Austrian Capital and Interest Theory: Wieser's Contribution and the Menger Tradition

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Doctrinal investigation has now established that fundamental theoretical points of divergence separated the founder of the Austrian economics tradition, Carl Menger, and another leading Austrian economist, Eugen von Böhm-Bawerk. Böhm-Bawerk's capital and interest theory, in particular, stressed a degree of classical materiality and adopted a level of aggregation sharply in conflict with the basis of Menger's contribution (Endres 1987). As Streissler and Weber (1973, p. 231) speculate: "Böhm-Bawerk's Menger cannot be the whole Menger." Menger's successor in the chair of economics in Vienna was Friedrich Wieser.[1] On the occasion of the centenary of one of Wieser's principal contributions to economic theory—*Natural Value* (1889)—the time seems apposite to assess whether, and to what extent, the economic-theoretic legacy of Carl Menger endured in Wieser's work.[2] Standard renditions of early Austrian economics in history of economic thought textbooks usually suggest that Wieser's work can be placed squarely in the Menger tradition.[3] Indeed, going from Wieser's (1923) biographical account of Menger and from Wieser's (1891) survey of Austrian value theory, we should not be led to suspect otherwise.[4] However, Wieser's place in furthering the tradition of economic theory begun by Menger is

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[1]For two recent general appreciations of Wieser and his work see Streissler 1986 and 1987.

[2]Wieser 1889 was an elaboration and refinement of Wieser 1884. The latter is well-known for introducing the equi-marginal principle into the theory of production and for its subjective cost theory.

[3]For example, Hutchison (1953, p. 153) argues that Wieser (1889) bears "strong family resemblances to Menger's *Grundsätze*." Rothschild (1973, p. 209) is of the view that "Wieser built on his [Menger's] foundations."

[4]See also the "Preface" in Wieser (1889, especially pp. xxxiv-xxxv).

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impugned in Streissler's revealing analysis of Menger's contribution. Streissler (1972, pp. 429, 430) suggests that Menger's followers in the Austrian tradition, including Wieser, progressively "escaped" their master over time and "assimilated other traditions" with the consequence that "much of what was genuinely Menger's tradition got lost."[5]

It has been said of Wieser that he "occupies a position of indisputable importance in the history of economics" and that he "presented one of the best theories of capital which had emerged" in his time (Stigler 1941, pp. 158, 177).[6] Yet Wieser's (1889) theory of capital and interest which is later enunciated and extended in Wieser (1891 and 1914) is mostly still unappreciated in the literature.[7] Instead, there has been extensive analysis of the putative apotheosis of "Austrian" capital and interest theory provided originally by Böhm-Bawerk in 1888 and as later refined by Wicksell (e.g., Kregel, 1976, pp. 28-33; Blaug 1978, pp. 498-569; Brems 1988). As well, Streissler (1972, pp. 434-36) concentrates exclusively on those elements in Böhm-Bawerk's capital and interest theory which possibly displeased Menger. To anticipate one of our conclusions, Streissler leaves out of account Menger's probable *sympathy* for Wieser's formulations of the capital and interest problem.[8]

Accordingly, in this article we give special consideration to Wieser's much-neglected capital and interest theory in order to assess its origins and composition, and ultimately to estimate the extent of Wieser's departure from the Menger tradition. We compare, as and where the detail of our exposition demands, Wieser's theory of capital and interest with other contemporary Austrian and non-Austrian treatments of that subject. Our attention will also be focused on the relations between Wieser's theory and the broad directions given by Menger for the construction of an adequate theory of capital and interest—a theory which, regrettably, Menger (1888 and 1950) left very much inchoate.

[5]An example, as Streissler and Weber (1973, p. 227 4n) explain, is Menger's monetary theory for which Wieser, when rewriting Menger's article on "Money" for the *Handwörterbuch der Staatswissenschaften* substituted an entirely different version.

[6]Cf. Knight (1950, p. 31), who praises Wieser's capital theory, regarding it as "sounder" than both Menger's and Böhm-Bawerk's views on the subject. Knight (1935, p. 158) also pays tribute to Wieser's theory of interest.

[7]Two exceptions in recent literature are Rothschild (1973) and Streissler (1987) which touch *tangentially* on matters of concern in this article.

[8]To be sure, Streissler and Weber (1973, p. 229) allude, all too briefly, to one crucial theoretical point of separation between Menger and Wieser: Menger's "vision of production was a time consuming multi-stage process—an approach that did not appeal to Wieser."

Wieser's Concept of Capital

The protean nature of the term "capital" in both economic theory and everyday use, necessitates extended discussion of the term in Wieser's work. Menger (1888) insists that economists should take cognizance of the popular, everyday concept of capital as a pecuniary magnitude; capital in this view is, for the *individual*, a fund of purchasing power which consists of money and productive assets calculated in terms of money.[9] Wieser (1889, p. 125 1n) complains, in deference to Menger's concept, that the popular concept is too broad because it encapsulates "all the parent wealth of an acquisitive economy existing in or calculated in money, without respect to the technical nature of the instruments of acquisition." Wieser searches for a universal capital concept applicable in a communistic state as well as in a private, acquisitive economy.[10] Thus, "to take note of those forms of capital which serve in the formation of income outside of production" as loosely implied in Menger's concept, is "too closely connect[ed] with the specific condition of the existing economic order of things" (Wieser 1889, p. 125 1n).[11] Wieser rejects identification of the subsistence fund with capital *à la* Jevons and Böhm-Bawerk. The subsistence fund exists to maintain labor whereas capital must be associated with things upon which laborers employ their labor power. Therefore, the form of capital—"natural" or "productive" capital as Wieser terms it—is confined to "perishable or . . . movable means of production," in other words, to producers' technical means of production. Computations of the value of such capital may be made in monetary units. The implication is that Menger was led astray in identifying the monetary valuation of capital as substantially identical to the enduring content of productive or natural capital as Wieser (1914, pp. 296-98) understands it. Wicksell (1893, pp. 104-05) concurs with Wieser's view and adopts Wieser's definition in his own work.[12] Hayek (1941, p. 46) also finds Wieser's definition useful (see Figure 1).

[9]On Menger's concept compared with Böhm-Bawerk's see Endres (1987).

[10]Cf. Wieser (1914, p. 62): "All references . . . to the nature of capital must be such as will meet the approval not only of the supporters of the existing order but also the most radical apostles of socialistic views. To accomplish this, it is necessary to eliminate from the current, practical concept every reference to the pecuniary form of capital and to private property."

[11]Cf. Schumpeter's (1934, pp. 120-21) remarks on Menger's concept. For Schumpeter capital includes various means of payment and other circulating media which serve to provide entrepreneurs with control over capital goods.

[12]In drawing a distinction between capital and non-capital, Wicksell (1893, p. 105) rejects Böhm-Bawerk's division between the aggregate of intermediate goods (social capital) and a national subsistence fund (national capital) in favor of Wieser's view that capital "must be more related to the 'consumability and mobility' and therefore ready availability and utilization of capital-goods in the narrower sense."

Kinds of Resources	Permanent (non-consumable)	Non-permanent (consumable)
Non-producible ("original")	a	b
Producible ("augmentable")	c	d

Figure 1
Hayek's Delineation of Alternative Types of Capital

Source: F. A. Hayek, *The Pure Theory of Capital* (Chicago: University of Chicago Press, 1941), p. 58 2n.

Chronologically speaking, as far as definitions are concerned Wieser, Wicksell, and Hayek restrict the form and content of capital to *b* and *d* in Figure 1. Restricting the capital concept to non-permanent resources enables Wieser to state, and to attempt to solve, the "capital problem" under a specific set of stationary economy conditions.

The Capital and Interest Problem in a Stationary Economy

For Wieser, "one of the most important and difficult problems of economic theory [is] . . . to explain the fact that capital yields a net return" (1889, p. 124). Three sets of economic circumstances are distinguished. First, he conjectures that there was a period in economic history where there was "almost no capital," zero property in capital and therefore "zero of return from capital." Second, and more pertinent to the economic system under consideration in *Natural Value*, there was the stationary economy case defined by a constant, positive net return to capital; a positive, "prevailing" or natural rate of interest; neutral time preference; and zero capital accumulation (1889, pp. 149-50). Third, a "progressing" or growing economy case is distinguished where there is a positive, possibly increasing, net return to capital; a positive, but fluctuating rate of interest which depends on the rate of technical change; and net capital accumulation (1889, p. 50; 1914, pp. 134, 348).[13]

[13]The stationary and progressing cases are often discussed side-by-side in Wieser's work. For example, see the discussion of capital value and interest in *Natural Value* (1889, Book 4) and in *Social Economics* (1914, pp. 29-35).

Following Hayek's terminology in Figure 1 capital for Wieser is a stock of non-permanent resources which are periodically consumed and reproduced. Capital is designated "production" or "natural" if it yields a net return. Productive capital may permit production in a progressing economy to be maintained at a permanently higher level than would be possible without it. In a stationary economy, where there is no net capital accumulation (after reproduction and maintenance), the net return of capital is transformed into consumption goods (Wieser 1914, pp. 71, 134).[14] Capital productivity may have either a physical or value basis. Both physical and value productivity relate to Wieser's concept of the net return:

> Physical productivity exists where the *amount* of goods which form the gross return is greater than the amount of capital goods destroyed . . . Value productivity exists where the value of the gross return is greater than the value of the capital consumed. (1889, p. 126, his emphasis)

Proof of physical productivity is a necessary precondition for proof of value productivity. To resolve the capital problem the economist's ultimate task is to show that capital has value productivity.

In formulating the capital problem for the stationary economy Wieser postulates (implicitly) that all capital is completely consumed in the hypothetical production interval. The production process is repetitive but *not* statical—in the sense that production takes place in a time interval and in the sense that there is not strict simultaneity between the use of inputs and the production of outputs. *All* output arrives at the *end* of the production process, that is to say, at the end of the life of the capital goods. In short, we have a point input-point output theory of production. The amount of capital in use, both in terms of volume and quality, is fixed for the purpose of simplification; there are fixed production coefficients and diminishing returns are inadmissable (Wieser 1889, pp. 125-44).[15] Output prices at the begin-

[14]In a stationary economy "capital is used only to bring forth consumption goods. In a progressing society it is also used to bring about an increase of productive commodities" (Wieser 1914, p. 71).

[15]It is as if Wieser is maintaining that the conditions of capital supply are fixed by nature. Cf. Stigler (1941, p. 174), who states rather imprecisely that "the total supply of capital" is assumed fixed in Wieser's theory. Wieser, it should be emphasized did not assume that the amounts of capital in use could be varied in a stationary economy; there was no given supply *schedule* of capital evident in Wieser's stationary economy model. Similarly, Robbins (1930, p. 208) states that Wieser was "assuming fixity of supply" by which, Robbins proceeds to explain correctly, is meant that a fixed volume and quality of capital is assumed to be in use. No allowance is made by Wieser for flexible supplies along a given capital supply schedule; instead, he reasons in terms of *single* point price-quantity relations.

ning of the production interval are expected to be constant, and in conditions of perfect certainty in the stationary economy, such expectations cannot be disappointed. One consequence of constant output prices is that physical and value productivity must be proportional. Wieser's theory of imputation is developed under these assumptions as early as 1884, and indicates that a portion of output must be assigned to capital. Following Thünen, capital is *asserted* to have a given net physical productivity, otherwise it would not be employed (Wieser 1884, pp. 139-41; 1889, pp. 126, 131).[16] Capital produces a gross physical product some of which—a physical surplus—is not consumed in production. In value terms the value of capital cannot exceed the value of the gross product. In Wieser's example, the

> materials . . . out of which . . . bread is produced, cannot possibly be worth more than the bread itself. And those things from which the materials . . . themselves are produced, and which, consequently, are the producers of bread one stage removed, have, in the prospective gross return—the perishable bread—a maximum limit of value. (1889, p. 140)

The physical or net return produced cannot wholly be absorbed by capital reproduction; thus if "from the value of 105, 5 are set aside as fruits which may be consumed without preventing the full replacement of capital, only the remainder of 100 can be reckoned as capital value" (1889, pp. 140-41).

In commenting on Wieser's 'solution' of the capital problem, Stigler (1941, p. 177) complains from a standard neoclassical equilibrium perspective that the assumption of constant output value

> eliminates the problem of the relation of physical to value productivity, and consequently ignores also the problem of effects of variations of factor supplies on their relative shares of the product.

Wieser's stationary economy is *not* formulated as a Walrasian or Marshallian-type equilibrium. He does not, in particular, envision inputs, including capital, along fixed market supply *schedules* with the stationary behavior of the amounts of the factors actively used in production emerging *pari passu* with the fixity of all the unknowns of a solution as a consequence of a determinate general equilibrium system. This point is missed in Dobb (1973, p. 195) which, in evaluating Stigler's criticism of Wieser's 'solution,' maintains that Wieser may have been aware of the possibility that "an appropriate equilibrium-condition (e.g. equality of costs and revenue) can be postulated

[16]Wieser comes dangerously close to assuming what he originally aims to prove at this point. See Böhm-Bawerk's (1914) criticisms of Wieser's procedure, also detailed in the "Wieser's Hybrid Capital and Interest Theory in Retrospect" section below.

to allow for some *mutual adjustment* of product-prices and output and prices of producers' goods *in the course of reaching equilibrium*" (emphasis added). However, no such simultaneous mutual adjustment or equilibrating process is evident in Wieser's stationary economy. Wieser's (1889, pp. 86-92) elucidation of factor pricing in the "general imputation" process (where factors have alternative uses) provides the main ground for doubting the applicability of Marshallian or Walrasian equilibrium notions to his work. He emphasizes discrete, manifold, distinguishable units of producers' goods. In the stationary economy capital goods are not always readily substitutable with other factors; they exhibit strong degrees of complementarity and indivisibility.[17] As is well known, his "general imputation" theory assumes a number of unique optimal production coefficients—a number exactly equal to the number of factors. The assumption of fixed coefficients makes no allowance for variations in factor supplies during or between production intervals. Furthermore, the exclusive determinants or 'causes' of factor costs are final demands for consumer goods. (Thus, for instance, labor supply could not vary along some given supply schedule subject to the disutility of labor).[18] Brems (1986, p. 11) wrongly characterizes Austrian imputation theory, including Wieser's as,

> dealing with static general equilibria. In such equilibria, mathematics—even the rudimentary mathematics used by Walras—would have taught them [Menger, Wieser and Böhm-Bawerk] the lesson that a variable is neither the "cause" nor the "effect" of any other. All variables are determined on an equal footing and simultaneously, and all are the effects of the only causes found in the model, i.e., its parameters.

Following Menger in spirit and workmanship, Wieser's construction of imputation theory attempts in principle to remain consistent with the underlying ultimate or generative causes of economic phenomena, that is, to isolate the simplest elements from the complexity of everything real. This Austrian philosophical position rejected any notion of *strictly mathematical determination* of variables in a static general equilibrium system. As demonstrated in the Menger-Walras correspondence:

[17]As Rothschild (1973, p. 219) observes, Wieser could be regarded as a forerunner of economists in the twentieth century who reasoned in terms of a finite number of production plans and in terms of discontinuities or "corners" in aggregate production functions (e.g., Leontief, linear activity analysts).

[18]See Edgeworth's review of *Natural Value* in Edgeworth (1925, pp. 51-52). For a more recent account see Rothschild (1973, p. 216).

> Having been taught by his father to regard universal concomitance and exact proportionality [between *raretés* and prices] as the criteria of causality, Léon Walras felt that his construction of an overall system of simultaneous equations bound together by the marginal utility principle had proved that *rareté* was the cause of value. Menger, on the other hand, thought that the object of economic research was to discover those laws governing market phenomena which can be traced back to their ultimate genetic determinants in man's . . . nature. Mathematics cannot do this. . . . (Jaffé 1976, pp. 521-22)

Wieser was also a captive of Menger's philosophic outlook. Wieser's method, like Menger's, was causal-genetic rather than mathematical-functional and causal relations were sequential for both writers.

The assumption of fixed production coefficients affects Wieser's results in the strong case, stationary economy context. It is precisely in this context that Wieser's capital and interest theory is developed. Beyond the strong case, Wieser (1889, pp. 89-90), like Menger (1950, pp. 162-63), recognizes both the diversity of possible factor combinations and the likelihood that these would outnumber the types of producers' goods available. He does not pursue the possibility of a determinate, static, general equilibrium solution which would have dealt with these complications. Stigler (1941, p, 170) therefore labels Wieser's theory of imputation "distasteful" since it is "overdeterminate" and derivation of a "stable equilibrium" solution is rendered impossible. Wieser's very recognition of heterogeneity in the sphere of production implies that equilibrium solutions for factor pricing of the kind desired by Stigler could not capture demonstrably more fluid and more concrete situations where factor combinations exhibited extreme diversity. Indeed, argues Wieser (1889, 90n),

> [a]mong all the different kinds of goods employed in production, it would be difficult to find one which . . . would always be combined with others according to the same unalterably fixed formula.

Moreover, in acknowledging that factor combinations are changing and changeable (Wieser 1889, 90n), it is implied that the problem of factor pricing may only systematically be discussed as a disequilibrating process.[19] Lastly in this connection, to suggest, following

[19]Mathematical refinement and "analytical sophistication" may well have allowed Wieser to produce a more determinate, equilibrium (even Wicksellian) solution for this imputation theory, as Rothschild (1973, pp. 220-23) demonstrates. Considering what Wieser (1914) has to offer, it is seriously to be doubted whether Wieser would have been comfortable with intellectual concentration on the stationary economy and the general imputation theory with which stationariness was associated. Wieser (1914) hardly shows unstinting devotion to equilibrium theorizing.

Stigler (1941, p. 170), that Wieser's assumption of constant output prices is equivalent in content to assuming that final demands are infinitely elastic along a determinate, continuous, demand schedule, attributes more to Wieser's work than is textually supportable. Demand *schedules* are not evident in Wieser's sketch of the stationary economy; the potential for 'stationary'-like movements along either a fixed demand or supply schedule as a consequence of an *emergent*, equilibrium solution is not contemplated by Wieser since he reduced notions of supply and demand to *single* point, price-quantity relations. The economy is already at rest; factors are already optimally arranged as far as Wieser is concerned.[20]

We turn now to the related problem of interest on capital. How does Wieser explain it? Interest on capital and 'profit' coincide in the stationary economy.[21] Interest expresses some "definite relation between capital value and net return." An interest *rate* is the percentage of net increment to capital employed in a specific production interval. In a stationary economy in a large number of "connected" cases of production *the* rate of interest is the general percentage of increment to all capital in the market (Wieser 1889, pp. 141, 144). Wieser is guarded about generalizing the rate of interest to all forms of property, perhaps heeding Menger's earlier warning (Menger 1888, p. 181). Wieser restricts his analysis of interest to producers' capital.[22] Nevertheless there are allusions in *Natural Value* to possible equalization of interest rates in the strong stationary economy case, between interest on various forms of producers' capital and on consumption loans, and, on another level, equalization between money market rates and rates ruling in markets for different types of producers' capital. Effectively, the demand and supply of money and the demand and supply of producers' capital are regarded as identical. In the stationary case, the equalized natural rate of interest is determined independently of monetary factors, and solely by the rate of return

[20]Cf. one of Dobb's (1973, p. 196) suggested interpretations of Wieser's procedure where it is conjectured that it resembled Marshallian short-period equilibrium analysis. Again, this interpretation cannot be sustained since the Marshallian short-period allowed producers' decisions to alter quantities of inputs supplied with respect to price and marginal cost (Marshall 1920, pp. 314-15, 412).

[21]In the dynamic, progressive economy, interest and profit become different income categories. See the "Capital and the Trend of Interest in a Progressing Economy" section of this paper.

[22]It is essential to recall Wieser's concept of natural capital at this point. It excluded durable consumption goods including "material possessions of service trades and goods rented for use [e.g., dwellings] and including loan-capital for lending on these goods" (Wieser 1914, p. 297).

on capital invested in producers' goods. The amount and value of capital goods is brought into strict conformity with the costs of producing them, thus regulating the interest rate (Wieser 1889, pp. 145, 155ff).

Time preference is allowed to vary between individuals but the net societal effect is to value present goods as equal to future goods of like quantity and quality. Time preference is therefore neutral and not apparently relevant in explaining *the existence* of a positive rate of interest (Wieser 1889, pp. 16-19; 1914, p. 131). Instead Wieser adopts another ground for *explaining* interest as if it were a sufficient condition for a positive rate of interest to obtain in a stationary economy as he conceives it. That is, he appeals to the inherent productivity of capital as a cause of the differences in valuation in the present and in the future.[23] Wieser's productivity theory of interest is founded upon the assumption that the net physical productivity of capital, which cannot directly be observed, has been established by imputation, supplemented if necessary by introspection if the logic of his imputation theory is not fully accepted.[24] A net physical return on capital creates a value discount on the future. For Wieser, *present* possession of capital was equivalent to having received a net return from the use of that capital in the immediately *preceding* production interval. In a stationary economy possession of capital at a *future* date (the end of the next production interval) guaranteed the same net return but at the *end* of that interval.[25] Therefore, if

> *wants are continuously to find the same satisfaction, equal amounts of return* must continuously be produced. And if equal amounts of return are continuously produced, capital must remain continuously the same in substance. But if capital is actually to remain the same

[23]That the asserted technical productivity of capital is neither a necessary nor a sufficient condition for explaining the existence of a positive rate of interest in a stationary economy (following Irving Fisher) is now very well known, and need not detain us here. For a standard textbook treatment see Blaug (1978, pp. 531-32).

[24]Wieser would not have been deterred by criticisms of his imputation theory. His case that capital yields a net return and that interest represents the net increment of capital could, he believed, be clinched by facts gleaned by the method of introspective psychology. In "testimony to . . . [the] correctness" of his capital and interest theory Wieser had merely submitted "axioms which every layman recognises," "axioms of ripened experience" (1889, pp. 143-44).

[25]Thus "capital which, in twelve months from the date of possession yields the same gross return (say 105) and the same net return (say 5), is valued at the date of possession at the same amount (say 100). It is, nevertheless, not a matter of indifference whether the capital comes into possession now or only at the end of the twelve months inasmuch as possession now guarantees a return of interest besides" (Wieser 1889, pp. 142-43).

> in substance, and so is able to yield continuously *the same returns*, this must find expression in a valuation which ascribes to capital a higher value, the *earlier* point in time it comes into our possession. For the earlier point of time, the earlier and consequently the greater, the return that may be expected. (Wieser 1889, p. 143, emphasis added)

This passage is hardly unambiguous. Indeed, Wieser might be mistakenly arraigned for introducing dynamic elements into his theory of interest which contradicts conditions outlined earlier for production in a stationary economy. The notion of 'continuous' renewal of capital substance is misleading if taken too literally. To remain consistent with his concept of stationariness we must think of discrete, hypothetical production intervals. Whatever the length of the production interval the economy "shows neither progress nor retrogression." Constant returns in *value* terms for any particular stationary economy are ultimately determined by "future need values" which do not change (Wieser 1914, pp. 71, 141). Capital in Wieser's sense is used-up completely in each interval and, from interval-to-interval, in order for production to *recur*, interest presumably exists in order to ensure reallocation of the same 'capital substance' to the same uses as in previous intervals. This is to say also, that a positive net yield on capital is required to ensure capital reproduction and therefore to keep the 'stationary' economy 'stationary' in Wieser's sense. For heuristic purposes the stationary intervals themselves may potentially have different hypothetical durations which completely depend, correspondingly, on the assumed physical productivity of capital.

We are now in a better position to comprehend the preceding passage quoted from *Natural Value* (p. 143). In that passage, Wieser is implicitly comparing recurring production processes in a stationary context; each process yields the same constant *physical* product at the *end* of each production interval, but each is characterized by different production intervals and therefore by different qualities of capital.[26] Wieser suggests, in other words, that capital employed in a shorter production interval and which yields the same physical rate of return in each recurring interval, has a higher *value* productivity than capital with the same physical productivity but which takes a longer production interval. This interpretation has two important implications. First, Wieser *presupposes* a positive interest rate; he

[26]This conclusion is in broad agreement with Wieser's theory of imputation which uses fixed coefficients. Every form of capital of better quality than another has a higher return imputed to it. In comparing qualities of capital it is the net return that decides the imputation (Wieser 1889, pp. 131-33).

does not prove that the interest rate will be positive. Second, a higher opportunity cost of waiting is entailed for the same physical returns that arrive at the end of a longer production interval. Interpreted in this way, Wieser's 'explanation' of interest in his model of the stationary economy does not admit diminishing returns. By contrast, in Böhm-Bawerk's well-known explanation of the reason for a positive rate of interest, present capital goods yield a larger physical product than an equal quantity of future capital goods at a future date applied to roundabout production because of diminishing returns from a lengthening production interval. Parenthetically, there is a "period of production" notion in Wieser's theory although *not* one which involves the *introduction* of more productive time-consuming processes. Wieser's production interval is one characterized by a given production process yielding constant physical returns.

Despite Wieser's attempt to assert neutral time preference, we cannot avoid the implication in his stationary economy that a degree of impatience is involved on the part of producers who have rights of possession (entrepreneurs or central planners as the case demands) over a given volume of capital of the same quality (as opposed to capital of lesser quality) which is merely periodically duplicated. Furthermore, it seems for Wieser that these possessors avowedly desire quicker physical returns, and thence greater value returns, over successive recurring production intervals. In respect of *consumers* in a stationary economy Wieser is more explicit but does not recognize an inconsistency with his earlier pronouncements repudiating any significant role for time preference:

> consumption goods are available only as such and are useless for anything else. However, the latter may be turned over into consumption goods *more or less slowly*. The *more rapidly they are despatched*, the sooner will the new production process have to be set on foot. (Wieser 1914, p. 132, emphasis added)

His position on the existence of interest in a stationary economy would have been more defensible if he had given time preference a more central role. Instead, the order of his 'explanation' of interest makes productivity causal and primary; time discount is merely the resultant. Capital productivity, in other words, has exclusive influence on comparison of present and future gratifications. The burden of Wieser's *explanation* of interest therefore rests precariously on the existence of a technical net productivity of capital.[27]

[27]All this relates to interest on productive capital. Interest on consumption loans cannot be *explained* by productivity as Wieser (1891, p. 116 1n) expressly recognizes. Wieser explains interest on consumption loans in *psychological* terms, comparing the needs of debtors with those of creditors.

Capital and the Trend of Interest in a Progressing Economy

In reading Wieser's work we find that the stationary and progressing economy form two separate, though not competing, stages of exposition. Fragmentary discussion of the progressing economy is evident at frequent points in *Natural Value*. It is more fully enunciated in *Social Economics*, a work recently dubbed "the definitive textbook of the Austrian School" for the early decades of the twentieth century (Streissler 1987, p. 921). In a dynamic "progressing social economy" discussed extensively in *Social Economics*, capital is both reproduced and augmented (Wieser 1914, p. 71).

In outlining the simple stationary economy in *Natural Value* and again in the early sections of *Social Economics* Wieser always appears to be ready to break out of the strong case theorizing which is required of him. First, his discussion of the physical productivity of capital shows acute awareness of the *varieties* of capital goods which complicate calculations of a return to capital *as a whole* even though such a return may be imagined in principle (Wieser 1889, p. 133). Second, competition will assist in generating movement toward a uniform, natural rate of interest across the economy, but institutional impediments often conspire against such an outcome. He exclaims, for example, that

> the individualism of our present economic order distributes production among individual undertakings . . . yet at how many points do we find great gaps; how many dislocations through excessive accumulation of means of production at the wrong places; how often things go too quickly, how often not fast enough! (1889, p. 145)

Third, in circumstances of "private ownership" the money markets and capital goods markets are not always well-synchronized; under a "communistic regime" the central planner's calculation of a general interest rate may be easier in the absence of a private commercial money market (1889, p. 144). Private money markets are buffeted by alternating and irregular periods of "intensive activity" and of "quiescent business" such that commercial money rates of interest can exhibit a high variance in the short period, that is, "within a year" (Wieser 1914, p. 348). Time horizons and associated contractual obligations in the market for money credit destined for more permanent productive investment are much longer and substantially different from horizons which normally obtain in the market for consumption loans. Wieser is therefore driven to doubt the applicability of his Law of the Equalization of Price, and of interest equalization in particular, in the dynamic, progressing economy. He doubts the exis-

tence of a single loan interest rate which through the action of strong equilibrating forces, is adjusted into conformity with a common market rate of interest on all forms of income generating assets, broadly conceived. In the case of money and capital markets:

> [e]ven with complete security of the loans, the *interests of the different groups are too diverse* as regards the period of the loan and a number of other conditions for a central market to form in which the law of the unity of price might prevail. (Wieser 1914, p. 304, emphasis added)

An undeniable implication here is Wieser's leaning toward the Marxian view that interest rates on money capital are determined temporarily and perhaps permanently by causes which are independent of what happens to the rate of interest on producer's capital.[28] As well, Wieser is also aware of Menger's view expounded in "Zur Theorie des Kapitals" (1888), which insists that the rate of interest on money markets, the yield on industrial capital, and the yield on other categories of income bearing assets "need separate explanation each according to its nature and its different origins. The problem of the return on property (*Vermögensertrag*) is, for practical purposes . . . in no way synonymous with the problem of interest" (Menger 1888, p. 181). Wieser's sympathy toward both the Marxian and Mengerian views places his theory of interest, especially in *Social Economics*, outside the typical marginalist tradition in economics which included Jevons and Walras and which recognized first, that money rates of interest could vary only temporarily from some natural rate, and second that the money rate was determined exclusively by the rate of return on various forms of producers' capital. *Per contra*, Wieser leaves the way open for the possibility of monetary influences on the latter. No longer can we be sure after reading relevant sections of *Social Economics* that a permanent change in the money market interest rate would affect costs of production in the same manner, and would ultimately amount to the same thing as, a permanent, equivalent change in the rate of interest (or profit) on producers' capital.[29]

Wieser's Law of the Equalization of Price (*Gesetz des Priessaus gleiches*) is certainly an important analytical device in the *Ursprung* and in *Natural Value*. Streissler (1972, p. 438) interprets the law as "rather evocative of a process leading to equilibrium, not of equilibrium itself." The fact that Wieser jettisons his Law in respect of

[28]Incidentally, Hilferding's *Das Finanzkapital* (2nd edition) is listed among Wieser's (1914, p. 238) references in the section on money and credit.

[29]On the disjunction between "interest" and "profit" (or the rate of return on producers' capital) in the history of economic thought, see Panico (1987).

pricing in money and capital markets in the progressing economy context in *Social Economics*, adds further weight to the proposition that he *not* be classified as a typical, fledgling, equilibrium economist who wished generally to *determine* equilibrium price and analyze equilibrium positions. His affinity with Menger in this connection is more striking than has been recognized hitherto.[30]

In *Natural Value* there are allusions to "solitary" instances of rises in interest on a particular form of capital input (perhaps because of a one-off invention but Wieser is not explicit), while the prevailing rate of interest remains unaltered on other capital goods. Furthermore, alterations in the prevailing rate may result from "changes in supply, in demand [and] in technique" (1889, pp. 147, 150). *Universally* adopted inventions, for example, "would cause a general rise in the net return to capital" *relative* to "those capitals which had no part in the effects of the invention" (1889, p. 150). In a progressing economy an increase in the amount of capital of the same kind as used before necessarily leads to a decline in the interest rate; a simultaneous increase in new varieties of "specific capital" will counterbalance this effect (1914, p. 140). Here Wieser is clearly aware of the fact that inventions and improvements are not introduced at one fell swoop. Wieser is noncommittal about the certainty and regularity of changes in the quality of capital; it is precisely this outlook which lends itself to an open-ended serial process analysis rather than equilibrium theorizing. Indeed, such a process comes to the fore in Wieser's distinction between interest on capital and entrepreneurial profit—the latter being positive only in the progressing economy (1914, pp. 355-56). For Wieser, profit is not to be confused with *regular* wages of management, although such wages form part of entrepreneurs' income. Economic progress requires rare skills— necessary for "a specific command of capital[;] . . . specific in its unique character or else in its magnitude." These skills return a profit so long as they have not become "common property." Entrepreneurs also secure a preferred market position of a specific character for their enterprise. In their superior leadership they were originally "pioneers of unusual ability and training, combining technical knowledge and capacity with market experience and organizing power" (1914, pp. 356, 357). Such power coupled with the "talent of economic leadership" often gets its return from capital gains on property; from audacious innovations; from promotion of joint stock companies and from various forms of "creative speculation" and arbitrage activity

[30]For an account of Menger's departure from equilibrium economics in the strict sense, see Streissler (1972), Mirowski (1984, pp. 370-72) and Vaughn (1989).

which assist in the process of price *formation* (rather than full determination in a mathematical sense) in a progressing economy (1914, pp. 357-66).

In the case of diverse types of *fixed* capital where "instead of one single future return there are several returns," Wieser maintains that in the ideal stationary economy case these returns are determined by discounting using the uniform natural rate of interest determined in respect of circulating capital. However, Wieser leaves room for expectations and uncertainty. The complications introduced by "uncertainty [as to] . . . whether the returns expected will actually be received at all" made calculation of the value of fixed capital subject to some uniform interest rate, more difficult in the progressing economy. Insurance is mentioned as one way out of the dilemma, although Wieser does not indicate that such a device could be effective in all cases where uncertainty appears (1889, p. 152). In addition, vast aggregations of indivisible items of fixed capital ("mammoth capital") in a dynamic, advanced capitalist economy tend to thwart competitive pressures making for a natural, equilibrium rate of interest on the use of such capital (Wieser 1914, pp. 209-10).

The process of new capital formation in a progressing economy where there is widespread monetary calculation and exchange is represented in Wieser's work as a complex time consuming exercise "distributed over a large number of individuals" (1914, pp. 298, 299-303). It involves distinct capitalistic and entrepreneurial activities. In the first place, a supply of new savings has to be forthcoming although the *economic* mechanism to encourage savings such as an interest rate incentive, is not given much emphasis.[31] Second, "money capitalists" advance money capital to consumers and to "speculating" capital-employing entrepreneurs. The latter, in advanced forms of capitalistic economic organization, may also assume the role of money capitalists. Entrepreneurs cannot usually employ productive capital until capital goods are purchased from capital-producing entrepreneurs, who in turn may also require money credit from money capitalists in order to make their enterprises into going concerns. In short, money and credit facilitate the accumulation of productive capital in Wieser's sense. Money and credit could also potentially prove an obstacle to capital accumulation depending on the conditions—including power relationships and state regulations—of trad-

[31]Ethical reasons for saving are instead brought to account, *viz.*, the "spirit of self denial" and "deprivation" (1914, p. 300). An interest rate factor is mentioned *en passant* much later (1914, p. 350).

ing on financial markets.[32] There are rudiments here of a monetary theory of the rate of interest (or profit) on productive capital; it is merely a glimpse made apparent by Wieser's terminology. Finally, only when capital-employing entrepreneurs actually realize a (previously prospective) net gain from the use of productive capital can capital formation be said to have taken place (Wieser 1914, p. 299).

The long-run movement of *the* interest rate on capital in the progressing economy is not well charted in Wieser's analysis. Indubitably, he follows English and German classical economists in believing that the rate of interest displays a clear, downward secular trend.[33] In *Natural Value* he argues that the interest rate "rises from the beginning" and goes on "growing so long as the economic world thrives" (1889, p. 151). This is apparently contradicted in *Social Economics* where it is insisted that "[d]uring *the entire course* of economic development the trend of the rate of productive interest is downward" (emphasis added). Despite all technical progress, continues Wieser, "the increase of capital reduces its marginal yield" (1914, p. 348).[34] Wieser's meaning is hardly straightforward; the meaning lies between as much as within the lines. Successive increases of capital of the *same* quality would, it appears, lead to diminishing returns. Is this Wieser's likely meaning, otherwise technical progress could carry on indefinitely to keep up the trend of interest rates or at least keep the interest rate from falling? Textual interpretation is not assisted by another passing statement Wieser (1914, p. 357) makes implying that there is an intrinsic limit on investment opportunities in a progressing economy—a limit approached as productive capital becomes more abundant. Nowhere, incidentally, does Wieser suggest when remarking on the likelihood of a falling rate of interest in a progressing economy, that the interest rate would eventually fall to zero, and the possibility that a zero rate may be approached asymptotically is not broached (1889, p. 151; 1914, p. 348). At least partial reconciliation of Wieser's scattered statements on this matter rest on drawing a distinction (which he often does) between isolated "specific

[32]Wieser's position is remarkably close to Menger's on this matter. Both appreciate the function of money as a mediator and potential obstacle to the trade in capital goods. See Menger (1936, p. 59). It is disappointing as Roll (1936, p. 456) correctly reports, that Menger's "description of the role of money in the capital market is . . . not as suggestive of further analysis as other parts" of Menger's work on money.

[33]Cf. Schumpeter (1934), originally published in 1911, which is not mentioned in Wieser's (1914) references (e.g., 1914, p. 30) where it might have been expected. Schumpeter, by the way, labels the classical line of the secular trend of interest as a "dogma" (1934, p. 210).

[34]Cf. also Wieser (1914, p. 350): "the rate of interest is lowered owing to the continuous increase of capital."

capital" investments incorporating particular inventions on the one hand, and "universally effective invention" or the most generally adopted technique on the other (1889, p. 150). The former are not sufficient to keep up the general interest rate, although individual entrepreneurs who first adopt a new technique would, for a while, reap the higher net profit return on specific capital investments. Wieser's distinction is probably due to his reading of Marx, to whom Wieser pays tribute in the *Ursprung* (1884). Streissler (1987, p. 921) notices that some of Wieser's "terminology" owes something to Marx; here we are suggesting that Wieser's general outlook on long run economic development presupposes a law of the falling rate of interest or profit which had classical and of course, Marxian connotations. Of these connotations Wieser was doubtless aware. He does not exaggerate the differences between his economic-theoretic innovations and those of his classical predecessors.[35] Wieser (1889, pp. 200ff) definitely aims to refute the labor theory of value and Marxian exploitation theory, although the refutation was nowhere near as successful and uncompromising as Böhm-Bawerk's well-known critique. And, of course, Wieser is a critic of Ricardian theory although it should be remembered that he uses *classical* differential theory to 'explain' returns to factors other than land in his analyses of "specific imputation" problems where factors had no alternative uses.

Wieser's Hybrid Capital and Interest Theory in Retrospect

On the occasion of the third edition of *History and Critique of Interest Theories*, Böhm-Bawerk (1914, pp. 411ff) pays obeisance to the "marked individuality" of Wieser's capital and interest theory although he is not prepared to accept its validity. Wieser (1914) appears to have remained impervious to Böhm-Bawerk's earlier criticisms, thus inciting Böhm-Bawerk (1914, p. 484 40n) to provide another critique. We have already mentioned Wieser's penchant to assume, implicitly, what he proposes to prove in attempting to *separate* a net return of capital from the net return attributable to other factors. Böhm-Bawerk (1914, p. 415) expresses this problem with Wieser's "proof" as follows:

> It is true that a *net return of production* . . . is concededly present when the total gross return yielded by all three collaborating factors exceeds the value of the capital consumed. But a *net return of capital*

[35]As Wieser (1889, p. xxxiv) admits in respect of the German classical school: "in great part, the German school long ago formulated the conceptions, leaving for us only the task of filling them out. . . ."

> is not present until the individual *aliquot share* which is attributed to capital out of the gross return exceeds the capital consumed. And the existence of the first condition, by very reason of the radical difference in the presuppositions, leaves absolutely no ground for inferring the existence of the second.

Böhm-Bawerk grants that Wieser's "general imputation" theory ascertains the portions contributed by the various factors to *gross* product. A theory of interest on capital must, by contrast, show the portion of *net* product contributed by the factor "capital." Wieser always maintains, by assumption, that capital in the stationary economy would not be employed if it did not produce net physical and value productivity. Such an assumption rests, in the final analysis, on introspective knowledge—on adequate *understanding* of producers' concrete *plans* which always include an "interest" category. Böhm-Bawerk (1914, p. 415) notices that Wieser may wish to fall back on this ground, *viz.*, the supposition that the economist "knows as a fact within our experience that the portion of the gross return attributable to capital exceeds the amount of capital consumed." On the demand side Wieser had already given much weight to the economist's casual, introspective knowledge in constructing and evaluating the theory of consumers' wants and diminishing marginal utility. However, in this connection, Böhm-Bawerk (1912, p. 430 81n) warns that Wieser appears "to go somewhat too far" in relying on the methods used by "psychological laymen." These methods, according to Böhm-Bawerk, Wieser uses as explanatory devices when the powers of pure psychology (*Wissenschaftliche*) and of pure economic theory provide a sounder basis for a proper scientific treatment. Böhm-Bawerk (1912, p. 195) had originally judged that Wieser meant only that the "training of universal experience" offered "relatively superficial facts" which economists needed to explain with *other* methods. Now he was no longer so sure of that judgment.

If Wieser's capital and interest theory cannot firmly be located in the Böhm-Bawerkian, 'Austrian' tradition then what were its doctrinal origins? An heirloom from von Thünen—a simple productivity theory of capital—is Wieser's explicit point of departure. Wieser's imputation theory, from which his theory of capital and interest is further developed, is motivated by lacunae in Menger's approach to imputation based on the "loss principle." Wieser values capital inputs assuming fixed coefficients while simultanesouly capturing important aspects of interdependence between production processes and aspects of factor complementarity. Böhm-Bawerk, on the other hand, avoids explicit analysis of interdependence between production processes, instead reducing capital inputs to dated labor quantities. In

the theory of the *stationary economy*, Wieser (a) does not give coordinate rank and mutual influence as between technical productivity and time preference; (b) he conceives of the interest problem as connected only with produced means of production as did German classical economists; and (c) he systematically formulates by way of imputation theory, the specific productivity or productive contribution of each factor input—the productivity of capital, in particular, serving to 'explain' both the amount yielded by a group of capital goods and the rate of yield calculated on the valuation of the principal or capital substance. In respect of (a) he is at one with Menger but inconsistent with Böhm-Bawerk. Wieser's orientation in both (b) and (c) earned the fervid denunciation of F. A. Fetter (1914), the Austro-American theorist and contemporary of Wieser who developed interest theory along pure time preference lines. As for (c), Wieser has many points in common with J.B. Clark (Fetter 1927, p. 272). Lastly, in considering the mixed origins and allegiances of Wieser's capital and interest theory, our study would not be complete without investigating F.H. Knight's (1950, p. 31) tribute to Wieser's theory as being far "sounder" than other Austrian theories on the subject. First, for Knight, time preference plays no role in the determination of the rate of interest—a rate which in his view always remains positive since, conceptually, a zero limit could not be reached. Second, Knight argues that the ability of capital to yield services—its productivity—becomes the basis for interest, the rate of which is defined as the "anticipated productivity ratio" (Knight 1916, p. 298). Third, Knight (1934) also conceives of production as involving a collection of highly specific, complementary capital goods. These three facets of Knight's capital and interest theory have much in common with Wieser's, so it comes as no surprise that Knight liked Wieser's theory.

It remains for us to draw attention to the place of Wieser's capital and interest theory and certain other related components of his economic thought, in the early Austrian tradition. Noteworthy is Hennings's (1986, p. 232) authoritative survey which makes out a case, first, for distinguishing Wieser and Böhm-Bawerk on the reasoning that Wieser places "less emphasis" on the temporal nature of production than Böhm-Bawerk.[36] Following our account of Wieser's theory, this interpretation deserves qualification. Hennings's claim is valid in relation to the stationary economy model; Wieser's concept of stationariness implicitly excludes consideration of the effects of

[36]Streissler and Weber (1973, p. 229) concur with Hennings insofar as they maintain that Wieser would not have liked Menger's view of production as a time consuming, multi-stage process.

temporal integration of production processes in the Böhm-Bawerkian sense. In Wieser's stationary economy the Law of the Equalization of Price prevails and the separation of monetary from real variables is complete. However, close textual study reveals Wieser's impatience with attempts at explaining and refining the logic of the stationary case. He is led perforce to consider at length production in a progressing economy where temporal issues, indeed real historical changes, are pervasive.

Hennings's (1986, p. 237) second conclusion is that "Menger, Böhm-Bawerk and to a lesser extent Wieser, were much more concerned with disequilibrium processes" than early equilibrium economists who dealt with production theory. Again, this is not an accurate portrayal of Wieser's concerns relative to Menger's and Böhm-Bawerk's, especially if his *Social Economics* is given the studious attention it deserves. It should be remembered that *Social Economics* was Wieser's "last and ripest message on pure theory" (Schumpeter 1951, p. 300). Our explanation, which includes consideration of *Social Economics*, demonstrates Wieser's concern for everchanging production plans and uncovers his suggestive hints relating to the strategic influence of monetary factors on these plans in the progressing economy. We have seen how Wieser's capital and interest theory is a special hybrid, composed in other words, of mixed doctrinal elements, although on many fundamental points his work remains closer to Menger's than Böhm-Bawerk's. Wieser's avowed intention not to overgeneralize the interest concept suggests, like Menger, uneasiness with the notion of interest as a broad macroeconomic category. Very much like Menger, Wieser justifies a return to capital from its function as a unique cooperating element in production. While process analysis in the *Ursprung* and in *Natural Value* is diffuse and subdued, Wieser nevertheless makes some portentous digressions on such matters as the diversity of factor combinations; the tendency of factor combinations to change and on the general discontinuous nature of production functions. Furthermore, Wieser is not generally inclined to reason in terms of continuous, determinate schedules of demand and supply. In *Social Economics* Wieser's more generous allowance for disequilibrium processes *à la* Menger is exemplary.

It would be misleading to draw the comparisons between Wieser and Menger too favorably such that the former might be placed squarely in the Menger tradition. Nonetheless, the existing historical record has neglected points of theoretical convergence between these two leading 'first generation' Austrians. After all, Menger was not moved to make the charge of a 'great error' in regard to Wieser's construction of a capital and interest theory, as he was to do in

Böhm-Bawerk's case (Schumpeter 1954, p. 847n). Wieser not only remained loyal to Menger's subjective theory of value; he heeded Menger's fragmentary adumbrations for developing a coherent theory of capital and interest. Wieser subsequently produced a hybrid theory which revealed certain distinguishing characteristics inherited from Menger. These characteristics were particularly discernible, although not exclusively so, in the variant of Wieser's theory which applied to a progressing economy. Wieser's break from the Menger tradition was therefore neither as fundamental nor as decisive as Böhm-Bawerk's.

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