers during the entire period of the expanded process. All those projects, for the completion of which means are not available, must be left uncompleted, even though they may appear technically feasible—that is, if one disregards the *supply of capital*.²⁵

From this quote, one could imagine that he uses «means of subsistence» and «capital» synonymously. And indeed, he even writes that

[i]n a given economic situation, the opportunities for production, which may actually be carried out, are limited by the supply of capital goods available.²⁶

Shortly afterwards, he employs the terms «existing resources,»²⁷ «subsistence fund,»²⁸ and «funds»²⁹ to express the same idea. It is not clear what it is exactly that, in his opinion, limits the length of the production period. In some places, it is still the subsistence fund, but as the quotes show, sometimes he refers to other entities like capital goods and resources. Unfortunately, he does not clarify the relationship between these entities.

Although there are some terminological inaccuracies, up to 1928 Mises's explanation of the business cycle still runs in terms of a «subsistence fund», however defined, that does not suffice in case of projects that only seem profitable because of credit-expansion. In the following years, Mises changes his formulation of the theory and abandons the term «subsistence fund» altogether in connection with capital or business cycle theory. In 1931, in an admittedly very short formulation of the theory, he only mentions «resources» as the decisive factor without any detailed explanation of this term.³⁰ In 1936, it is neither the subsistence fund, nor

²⁵ Mises ([1928] 2006), pp. 110 f., emphasis added.

²⁶ Ibid., p. 110, emphasis added.

²⁷ Ibid., p. 111.

²⁸ Ibid.

²⁹ Ibid., p. 112.

³⁰ See Mises ([1931] 2006), p. 162.

the means of subsistence, that limit the length of the production period. Instead,

[t]he *material means of production and the labor* available have not increased; all that has increased is the quantity of the fiduciary media which can play the same role as money in the circulation of goods. The means of production and labor which have been diverted to the new enterprises have had to be taken away from other enterprises. Society is not sufficiently rich to permit the creation of new enterprises without taking anything away from other enterprises. As long as the expansion of credit is continued this will not be noticed, but this extension cannot be pushed indefinitely.³¹

Here, it is the means of production and labour that are not available in sufficient quantities. He also states that society is not «rich» enough, not specifying if this expression is supposed to correspond to the «material means of production and the labor available», or to something else. It has to be said that this quotation is also taken from a minor publication, but still it shows that something has changed. The subsistence fund is not mentioned here at all.

2. The exposition of the business cycle theory in Human Action

The important question is how Mises formulates his theory in his *magnum opus Human Action* of 1949. There he also develops his capital theory, and so it suggests itself that an analysis of this book will help to clarify the interrelation between the terms in question. In earlier publications Mises treated the issues of capital theory only randomly.

Although, as will be shown below, Mises significantly alters the exposition of the circulation credit theory and although he does not use the term «subsistence fund» in his explanation of

³¹ Mises ([1936] 1996), p. 29, emphasis added.

the ABCT, he does not forget about the «means of subsistence» altogether.

People eager to embark upon processes with a longer period of production must first accumulate, by means of saving, that quantity of *consumers' goods* which is needed to satisfy, during the waiting time, all those wants the satisfaction of which they consider more urgent than the increment in well-being expected from the more time-consuming process.³²

On the same page he explicitly calls these consumers' goods «means of subsistence,» so far as they are used to pay labour. So, in a nutshell, he still says that the means of subsistence are the prerequisite for a lengthening of the period of production. In his *Nationalökonomie*, the German-language predecessor of *Human Action*, he specifies this thought in saying that these means serve to free [freimachen] original and produced means of production from being employed in shorter ways of production.³³

It might be inferred from this quote that Mises still argues in the same line as 1912. Yet, he does not use this concept continuously when he comes to explain the business cycle. In his earlier works, as we have seen, it was the «subsistence fund» that limited the length of the production processes. An artificial lowering of the interest rate induced the entrepreneurs to embark upon unsustainable («too long») production processes. In *Human Action*,

the drop in interest rates falsifies the businessman's calculation. Although the amount of *capital goods* available did not increase, the calculation employs figures which would be utilizable only if such an increase had taken place.³⁴

So the entrepreneurs do not act as if the subsistence fund had increased, but as if the amount of capital goods had increased. He restates this point a few pages later:

³² Mises (1949), p. 488, emphasis added.

³³ See Mises (1940), p. 450.

³⁴ Mises (1949), p. 550, emphasis added.

A further expansion of production is possible only if *the amount of capital goods* is increased by additional saving, i.e., by surpluses produced and not consumed. *The characteristic mark of the credit-expansion boom is that such additional capital goods have not been made available.* The capital goods required for the expansion of business activities must be withdrawn from other lines of production.³⁵

Obviously, the limiting factor here is the capital goods. In this point, Mises differs from his earlier expositions. However, he tries to integrate both phenomena, scarce means of subsistence and scarce capital goods, in his explanation. He also echoes his earlier formulations by saying:

Production has been altered in such a way that the length of waiting time has been extended. But the demand for consumers' goods has not dropped so as to make the available supply last for a longer period.³⁶

With this integration of capital goods and consumers' goods Mises simply employs Böhm-Bawerk's concept of the subsistence fund that consists of both capital goods and consumers' goods. Anyway, the *decisive* factor that marks the turning point of the business cycle is the scarcity of capital goods, not of consumers' goods:

[The entrepreneurs] embark upon an expansion of investment on a scale for which the *capital goods* available do not suffice. Their projects are unrealizable on account of the *insufficient supply of capital goods*. They must fail sooner or later.³⁷

To sum up our findings so far: In his earlier works Mises stresses the importance of the subsistence fund, though not clearly defining it. Later on, roughly since the thirties of the last century, he starts to stress different ideas more strongly. Though he still recognises the importance of the means of subsistence,

³⁵ Ibid., p. 554, emphasis added.

³⁶ Ibid., p. 553.

³⁷ Ibid., p. 556, emphasis added.

he doesn't think these to be the central limiting factor for an expansion of production. Rather that capital goods gain prominence.

Now, to derive an exact notion of how he thinks the business cycle will elapse in his later writings, it is necessary to understand what he exactly means by capital goods. On one occasion in the third edition of *Human Action*, Mises defines capital goods as

either intermediary stages in the technological process, i.e. tools and half-finished products, or goods ready for consumption that make it possible for man to substitute, without suffering want during the waiting period, a more time-absorbing process for another absorbing a shorter time.³⁸

But, as shows the following quote taken from the same edition, capital goods as just defined are not scarce at all at the appearance of the crisis:

However, raw materials, primary commodities, half-finished manufactures and foodstuffs *are not lacking* at the turning point at which the upswing turns into the depression. On the contrary, the crisis is precisely characterized by the fact that these goods are offered in such quantities as to make their prices drop sharply.³⁹

This is exactly the opposite of what he says in the passages quoted before where he maintains that capital goods are the bottleneck at the turning point of the business cycle. However, we will not evaluate Mises's business cycle theory on the basis of the definition just quoted. It does not appear in the first and apparently most stringent⁴⁰ edition of *Human Action*. And there he has a different concept in mind when he states that the supply of capital goods is insufficient in the crisis, namely the following: «We may acquiesce in the terminological usage of calling the produced factors of production *capital goods*.»⁴¹

³⁸ Mises (1966), p. 260.

³⁹ *Ibid.*, p. 560, emphasis added.

⁴⁰ See Herbener et al. (1998), pp. xx ff.

⁴¹ Mises (1949), p. 263, emphasis by Mises.

V
CAPITAL GOODS OR THE SUBSISTENCE FUND
AS THE LIMITING FACTOR?

Unfortunately, Mises does not explain why he thinks that the fact that credit expansion leads entrepreneurs to calculate as if the *amount of capital goods* has increased, causes the business cycle. It is the purpose of this chapter to demonstrate that this point could not be upheld, anyway. It is not the supply of capital goods that limits the length of the production period, and, also, an expansion of circulation credit does not create the illusion of an increased supply of capital goods. *The scarcity of capital goods cannot produce a bust.*

Let us assume that the entrepreneurs have indeed been counting on a large supply of capital goods because of an artificially lowered interest rate. At some point, they realise that their expectations have been flawed. The price of capital goods rises. Now, it is true, this development would increase the costs of those entrepreneurs who need these goods as input. Those entrepreneurs might indeed have to stop or bring down business.

However, it must be remembered that capital goods, in the definition given by Mises himself, are *produced means of production*. *If they become scarce, their supply can be increased simply by producing them.* The rise of capital goods prices will establish new profit opportunities. Entrepreneurs will be eager to produce capital goods. Their supply should, therefore, increase and their prices decrease again. *So the bottleneck that Mises thinks will trigger an economic crisis can easily be overcome.* There is no problem with this solution unless something might hinder the production of capital goods, that is, unless another bottleneck should hinder this adjustment of the production process. If this occurred, the described solution would become unprofitable for the entrepreneurs. But then the fact that it is unprofitable to produce capital goods cannot signify their «insufficient supply.» Rather the opposite is true. Apparently, there are enough capital goods available when their production is unprofitable. *To sum up, the scarcity of capital goods can be healed by producing them. When it is unprofitable to produce them they are not scarce and do not constitute a bottleneck that triggers an economic crisis.*

It is different with the version that can be found in the *Theory of Money and Credit*. There, it was the scarcity of the subsistence fund that triggered the bust. Concerning the subsistence fund it cannot be said what was just said about capital goods. When the means of subsistence become scarce, it cannot be argued that this constitutes no problem because they can easily be produced – like capital goods. The subsistence fund comes into being by people who save parts of their income. It is necessary that some people abstain from consumption, i.e., incur a sacrifice of potential consumption. This way, consumers' goods are made free that can now be bought by workers who do not themselves produce consumers' goods, but work in roundabout production processes. Without savings, these workers cannot be provided with means of subsistence; no subsistence fund can be built up, and roundabout ways of production become unfeasible.

So one cannot argue that the scarcity of consumers' goods can be overcome by producing them. The fund of consumers' goods can only be increased by *saving*. And if the savings are not enough to finance the actual production processes, the interest rate will rise and many projects will become unprofitable. Businessmen themselves can do nothing to prevent this consequence as long as people do not save more. *This* is the problem that causes the crisis. *This* indeed is a bottleneck. Given the unjustifiably long production period —the result of the artificially lowered interest rate— people do not save enough, the subsistence fund shrinks, and consequently many investment projects cannot be finished and turn out to be malinvestments. This problem cannot be healed by production, but only by saving. If people do not save more, the crisis cannot be avoided.

VI CONCLUSION

We find that the limiting factor at the turning point of the business cycle must be the available subsistence fund. This point was stressed by Ludwig von Mises in his *Theory of Money and Credit*. Later on, he more and more abandoned this line of reasoning and

substituted the concept of capital goods. It has been shown that this change was for the worse. Capital goods —produced means of production— can never be a bottleneck in the production process as their supply can easily be increased by merely producing them. The same argument cannot be employed to refute the original version that runs in terms of the subsistence fund. The latter can only be increased by saving, not merely by production. Thus, in case savings should not increase at the turning point of the business cycle, the crisis sets in as described by Mises in his 1912 book. Consumers' goods prices rise and producers' goods prices fall, making necessary a painful adaptation of production. As a last point, it might be interesting to note that it was Richard von Strigl who, in his book, *Kapital und Produktion*, elaborated on Mises's original formulation and expounded his version of the ABCT solely in terms of the subsistence fund.⁴²

BIBLIOGRAPHICAL REFERENCES

- BELKE, A. and POLLEIT, T. (2009): *Monetary Economics in Globalised Financial Markets*, Berlin and Heidelberg, Springer.
- BÖHM-BAWERK, E. von (1921): *Positive Theorie des Kapitals, Band I*, 4th edition, Jena: Fischer.
- DORNBUSCH, R., FISCHER, S. and STARTZ, R. (2008): *Macroeconomics*, 10th edition, Boston et al.: McGraw-Hill/Irwin.
- GENTIER, A. (2003): *Economie Bancaire. Essai sur les effets de la concurrence et la réglementation sur le financement du crédit*, Paris: Publibook.
- HERBENER, J.M., HOPPE, H.H., and SALERNO, J.T. (1998): «Introduction to the Scholar's Edition», in: L. v. Mises: *Human Action. A Treatise on Economics. The Scholar's Edition*, Auburn (AL): Mises Institute, pp. v-xxiv.
- HUERTA DE SOTO, J. (2012): *Money, Bank Credit, and Economic Cycles*, 3rd edition, translated by M.A. Stroup, Auburn (AL): Mises Institute.

⁴² See Strigl (2000).

- MISES, L. von (1912): *Theorie des Geldes und der Umlaufsmittel*, München and Leipzig, Duncker & Humblot.
- (1940): *Nationalökonomie - Theorie des Handelns und Wirtschaftens*, Genf: Ed. Union.
- (1949): *Human Action - A Treatise on Economics*, New Haven, Yale Univ. Press.
- ([1912] 1953): *The Theory of Money and Credit*, translated from the German by J.E. Batson, New Haven: Yale Univ. Press.
- (1966): *Human Action - A Treatise on Economics*, 3rd revised edition, Chicago: Regnery.
- ([1936] 1996): «The "Austrian" Theory of the Trade Cycle», in: *The Austrian Theory of the Trade Cycle and other Essays*, compiled by Richard M. Ebeling, Auburn (AL): Mises Institute, pp. 25-35.
- ([1928] 2006): «Monetary Stabilization and Cyclical Policy», in: P.L. Greaves, Jr. (ed.), *The Causes of the Economic Crisis and other Essays Before and After the Great Depression*, Auburn (AL): Mises Institute, pp. 53-153.
- ([1931] 2006): «The Causes of the Economic Crisis: An Address», in P.L. Greaves, Jr. (ed.), *The Causes of the Economic Crisis and other Essays Before and After the Great Depression*, Auburn (AL): Mises Institute, pp. 155-181.
- STRIGL, R. v. ([1934] 2000): *Capital and Production*, translated from the German by M.R. Hoppe and H.-H. Hoppe, edited with an Introduction by J.G. Hülsmann, Auburn (AL): Mises Institute.