

ABSTRACT

**Some Critical Perspectives on Böhm-Bawerk's *Capital and Interest*, volume 1, A
Critical History of Economic Theory, with special reference to his remarks on
Turgot, Jevons and John Stuart Mill.**

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Böhm-Bawerk's *Critical History* of Interest Theory appeared in 1884 as the first volume of an eventual three volume treatise on capital theory, of which the second volume, *Positive Theory of Capital*, appeared in 1889. An English translation of the *Critical History* by William Smart appeared as early as 1890, and attracted considerable criticism in England and elsewhere. This paper intends to critically review three significant and controversial aspects of Böhm-Bawerk's history, namely his views on 'Turgot's Fructification Theory' (Book I, chapter III) and 'the minor systems' developed by persons described by Böhm-Bawerk as 'eclectics', that is, John Stuart Mill and William Stanley Jevons. The last are treated in the same chapter by Böhm-Bawerk, that is, Book VII, chapter I. An earlier section of the paper will provide a brief overview of Böhm-Bawerk's *Critical History* to enable those unfamiliar with its text to situate the three short sections here critically reviewed, in their proper places. A final section presents some conclusions.

Some Critical Perspectives on Böhm-Bawerk's *Capital and Interest*, Volume I, *A Critical History of Interest Theory*, with special reference to its treatment of Turgot, John Stuart Mill, and W.S. Jevons.

Böhm-Bawerk's *Critical History of Interest Theory* was first published in 1884 as the first volume of an eventual three volume treatment of capital theory. Its second volume, *Positive Theory of Capital*, appeared in 1889. An English translation of the *Critical History* by the Scottish economist, William Smart, appeared in 1890 and attracted considerable criticism in England and elsewhere. Marshall, for example, was highly irritated by the book, critically annotating his personal copy of the Smart translation, in the chapters dealing with Turgot, Ricardo, Jevons and Say, and quarreling about Böhm-Bawerk's treatment of his predecessors in correspondence with Wicksell during 1904 (see Groenewegen 1995, pp. 473-75 for a summary of this discussion). Wicksell himself was also critical of aspects of Böhm-Bawerk's *Critical History*, as he confessed in 1911 in an article on Böhm-Bawerk's theory of capital. Wicksell was particularly critical of Böhm-Bawerk's treatment of Ricardo, but failed to see the merit his Swedish compatriot Gustav Cassel saw in Turgot's theory of capital, which had been so harshly dealt with by Böhm-Bawerk. This was the major issue on which Wicksell had clashed with Marshall seven years before, even though Marshall, perhaps unknown to Wicksell, was in considerable agreement with Wicksell on Böhm-Bawerk's treatment of Ricardo and of Jevons (Wicksell 1911, 1958, pp. 176-7).

Although I examined Böhm-Bawerk's critique of Turgot's theory of capital and interest nearly four decades ago (Groenewegen 1971, 2002, chapter 17), it seems useful

to re-trace the subject matter of this debate in the wider context of criticizing some other of Böhm-Bawerk's interpretations of his predecessors. For this major purpose of the present paper, the authors selected for comment in addition to Turgot, are two important British nineteenth century economists, J.S. Mill and W.S. Jevons. Both of them suffered from what Marshall at one stage called, Böhm-Bawerk's 'rather rough method of thumping' (Alfred Marshall to J.B. Clark, 24 March 1908, in Whitaker 1996, III p. 182). The Mill and Jevons' cases are particularly interesting since Böhm-Bawerk more or less dealt with them together in Book VII of his *Critical History* entitled 'Minor Systems', chapter I, 'The Eclectics'. Jevons was by then no longer alive, so he could not protest against this treatment which even Wicksell had found a little too much at one stage (Wicksell 1893, 1954, pp. 21-22).

The argument in the paper is sub-divided as follows. Section I of the paper provides a summary outline of the contents of Böhm-Bawerk's *Critical History* to situate this discussion of his treatment therein of Turgot, J.S. Mill and Jevons within the wider context of the work. The subsequent three sections respectively examine Böhm-Bawerk's treatment of Turgot, Mill and Jevons in the *Critical History* with special emphasis on the fairness of these treatments. A final Section V presents some conclusions.

I

The first edition of Böhm-Bawerk's *Capital and Interest*, sub-titled *A Critical History of Economical Theory* contained no less than seven Books into which the argument was

sub-divided. It also contained a brief introduction, which set out ‘the problem of interest’ as Böhm-Bawerk wished to present it, that is, as a form of income from property in great need of a sound explanation. The introduction briefly set out some of the terminology associated with the concept of interest including the frequently used distinction between gross and net interest, that between natural and loan (or contract or market) interest, and that between interest and profit. This opening chapter purported to be little more than a brief introduction to the topic, to make the contents of the critical study more easily understood. It was not to be taken as an ‘exhaustive’ or ‘even perfectly correct’ statement of the theory of capital (Böhm-Bawerk 1884, 1890, pp. 7-10). It linked interest very firmly to capital as used in production, or as ‘a complex of produced means of acquisition.... to serve as means of acquiring further goods’ (Böhm-Bawerk 1884, 1890, p. 6).

Book I covered what Böhm-Bawerk called ‘the development of the problem’. Its five chapters discussed in turn the opposition to interest (usury) in classical and medieval times; the defence of interest from the sixteenth till the eighteenth century, including contributions from Calvin, Molinaeus, Justi, Culpeper, Child, North, Locke, Steuart, Hume, Galiani and Beccaria, to conclude with a discussion of Turgot’s 1771 *Mémoire sur les prêts d’argent* with its defence of interest based on the difference in the value in exchange of present and future goods (similar to that of Galiani’s 1751 work with which Turgot was familiar). Chapter III contained Böhm-Bawerk’s critique of Turgot’s capital theory as presented in his *Réflexions* (discussed more fully in Section II below), chapter IV dealt with Adam Smith’s development of the problem, while its final chapter reviewed what Böhm-Bawerk called ‘the colourless theories’ of post-Smithian classical economists

including Ricardo, Torrens, McCulloch, McLeod, Garnier and beginning with some German theories such as those of Hufeland, Jakob and Rau.

Book II dealt with 'the productivity theories' in its three chapters. The first briefly set out the various meanings assigned to productive in this context, before defining value and physical productivity, as well naïve productivity theories. Chapter II then evaluated naïve productivity theories, of which view J.B. Say was declared to be the 'founder', followed by various German and French theorists. The third and final chapter of Book II examined 'indirect productivity theories' commencing with Lauderdale, Malthus and Carey, concluding with von Thünen, the most eminent theorist in this group, as well as the most careful, analytical economic writer among them.

'Use theories' of capital and interest are evaluated in the eleven chapters of Book III. Böhm-Bawerk defined the fundamental notion of the use theorists as separation of the 'substance of capital' from its 'use'. Use theorists argued that like the substance of capital, the use value of capital was sacrificed to create new output during the period of production. Hence value product is greater than the value of the substance of capital by precisely the value of the use of that capital, identifying the 'surplus value' created by capital with the value of its use. Major use value theorists criticized by Böhm-Bawerk included Say, Storch, Hermann, Mangoldt, , Schäffle, Knies, Menger, with Say, Hermann and Knies bearing the brunt of Böhm-Bawerk's criticism. It is particularly interesting to note in this context that even Menger, the founder of the Austrian school and Böhm-Bawerk's teacher, came in for some strong criticism as a use theorist of capital in its tenth chapter (Böhm-Bawerk 1884, 1890, pp 260-3).

Book IV of the *Critical History* evaluated the ‘abstinence theory of interest’, associated most strongly by Böhm-Bawerk with its first exponent, Nassau Senior. Among Senior’s many followers, Böhm-Bawerk (1884, 1890, pp. 286-7) included several of the ‘eclectic’ writers on capital (more fully dealt with by him in Book VII) such as John Stuart Mill, William Stanley Jevons, French writers such as Rossi, Molinari and Garnier, and Roscher among the Germans. However, Bastiat is signaled as the ‘school’s’ most important exponent because his work on capital and interest on its first appearance created a considerable ‘stir’ among the interested public. Böhm-Bawerk therefore gave it separate critical treatment in Chapter III, the concluding chapter of Book IV on abstinence theorists.

The labour theories of capital and interest are examined in Book V. They start with the British classical economists James Mill and J.R. McCulloch, the first of whom attempted to explain the increase in value over time of ‘stored wine in the barrel’ by the labour working within that wine (Böhm-Bawerk 1884, 1890, pp. 297-8). In addition, the labour theorists include a French author, Courcelle-Seneuil and several German writers from the ‘katheder socialists’ (or socialists of the chair), among whom Böhm-Bawerk considered Rodbertus and Schäffle to be the more important.

Perhaps appropriately, Book VI of the *Critical History* presented Böhm-Bawerk’s criticism of the exploitation theorists. This perspective originated from the labour theory of value, and originated in the writings of the Ricardian socialists, in particular those of Hodgskin. Exploitation theories of interest were also clearly visible in the views of Sismondi, Proudhon and Lassalle, but were particularly strong in the writings of Rodbertus and Marx. The last two were therefore given separate chapters of their own in

Chapters II and III of Book VI respectively. It should be noted that Marx was treated in this chapter in the absence of volume III of *Capital*, which was not published until 1895. Hence, on its appearance, Böhm-Bawerk gave it full and detailed criticism in his aptly named, and famous polemic, *Karl Marx and the Close of his System* (Böhm-Bawerk 1896, 1966).

Book VII presented Böhm-Bawerk's criticism of what he called the 'minor systems' of capital and interest theory, commencing with the 'eclectics'. This group includes a wide range of authors, some of whom already encountered under another of Böhm-Bawerk's classifications of capital theorists. In order of appearance in Book VII's argument, the eclectics embrace Rossi, Molinari, Leroy-Beaulieu, Roscher, Cossa, Jevons, Read, J.S. Mill, and Schäffle, of which Böhm-Bawerk's criticism of Mill and Jevons is critically evaluated in Sections III and IV of this paper. Chapter II of Book VII deals 'eclectically' with the modern 'restatement' of the fructification theory by Henry George, another powerful popular voice in economics at the time of Böhm-Bawerk's writing.

A short conclusion completed the first, critical volume of Böhm-Bawerk's *Capital and Interest*. His book had portrayed 'the rise of a motley array of interest theories' (Böhm-Bawerk 1884,1890, p. 421). Two groups of these theories – those from the naïve productivity theories and from the exploitation theories were totally wrong according to Böhm-Bawerk (1884, 1890, p. 425). On the other hand, the use theories in his view were perhaps closest to the truth and the theory of Menger, 'to my mind, appears the highest point of the development [of interest theory] until now, ...because his statement of the problem is most complete' (Böhm-Bawerk (1884-1890, p. 428). The final page thereby

rehabilitated the work of ‘the teacher’ to a considerable extent, an interesting example of second thoughts in this critical history.

This overview of the contents of Böhm-Bawerk’s *Critical History* can only highlight its thoroughness in terms of the wide array of authors dealt with between its covers. The depth of the criticism to which they were often subjected by Böhm-Bawerk cannot be illustrated in a brief summary. Samples of that criticism are, however, investigated in the case of the three authors already named: Turgot, ‘the fructificationist’ and Jevons and John Stuart Mill, the two ‘eclectics’. These in fact are illustrative of several tendencies in Böhm-Bawerk’s critique: covering as they do the faults of the use, the abstinence, and even the naïve productivity theories, not to mention the fructification approach shared by Turgot, according to Böhm-Bawerk, with its modern exponent, Henry George. Moreover, this overview permits an insight into the annoyance about this book expressed by Marshall. Marshall would have especially condemned Böhm-Bawerk’s treatment of Mangoldt, Hermann and von Thünen, the last of whom was a particularly great economist ‘hero’ for him. This was in addition to Marshall’s preserved criticism of Böhm-Bawerk’s treatment of Turgot, which he explicitly presented to one of his classes, as a sample of the many errors of interpretation contained in Böhm-Bawerk’s book. Turgot is therefore a particularly useful case study of Böhm-Bawerk’s style in criticism with which to start the more detailed examination of segments from his critical work, presented in the next section of this paper.

II

As indicated in the previous section, Turgot’s views on interest are discussed in two early

chapters of Böhm-Bawerk's *Critical History*. Turgot's work was first mentioned in the long chapter on the secular defence of interest against the church's charge of usury, presented in his *Paper on the Lending at Interest* (Turgot 1771). This, Böhm-Bawerk (1884, 1890, p. xxiii) indicated in his analytical table of contents, gave 'the canon doctrine its *coup-de-grace*.' (his italics) which made this paper deserving of only a brief, two page summary (Böhm-Bawerk 1884, 1890, pp. 55-56). The second occasion when Böhm-Bawer dealt with Turgot's views is in the context of what he called, 'Turgot's Fructification Theory', a theory also associated by him with Turgot's contemporaries among the Physiocrats, in particular with Quesnay and Mercier de la Rivière. In the first instance, Turgot received considerable praise from Böhm-Bawerk for a task well done; in the second his perspectives on the interest of capital were described by Böhm-Bawerk as 'modest' and 'naïve' (Böhm-Bawerk 1884, 1890, p. 62). These two treatments are explicitly related by Böhm-Bawerk (1884, 1890, p. 63): 'The paper on Lending at Interest' is correctly identified as only dealing with loan interest, whereas a 'more comprehensive interest theory is developed in his 1766 *Réflexions sur la production et la distribution des richesses*'.

Turgot's 1771 paper is also quite correctly described by Böhm-Bawerk as 'a closing act of the three hundred years war which jurisprudence and political economy had waged against the old canon law doctrine of interest.' The essentials of Turgot's long argument are succinctly summarized by Böhm-Bawerk even if this treatment prevented him from demonstrating 'the charming way' in which Turgot put his ideas in the defence of interest. These ideas rested on the rights of private property, the similarity between lending goods for a reward and lending money at interest, and, 'very remarkable'

according to Böhm-Bawerk, an argument following Galiani (1751) based on the influence of time on the valuation of goods. Time, as well as place, Turgot confirmed, induce real differences in the value of money. There is therefore a great difference between the value of a sum of money now and the value of a sum obtainable only at a future time. In this context, Böhm-Bawerk approvingly quoted Turgot's remark, 'If these gentlemen suppose that a sum of a 1000 francs and a promise of a 1000 francs possess exactly the same value, they put forward a still more absurd supposition; for if these two things were of equal value, why should anyone borrow at all ?' However, the notion underlying this statement is never explicitly established by Turgot, according to Böhm-Bawerk (1884, 1890, pp. 56-57): 'Turgot never clearly demonstrated the fact that in a loan there is a crucial equalization between 'the capital that was lent' and the sum of 'interest and the replacement [repayment] of capital'. Such a statement, Böhm-Bawerk added, would be in conflict with Turgot's expressed belief in his paper on interest that interest is a payment for a separate use of the principal sum, hence implicitly denying the proposition that interest and the principal sum arise naturally when that principal sum is productively used over the time period of the loan.

Chapter III of Book I of the *Critical History* is implicitly designed to indicate whether Turgot's more elaborate theory of capital of his *Réflexions* established this type of proposition. Böhm-Bawerk (1884, 1890, pp. 61-62) correctly argued that Turgot was among the first economics writers intent to give a 'scientific explanation' of the 'natural interest on capital', assisted in this endeavour by the fundamental advances made by the Physiocrats (in particular, Quesnay and Mercier de la Rivière) in analyzing a real system of production and distribution. That system, however, Böhm-Bawerk observed, was

formally deficient because it failed to clarify the reason why capital produces a net profit. Quesnay had tried to explain net profit simply as the reproduction of a necessary replacement cost, as had Mercier de la Rivière and Mirabeau. Turgot, ‘the greatest of the Physiocrats’, a description Turgot himself explicitly declined in his correspondence with Du Pont de Nemours, was different from these Physiocratic views in seeking ‘a fuller explanation of the fact of natural interest’ (Böhm-Bawerk 1884, 1890, p. 62). This, Böhm-Bawerk found in a number of specific paragraphs (listed by him as § 52, 58, 59, 61, 63, 68, 71)¹ of Turgot’s *Réflexions*, ‘out of which we have to put together his theory on the origin of interest for ourselves’ (Böhm-Bawerk 1884, 1890, p. 63). Turgot’s theory, Böhm-Bawerk (1884, 1890, p. 63) explained from his reading of these sections, based ‘the entire interest of capital on the possibility always open to the owner of capital to find for it an ulterior fructification through the purchase of rent-bearing land’. This is what Turgot called his ‘first employment of capital’ (Turgot 1766, 1977, §58). Böhm-Bawerk then summarized the thrust of Turgot’s explanation in the following manner:

¹ Böhm-Bawerk used the Daire edition for the text of the *Réflexions*, the then standard edition of Turgot’s economic writings. On the differences between that edition and the various other editions, see Groenewegen 1977, esp. pp. xvii-xxi, the textual notes to pp. 43-95, and the Appendix containing a Table of Concordance of the eight most frequently used editions of Turgot’s little book. This Concordance indicates that the parallel text in Groenewegen 1977 is likewise presented in § 52, 58, 59, 61, 63, 68 and 71.

...The possession of land guarantees the obtaining of a permanent income without labour, in the shape of land rent. But since movable goods, independently of land, also permit of being used, and on that account obtain an independent value, we may compare the value of both classes of goods; we may price land in movable goods, and exchange it for them. The exchange price, as in the case of all goods, depends on the relation of supply and demand (§85). At any time it forms a multiple of the yearly income that may be drawn from the land, and it very often gets its designation from this circumstance. A piece of land, we say, is sold for twenty or thirty or forty years' purchase, if the price amounts to twenty or thirty or forty times the annual rent of land. The amount of the multiple, again, depends on the relation of supply and demand; that is, whether more or fewer people wish to buy or sell land (§88).

In virtue of these circumstances every sum of money, and, generally speaking, every capital, is the equivalent of a piece of land yielding an income equal to a certain percentage on capital (§59).

Since in this way the owner of capital, by buying land, is able to obtain from it a permanent yearly income, he will not be inclined to put his capital in an industrial (§61), agricultural (§63), or commercial (§68) undertaking, if he cannot – leaving out of account compensation for all ordinary kinds of costs and trouble – expect just as large a profit from the capital thus employed as he could obtain through the purchase of land. On that account capital,

in all these branches of employment, must yield a profit.

(Böhm-Bawerk 1884, 1890, pp. 63-64)

Böhm-Bawerk described this explanation as erroneous, because it was circular. A specific capital must yield a specific interest because it can purchase a piece of land yielding a specific rent. For example, a capital of 10,000 francs must yield 500 francs in interest, because it can purchase a piece of land yielding a rent of 500 francs. This possibility needs an explanation: ‘why can a person with a capital of 10,000 buy rent-bearing land.... bearing 500 francs in particular?’ (Böhm-Bawerk 1884, 1890, p. 65). Turgot explained this, according to Böhm-Bawerk, by an appeal to the market, or to the relation of supply to demand. This was unsatisfactory, since supply and demand in the case of determining the price of land by the number of years’ purchase of its annual rent, fails to reach the heart of the matter. That number of years’ purchase in fact reflects the rate of interest, and cannot therefore explain that rate without arguing in a circle.

As has been pointed out on various occasions (by Marshall, by Cassel 1903, and by Groenewegen 1971, 2002), Böhm-Bawerk’s interpretation of Turgot’s capital and interest theory is incorrect. Turgot’s supply and demand theory of interest, as Groenewegen (1971, 2002) particularly demonstrated, was far richer than Böhm-Bawerk made out in his somewhat simplistic interpretation of Turgot’s theory just summarized. Turgot’s theory clearly drew attention, for example, to the necessity of capital investment in all types of production – agriculture, manufacturing, domestic and overseas trade – productive processes associated with a lengthening of the time period of production once a division of labour had thoroughly taken place. As Groenewegen (1971, 2002, p. 337 n.7) noted in this context, this undue harshness in Böhm-Bawerk’s criticism of Turgot’s

theory fits in with a feature of Böhm-Bawerk's critiques of capital theorists recognized by Wicksell: 'Böhm-Bawerk was especially critical of those [of his] forerunners who anticipated important parts of his own theory, such as Ricardo, Senior and Jevons.' On the basis of the Groenewegen (1971, 2002) reading of Turgot's capital theory, it appears that Turgot can easily be fitted into this category of 'anticipators' of Böhm-Bawerk's own views on the subject. This was part of Cassel's (1903, 1957, pp. 21-22) critique of Böhm-Bawerk's interpretation of Turgot's theory and, as fully documented elsewhere (Groenewegen 1995, pp. 473-5) also that of Marshall's demonstration of Böhm-Bawerk's unsatisfactory treatment of Turgot in his *Critical History*.²

It must therefore be concluded that Böhm-Bawerk's interpretation of Turgot's theory of capital and interest is deeply flawed with respect to his analysis of the role of capital advances in production, as distinctly presented in his *Reflections on the Production and Distribution of Wealth*. At the time, this was clearly grasped by Marshall, and possibly following Marshall, by Cassel. Wicksell, despite his insightful comments on Böhm-Bawerk's lapses into bias when dealing with authors who had anticipated aspects of Böhm-Bawerk's theory (such as Ricardo, Senior and Jevons in particular) failed to apply this stricture to Böhm-Bawerk's treatment of Turgot's theory of capital and interest. The concluding section of this paper examines this issue further. However, it is now time

² But cf. Groenewegen 1995, p. 475 on the treatment given by Marshall of Böhm-Bawerk's treatment of Turgot's theory of capital in the first two editions of the *Principles*, and removed from the third edition onwards. And see also Groenewegen (1995), pp. 476-7 for further details on this subject.

to briefly examine Böhm-Bawerk's critical treatment of John Stuart Mill's theory of capital and interest.

III

Böhm-Bawerk's *Critical History* devoted only four pages to criticism of John Stuart Mill's theory of capital and interest. This criticism was based exclusively on Böhm-Bawerk's reading of Mill's *Principles of Political Economy* (1848) and omitted the fourth essay on 'an unsettled question of Political Economy', that dealing with 'Profits and Interest', from this discussion. More specifically, in this criticism, Böhm-Bawerk only drew explicit attention to four chapters from Mill's *Principles*, that is, Book I chapters V and VII, and Book III chapters IV and VI, that is, to the chapters on 'Fundamental Propositions Respecting Capital', 'On What Depends the Degree of Productiveness of Productive Agents', 'Ultimate Analysis of Cost of Production', and 'Summary of the Theory of Value'. However, Böhm-Bawerk's criticisms of Mill's theory of capital and interest also drew on another chapter, that is, Book II, chapter XV, 'Of Profits', which, not surprisingly given its subject matter, presented some important aspects of Mill's theory.

Böhm-Bawerk's major contention about Mill as capital theorist is that he is 'an eclectic'. Mill accepted no less than three different types of explanation of the rate of interest which were mutually contradictory, that is, what Böhm-Bawerk called 'the productivity theory', 'the abstinence theory' and a theory built on the proposition of the ability of labour to create a surplus (Böhm-Bawerk 1884, 1890, pp. 408-09).

Some isolated remarks on Mill's position on capital and interest in Böhm-Bawerk's *Critical History* (1884, 1890, pp. 286, 325) respectively described Mill as both a follower of Senior's abstinence theory, and as a major eclectic on the subject, similar to Schäffle, because both 'add the ideas of exploitation theory to their other views on the interest problem' (Böhm-Bawerk 1884, 1890, p. 325). This tendency of the eclectic in interest theory is reiterated at the start of Böhm-Bawerk's more detailed treatment of Mill. There his 'combination of opposing opinions' on interest is described as particularly 'striking'. This charge of Mill's contradictory nature on interest theory is implicitly related to what Böhm-Bawerk described as a frequent observation on Mill's political economy, namely that it presents a middle position 'between two very strong diverging tendencies.... [those of] the so-called Manchester school on the one side, and socialism on the other' (Böhm-Bawerk 1884, 1890, pp. 407-08). According to Böhm-Bawerk, this type of compromise was not conducive for the construction by Mill of 'a complex and organic system', particularly with respect to explaining the rate of interest. After all, this was a subject on which socialist and capitalist opinions were completely divergent. For Böhm-Bawerk, this explained why Mill's theory of interest and profit was such a 'tangle' of conflicting views, thereby making Mill an eclectic on this subject *par excellence*.

A reading of the chapters in Mills' *Principles* which Böhm-Bawerk suggested as presenting the essential features of his theory of capital and interest, including the chapter not so mentioned but to the contents of which he referred explicitly (that is, Book II, chapter XV, 'Of Profits'), indicates that there is more to Mills' theory than Böhm-Bawerk made out. It should be admitted at the outset that these chapters do show the 'eclectic' nature of Mills' account. They clearly mentioned Senior's theory of abstinence

as an important factor in explaining interest, they equally clearly drew attention to the greater productiveness of labour aided by capital or, more specifically, by tools and machinery; while in addition they ascribed profit to the surplus creating powers of labour which were enhanced by making the appropriate advances of capital to the labour process. Furthermore, and an explicit flourish of indebtedness to the views of Ricardo, Mill regarded profit as inversely dependent on the wages of labour, a phrase Mill modified by substituting his preferred phrase, ‘the cost of labour’ (Mill, 1848, 1965, p. 413). In addition, by frequently referring to capital as ‘labour in an indirect shape’ (Mill 1848, 1965, p. 100), Mill drew even closer to Ricardo’s position by denying original factor status to capital, a status he reserved for the two original agents of production, or ‘the only productive powers,.... those of labour and natural agents’ (Mill 1848, 1965, p. 63). Hence the cost of capital included in estimating cost of production, is ultimately ‘resolvable into labour’ (Mill 1848, 1965, p. 477).

It may be noted in this context that Böhm-Bawerk in his discussion of Mill’s theory virtually completely ignored the lengthy remarks Mill had devoted to the association between saving and capital in the context of his defence of ‘Say’s Law’ as one of the fundamental propositions concerning capital, including herein particular the drawn-out discourse on the proposition that demand for commodities is not demand for labour (Mill 1848, 1965, pp. 78-88). This argument was irrelevant to the scope Böhm-Bawerk gave to capital and interest theory in his *Critical History of Interest Theory*. Hence only some of Mill’s fundamental propositions relating to capital discussed in Book I chapter V of his *Principles* came into the ambit of Böhm-Bawerk’s discussion. Other

omissions from Böhm-Bawer's brief summary of Mill's capital and interest theory from his selection of important chapters are less easily justified.

The most interesting of these occur in Mill's 'ultimate analysis of cost of production' (Book III, chapter IV). In §5 of that chapter, Mill indicated that he treated profits as an element in cost of production in so far as these profits are spread over unequal lengths of time. This argument, drawn from Ricardo's (and also probably from James Mill's) analysis of factors which make labour only an approximate cause of exchangeable value and not its sole cause, and which all derived from variations in the time element of production, was very clearly presented by John Stuart Mill in this context. Mill illustrated the proposition by the pure case of time in relation to value, embodied by wine in the cellar. The value of the wine simply increases by keeping it in storage, even if there is a natural limit to this relationship indicated by the 'known' time period over which a particular wine can be expected to improve and gain in value. As Mill put it, '... cloth does not improve by keeping;... wine does. Suppose that, to attain the desired quality, the wine requires to be kept five years. The producer or dealer will not keep it, unless at the end of five years he can sell it for as much more than the cloth, as amounts to five years' profit, accumulated at compound interest.' (Mill 1848, 1965, pp. 482-3). The wine case illustrates that the 'natural value' of some commodities reflects not only their cost of production, but 'their cost of production *plus* something else', that is, the time over which it can be laid down with a positive consequence for its ultimate exchange value. Mill (1848, 1965, p. 483) generalized this case by arguing that '[a]ll commodities made by machinery are assimilated, at least approximately, to the wine in the preceding example.' Wicksell, the staunch defender of Böhm-Bawer's capital

theory against its critics, himself drew in particular on the wine in the cellar case to illustrate the pure time element in production to expound the power of compound interest for explaining rises in value of certain stored commodities (Wicksell, 1934, pp. 172-84). It may be noted here as well that Wicksell neither drew attention in this context to Mill's earlier remarks on this subject, nor to the fact that Mill's father, James Mill, had discussed the wine in the cellar case in some detail in his *Elements of Political Economy* (Mill 1820, 1966, pp. 262-3). Nor did Wicksell in his own criticism of aspects of Böhm-Bawerk's *Critical History* mention John Stuart Mill as an author who, on at least one occasion, had grasped the significance of the time element in production for explaining the rate of interest, even if this was used by Mill, in the manner of the true 'eclectic', as one of many such explanations. It should also be stressed that Böhm-Bawerk failed to mention this specific contribution by Mill to interest and profit theory, despite the fact that Mill's remarks were situated in chapters which Böhm-Bawerk himself had identified as important for a correct interpretation of Mill's theories.

On this account, Böhm-Bawerk's treatment of John Stuart Mill's capital and interest theories may be classed among those of his criticisms of persons who, in one way or another, to a degree had anticipated some of Böhm-Bawerk's own 'novel' propositions in the explanation of interest. The wine in the cellar case to illustrate the potential for the exclusive impact of time on value in some production processes (the oak tree in the forest is another), is a case in point. Its presence in Mill's discussion in the *Principles* cannot be denied. If Böhm-Bawerk had mentioned this, and had then argued that this was yet another approach to the topic gathered by Mill in addition to abstinence, productiveness, and the surplus creating powers attributed to labour, his criticism of Mill would have

been considerably fairer. As it stands, even in the context of his brief treatment of John Stuart Mill, satisfactory only in far as it went, Böhm-Bawerk's complete omission of this segment of Mill's theory enables him to be charged once again as ignoring those contributions to capital and interest theory by his predecessors which to an extent compared to his own. This charge, as Wicksell had noted in remarks already quoted in the opening section of this paper, particularly applied to Böhm-Bawerk's treatment of W.S. Jevons' capital and interest theory, the topic treated in the next section.

IV

Böhm-Bawerk (1884, 1890, p. 286) first mentioned Jevons in his *Critical History* in the context of his discussion of 'Senior's Abstinence Theory' where 'the acute Jevons' is 'provisionally' included among 'the eclectics' in interest theory. Book VII of the *Critical History* modified this perspective. There Jevons is depicted as having presented 'the most interesting of these eclectic systems that combine the Abstinence and the Productivity conceptions'. This made Jevons a particularly suitable choice as the author with whom Böhm-Bawerk finished his 'consideration of this group', using as his text for Jevons's work the second edition of *Theory of Political Economy* published in 1879. The next four pages (Böhm-Bawerk, 1884, 1890, pp. 401-404) treated what Böhm-Bawerk claimed to be the essential features of Jevons's capital and interest theory.

Jevons at the outset is praised for providing 'a very clear statement of the economic function of capital': it enabled the expenditure of labour in advance. Hence capital also assisted in overcoming the 'difficulty caused by the time that elapses between the

beginning and the end of work', enabling improvement in the production of those goods which embodied an extensive time period of production. Jevons's explanation of interest is then based, according to Böhm-Bawerk, on the increased productivity of extending the time period of production, a proposition which, completely following Jevons's own treatment, Böhm-Bawerk explained algebraically. The derived formula for interest illustrated how the interest rate declined as capital accumulation advanced, and the relative scarcity of capital was reduced. Competition ensured that the decline in interest is spread uniformly over the whole economy (Böhm-Bawerk 1884, 1890, pp. 401-402).

Böhm-Bawerk then remarked that Jevons's theory was very similar to that presented by von Thünen, whose work had previously (Böhm-Bawerk 1884, 1890, pp. 164-72) been critically examined by Böhm-Bawerk and described by him as a very 'thorough' and 'high level' investigation of the capital and interest problem. However, both von Thünen and Jevons, according to Böhm-Bawerk (1884, 1890, pp. 402-03), confused surpluses from capital investment in value and in physical terms, identifying in short, 'increments in produce' with 'increments in value'. Jevons, Böhm-Bawerk continued, in this way, fell 'into the old error of the Productivity theorists and mechanically translated the surplus in products, which everybody would grant, into a surplus in value'. This was despite the fact that the Jevonian system contained 'attempts at explanations of these differences in value.... [but these attempts] do not complete that theory, but traverse it'. Jevons's acceptance of segments of Senior's Abstinence Theory provide a clear example, particularly in those cases where Jevons spoke of 'the capitalist's income as 'compensation for abstinence and risk'', that is, not directly and fundamentally

associated with extensions of the time period of production made possible by greater availability of capital.

Böhm-Bawerk attempted to soften this harsh criticism of Jevons's theory in the final three paragraphs of his section devoted to Jevons's contribution. For instance, Böhm-Bawerk conceded that Jevons made 'interesting remarks' about the effect of time on the valuation of needs and satisfactions, though even in this context the clarity of his approach was questioned by Böhm-Bawerk. Jevons's linking of these matters of time preference to capital accumulation was also imperfectly done according to Böhm-Bawerk, and Jevons, moreover, failed to apply this proposition fruitfully to the theory of income and value. However, Jevons deserved credit for giving more emphasis to the role of time in capital and interest theory than anyone before him even if he had failed to pursue that fundamental proposition to its ultimate conclusions. Instead, Jevons relied on a simple application of the physical productivity theory in a manner very similar to von Thünen, and on developing aspects of Senior's Abstinence Theory. Jevons was therefore 'an eclectic of genius perhaps, but still an eclectic', to paraphrase Böhm-Bawerk's final concluding remarks on Jevons.

Careful study of what Jevons actually stated on capital and interest in the second edition of his *Theory of Political Economy* (Jevons, 1879, 1911) indicates that Böhm-Bawerk's verdict on Jevons's theory was rather unjust. Take first the matter of time preference. Jevons discussed this in Chapter II of his *Theory*. In this chapter, Jevons (1879, 1911, p. 35) clearly emphasized that 'the power of anticipation' (that is, time preference) exerted an enormous influence on economic decision making, in particular on

the accumulation of ‘goods for future periods’, even if time preference was subject itself to a considerable degree of uncertainty (Jevons 1879, 1911, pp. 35-6, cf. pp. 71-74).

Böhm-Bawerk likewise understated the nature and the extent of Jevons’s capital theory, as presented in the final two chapters of his *Theory of Political Economy*. Jevons’s chapter on capital starts out with the proposition that economics is the science of capitalization and that capital consists of wealth used for future production (Jevons 1879, 1911, pp. 222-3). Capital is defined by Jevons (1897, 1911, p. 223 – his italics in the quotation) as consisting ‘merely in the *aggregate of those commodities which are required for sustaining labourers of any kind or class engaged in work.*’ Capital ‘in free form’ is therefore the volume of ‘sustenance’ available for ‘labour in general in an uninvested form’, hence able to be applied to any productive purpose requiring capital for its efficient operation (Jevons 1897, 1911, p. 224). From these propositions, Jevons emphatically indicated that the problem of capital was essentially associated with time, and that the concept of capital was quantified by applying the time period of production to the quantity of capital as a stock (Jevons 1879, 1911, pp. 224-32). Jevons also suggested that this notion of capital was closely related to Senior’s concept of abstinence, a temporary sacrifice of enjoyment standing in the same relation to the income of profit as labour does to that of wages (Jevons 1879, 1911, pp. 233-4). Any fair reading of Jevons’s text suggests that the time element to capital is crucial to Jevons’s explanation of the subject, and constituted for him ‘the most interesting point in the theory of capital’ (Jevons 1879, 1911, p. 225). Jevons illustrated this by examples of the, relatively short, time element in the growing vegetables, and, more interestingly, because of its

considerably longer duration, by the case of the storing of wine in the cellar (Jevons 1879, 1911, pp. 238-40).

Jevons defined 'free capital' as sustenance not yet directed to labour for a specific purpose, in contrast to invested capital which was so used, and distinguished the classical notions of fixed and circulating capital on this foundation. The utility of works which were very capital using, he claimed to be distant, and 'free capital can be indifferently employed in any branch or kind of industry' (Jevons 1879, 1911, pp. 243-5). This is the analytical basis for explaining uniformity of the rate of interest in the various uses of capital prevalent in an actual economy. Interest itself is treated by Jevons as a function of the time period of production, and equivalent to 'the rate of increase of the produce [attributable to capital investment] divided by the whole produce'. In the limit, this equates interest to the marginal product of time, an expression Jevons (1879, 1911, pp. 246-7) did not explicitly use. This proposition is explored in some detail, and then explicitly related to capital as deferred consumption (Jevons 1879, 1911, pp. 249-50). It also enabled Jevons to confirm the classical proposition of the tendency of profits to fall to a minimum, and to further explore whether all articles 'in consumers's hands' can be considered as capital. Only housing fitted into this category, Jevons argued (1879, 1911, pp. 259-65), though capital was of necessity sunk in virtually all productive activities, a manner of viewing the subject of capital and interest which greatly simplified it.

The concluding chapter of Jevons's *Theory* linked his discussion of capital and interest to the classical theory of the wages fund. It then drew some implications for the theory of interest and profits. Produce is equivalent to the sum of the wages and profits which need to be paid to ensure its production. Profits had to cover 'the wages of

superintendence, insurance and risk’, while the wages of a labourer were defined by Jevons as ‘*coincident with what he produces after the deduction of rent, taxes and interest of capital*’ (Jevons 1879, 1911, p. 270 – his italics in the quotation). Finally, it may be noted that on his own account, Jevons’s theory of capital and interest benefited to a very considerable extent from his study of the subject as treated by Ricardo, by James Mill, by Senior and by Hearn, the last of these authors completely omitted from Böhm-Bawerk’s account of capital and interest in his *Critical History*.

As Stigler (1940, p. 22) later argued, Jevons’s conception of capital completely anticipated that of the ‘period of production’ school, whose leaders were Böhm-Bawerk and Wicksell. Wicksell (1893, 1954, p. 20) in his defence of Jevons against the criticism of Böhm-Bawerk, although admitting that Jevons’s theory was ‘superficial’ and underdeveloped, denied strongly that it can be classed as ‘a *wrong* theory’ as Böhm-Bawerk had done. Jevons’s stress on the time element of production for understanding the role of capital in production, and his specific linking of interest and profit to the diminishing productivity of extending that time period of production, are crucially important contributions to a satisfactory theory of capital and interest. Stigler’s (1940, pp. 22-29) account of Jevons’s theory of capital and interest implicitly shares this conclusion. Moreover, as quoted at the start of this paragraph, Stigler (1940) also implicitly suggested that the proximity of Jevons’s theory to Böhm-Bawerk’s position on capital and interest may explain the harsh treatment Jevons’s unjustifiably received in Böhm-Bawerk’s *Critical History*. As the case studies in the two previous sections of this paper illustrated, this was not an isolated instance with respect to Böhm-Bawerk’s historical treatment of capital and interest theory.

What conclusions can be derived from this critical overview of Böhm-Bawerk's history of capital and interest theories as the first volume of his exhaustive treatment of the subject of capital and interest. As a starting point, if Böhm-Bawerk's three basic propositions of capital theory are examined, then it can be stated that at least two of these 'grounds' were contained, in one form or another, in the work of Turgot, of John Stuart Mill and of Jevons, work which Böhm-Bawerk had treated so harshly in his *Critical History of Interest Theory*. These 'grounds' elaborated on the basic propositions of 'present and future in economic life', namely that '*[p]resent goods are as a general rule worth more than future goods of equal quality and quantity*' (Böhm-Bawerk 1889, 1959, p. 259, his italics). More specifically, the three grounds can be summarized as follows:

(1) '*the difference between the relations of supply and demand as it exists at one point of time and that relation as it exists at another point of time*' (Böhm-Bawerk 1889, 1959, pp 265-6, his italics); (2) systematic undervaluation of '*our future wants and also the means which serve to satisfy them*' (Böhm-Bawerk 1889, 1959, his italics); and (3) '*as a general rule, present goods are for technological reasons preferable means to the satisfaction of wants and for that reason, they are a warranty of higher marginal utility than are future goods*' (Böhm-Bawerk 1889, 1959, p. 273, his italics). Notions of time preference and the association between productivity and the time element of production, as has already been shown in the three preceding sections, featured respectively in the work by Turgot on capital and interest, to a smaller extent in that of John Stuart Mill in

his *Principles of Political Economy* - it contained no clear notion of time preference, for example – and, to a remarkable extent, in Jevons's *Theory of Political Economy*.

This type of argument makes it possible to speak of a systematic bias in Böhm-Bawerk's *Critical History*, as suggested previously in this paper. To put it succinctly, the greater the degree of anticipation of Böhm-Bawerk's own theory by a predecessor, the harder that predecessor was 'thumped', to use Marshall's colourful description of Böhm-Bawerk's critical practice. It can be reiterated here that such a bias was noted in the aftermath to the publication of Böhm-Bawerk's book by at least two of his major contemporaries among late nineteenth century, early twentieth century economists, that is, by Marshall and Wicksell. Marshall did so with specific reference to Böhm-Bawerk's treatment of Turgot, but for Marshall this was only one case of many Böhm-Bawerk misinterpretations. As Marshall explained to Wicksell (26 July 1904, in Whitaker 1996, III pp. 86-87), Marshall did not think that Böhm-Bawerk had 'caught [the] real meaning' of many of the economists whose interest theory he so severely criticized. In the case of Turgot, he had demonstrated the validity of that general proposition by a careful textual comparison of what Turgot had actually said on the subject and what Böhm-Bawerk claimed that Turgot had said. Wicksell was not convinced by Marshall's criticism of Böhm-Bawerk's interpretation of Turgot though such disagreement did not prevent him from criticizing Böhm-Bawerk's treatment of other economists, particularly, but by no means exclusively, that of Jevons. Hence bias was recognized on Böhm-Bawerk's part in at last two instances of his history of capital theory by two major economist contemporaries, Marshall and Wicksell.

The two previous paragraphs should, however, not be taken to suggest that Böhm-Bawerk's *Critical History* has few, if any merits. The opposite conclusion in fact applies. The book continues to make valuable contributions. These need to be recognized even if they have to be offset by the book's faults, of which some have been noted in this paper. In the first place, the book has a very extensive coverage of the literature on capital and interest. This commenced with the treatment of interest, often as usury, during the Middle Ages. Secondly, its overview of sixteen to eighteenth century defenders of the rate of interest, covered much literature from continental Europe frequently omitted by current historians of the subject. More specifically, Böhm-Bawerk's very extensive coverage of German and Austrian economists and their work on interest is instructive, a quality shared by the whole of the book. Last but not least, the book's examination of the history of capital and interest theory by types of theoretical approach to the subject is rewarding, even if Böhm-Bawerk not infrequently made wrong classifications within the hierarchy of interest theories he had constructed. The preceding three sections gave striking illustrations of this practice in connection with Turgot, John Stuart Mill and Jevons. Hence in many ways the book has become a 'classical' text of its subject matter, and as is so often the case with works of this genre, needs to be approached with a critical outlook. This, after all, was what was done by two of Böhm-Bawerk's eminent critical readers, Marshall and Wicksell, as this paper also recalled in some detail. In short, with all its weaknesses in interpretation, Böhm-Bawerk's *Critical History of Interest Theories* remains both a useful and interesting history of a controversial topic, from the contents of which the contemporary reader can still learn a considerable amount.

Bibliography

Böhm-Bawerk, E. von (1884, 1890), *Capital and Interest. A Critical History of Economic Theory*, translated with a preface and analysis by William Smart, London: Macmillan.

Böhm-Bawerk, E. von (1889, 1959), *Positive Theory of Capital*, translated by George D. Huncke, South Holland, Illinois: Libertarian Press.

Böhm-Bawerk, E. von (1896, 1966), *Karl Marx and the Close of his System*, New York: Reprints of Economic Classics: Augustus M. Kelley.

Cassel, Gustav (1903), *The Nature and Necessity of Interest*, Facsimile reprint, New York: Augustus M. Kelley, 1957.

Galiani, F. (1751), *Della Moneta*, reprinted with an introduction by Alfredo Caracciolo, Biblioteca di classici italiani, Milan: Feltrinelli, 1961.

Groenewegen, Peter (1971, 2002), 'A Re-interpretation of Turgot's Theory of Capital', in Peter Groenewegen, ed., *Eighteenth Century Economics*, London: Routledge, chapter 17.

Groenewegen, Peter (1977), *The Economics of A.R.J. Turgot*, The Hague: Martinus Nijhoff.

Groenewegen, Peter (1995), *A Soaring Eagle. Alfred Marshall 1842-1924*, Cheltenham: Edward Elgar.

Jevons, W.S. (1879, 1911), *Theory of Political Economy*, London: Macmillan, fourth edition.

Mill, James (1820, 1966), *Elements of Political Economy*, in *James Mill. Selected Economic Writings*, edited with an introduction by Donald Winch, Edinburgh and London: Oliver & Boyd.

Mill, John Stuart (1848, 1965), *Principles of Political Economy with some of their Applications to Social Philosophy*, in *Collected Works of John Stuart Mill*, volumes II and III, Toronto: University of Toronto Press; London: Routledge & Kegan Paul

Stigler, G.J. (1940), *Production and Distribution Theories. The Formative Period*, New York: Macmillan.

Turgot, A.R.J. (1766, 1977), *Reflections on the Production and Distribution of Wealth*, edited and translated in Peter Groenewegen, *The Economics of A.R.J. Turgot*, The Hague: Martinus Nijhoff, pp. 43-95.

Turgot, A.R.J. (1771, 1977), 'Paper on the Lending at Interest', extracts translated in Peter Groenewegen, ed., *The Economics of A.R.J. Turgot*, The Hague: Martinus Nijhoff, pp. 149-63.

Whitaker, J.K., ed. (1996), *Correspondence of Alfred Marshall. Economist*, Cambridge: Cambridge University Press for the Royal Economic Society, three volumes.

Wicksell, K. (1893, 1954), *Value, Capital and Rent*, translated by S.H. Frowein, with an introduction by G.L.S. Shackle, London: Allen and Unwin.

Wicksell, K. (1911, 1958), 'Böhm-Bawerk's Theory of Capital', in K. Wicksell, *Selected Papers on Economic Theory*, edited with an introduction by Eric Lindahl, London: Allen and Unwin, pp. 176-185.

Wicksell, K. (1934), *Lectures on Political Economy*, translated by E. Classen, edited with an introduction by L.C. Robbins, London: Routledge and Kegan Paul.