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The abstinence theory of Nassau Senior and its critique by Eugen Von Bohm Bawerk

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The abstinence theory of Nassau Senior
and its critique by Eugen Von Bohm Bawerk

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by

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Graduate Faculty in Partial Fulfillment of
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Signatures have been redacted for privacy

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CHAPTER I. INTRODUCTION

Introductory Remarks

This thesis concerns the historical development of interest theories prior to the twentieth century. Specifically, it deals with the interest theory of two writers: Nassau Senior, and Eugen Von Bohm Bawerk.

Although the writings of these two economists are separated by almost fifty years, they both attempted to grapple with the same problem, that of interest. That is, they investigate why interest is paid, and what determines its level.

In dealing with the problem of interest, Bohm Bawerk first provides a critique of interest theories of writers prior to him, then devises his own theory. In doing so, he criticizes Senior's "abstinence theory" of interest. The main subject dealt with in this thesis is this criticism.

There is no doubt in my mind that Bohm Bawerk was a remarkable historian of economic thought as well as economic theorist. But my goal in this thesis is to look at Bohm Bawerk's criticism of Senior, and evaluate it.

Many historians of economic thought often mention Bohm Bawerk's criticism of Senior when dealing with their theories, often writing only a sentence or a paragraph on the subject, or putting it in a footnote. I intend to provide a comprehensive study of Senior and Bohm Bawerk, focusing on their interest theories. After doing this, I will discuss Bohm Bawerk's criticism of Senior, and evaluate it.

Since this is a study in the history of economic thought, much of what I say

can be found in journal articles or textbooks. However, I hope to provide a concise comparison of these writers, focusing on Bohm Bawerk's criticism of Senior, which cannot readily be found in texts on the subject.

Outline of the Work

This work is divided into four main chapters, and a concluding chapter. The second chapter is a review of the various types of interest theories, other than the abstinence theory of interest. The third chapter deals with the abstinence theory, and in particular, the theory of Senior. The fourth chapter concerns the interest theory of Bohm Bawerk. The foundation for comparison complete, the fifth chapter presents a brief comparison of the writers, and explains Bohm Bawerk's criticism of Senior. In addition, the evaluation of Bohm Bawerk's criticism is given here. The last chapter contains a synopsis of the whole work.

CHAPTER II. A REVIEW OF INTEREST THEORIES

Introduction

To review all of the various theories regarding interest would be beyond the scope of this work. However, it is important to understand that there are many different theories of why interest exists. This chapter is intended to be a brief survey of interest theories from the physiocrats up to the writing of Eugen Von Bohm Bawerk.

Prior to discussing these interest theories, it should be pointed out that in the writing of classical political economy, the terms profit and interest are often used interchangeably. I also use the terms interest and profit to indicate the return accrued from the use of capital in production. I use the term loan interest in order to denote the return from a money loan. My word choice throughout is dictated by the author being discussed. If I intend to use the terms interest or profit in ways inconsistent with a particular author, it shall be pointed out.

Interest Theory Prior to the Physiocrats¹

Prior to the sixteenth century, interest theory was practically nonexistent. During the ancient times of Plato and Aristotle, loan interest was considered unjust because money was thought to serve exclusively as a medium of exchange. They believed that money could not breed money. The Christian Church of the middle ages prohibited loan interest for three main reasons. Canonist doctrine asserted that loans were made to the poor by the rich and thus represented exploitation of the poor. In addition, interest represented the price of the "use" of money, and the price of "time",

both of which could not be sold. Thirdly, the canonists also believed that money could not breed money. These canonist objections, interestingly enough, only applied to money loans, not the loan of capital goods.

Due to the writings of Calvin, Salmasius, Locke and numerous others, the taking of interest eventually became justified during the sixteenth century. The reasons for this are twofold. First, it was thought that money could in fact breed money if it were put to productive use. Secondly, it was thought that the use associated with money was a separate entity from the money itself, and could be sold for a price. However, these writers did not devise a definite theory of interest, they only justified the payment of it. The first theory of interest originated from the physiocrats.

Interest Theory of the Physiocrats

By most accounts, Turgot was the first and only physiocrat to justify interest on all capital and develop an interest theory.² Physiocratic doctrine held that the source of all wealth was the agricultural powers of the land. The result is that most physiocrats believed interest could only be charged on capital used for agricultural purposes. Turgot opposed this and justified interest on all capital. Turgot's argument proposed that any owner of a capital sum could either purchase land from which he would receive a rent, or he could invest it in commercial enterprises in order to receive interest.³ If interest on ordinary commercial enterprises were prohibited, this would induce capital owners to invest only in agricultural enterprises, or purchase land. If land was able to give rent, then capital should be able to give interest. Loan

interest can be seen as the rent of money for a certain period of time.

Amazingly, Turgot seems to have explained a great many of the ideas which classical writers later adhered to when developing theories on interest rate determination. Turgot said that loan interest is not determined by the expected rate of profit on capital. The rate of loan interest is determined by bargaining between the lender and the borrower. The borrower is concerned with the amount of profit that he can make, while the lender is concerned with the risk of the loan.⁴ Turgot can be seen as the writer who paved the way for the classical writers after him.

Adam Smith and David Ricardo on Interest

Before discussing the various interest theories, along with some of the writers who supported those theories, it is important to know that two of the founders of classical political economy, Adam Smith and David Ricardo, had weak interest theories. These two writers did mention interest in their works, but their thoughts on the subject are often scattered and contradictory. Even though these writers express ideas which could conceivably classify them under some of the theories to be discussed, the ideas are arranged in such a chaotic manner that many historians of economic thought do not consider the ideas to be a coherent theory.

Adam Smith, according to Schumpeter, Taylor, and others,⁵ did not hold a definite theory of interest. Although Smith discusses profit, his discussion of loan interest is all but nonexistent.

In book one, chapter eight, of The Wealth of Nations, Smith explains that in the rude state of society prior to the appropriation of land and the accumulation of

stock, the laborer gets all of his produce.⁶ Once land is appropriated, and capital is accumulated, part of the laborers produce is striped from him by the landowner and capitalist. This suggests a hint of the exploitation theory of interest, which is discussed later.

In book two, chapter three of The Wealth of Nations, Smith says that "parsimony, and not industry is the immediate cause of the increase in capital."⁷ Profit can be seen as a payment to the capitalist for his frugality, suggesting an abstinence theory of interest.

These are some of the ways that Smith has been interpreted with regard to the origin of interest. Because the abstinence theory rests on the assumption that value is determined by the cost of production, where the factor prices are determined by supply and demand, and the exploitation theory is consistent only with the labor theory of value, one must first decide how to interpret Smith's theory of value, before assigning a theory of interest to him.

Smith, like other classical writers, believes that profits are composed of the capitalist wages, a risk premium, and loan interest. The result is that the market rate of loan interest and profit must be positively correlated. Profit is determined by the competition of capitalists and is positively related to risk. In the progression of society, capital is increased, which results in lower profits. If the wage fund increases at a faster rate than the population, wages go up, resulting in lower profits. Thus profits and wages vary inversely.⁸

Smith has not left us with much regarding interest. He mentions many ideas

which are expanded on by later writers, but he adheres to none of them throughout the work.

Like Smith, David Ricardo has been subjected to many interpretations with regard to interest. One interpretation is that since Ricardo held a labor theory of value, capital can be seen as stored labor, and interest represents a payment to this stored labor. A second interpretation is that Ricardo, like Smith, hinted at an abstinence theory. As Whitaker points out, Ricardo understood that goods which are produced with the same amount of labor, but brought to market at a separate time, may have differing exchange values.⁹

I think that although Ricardo had no theory of loan interest, he did have a theory pertaining to the rate of profit. With respect to loan interest he says that the market rate of interest is subject to various fluctuations, but is "ultimately and permanently governed by the rate of profit"¹⁰, but does not really explain the workings of the money market.¹¹ His theory of profit can be described as what Schumpeter calls a "residual theory".¹² In Ricardo's system profits are affected by wages. Ricardo believes that the value of a good was determined by the amount of labor time used in its production. In addition he believes in a differential rent theory. Wages are determined by the wage fund, and hover at subsistence level. Profits are the residual that remain after both wages and rent have been paid out. In the progression of society, production is carried out on progressively worse land, resulting in higher labor intensities, and higher rent. The consequence is that profits must fall.

Ricardo's theory of interest can be considered weak because he only discusses

profit, and not loan interest. In addition, he fails to account for why profits even exist.

Discussion of Interest Theories

Introduction

Most classical writers are similar in that they generally consider the rate of loan interest a function of the supply of and demand for loanable funds. In addition they believe that as society progresses, the trend is for the rate of profit to fall.

Prior to writing The Positive Theory of Capital, Bohm Bawerk completed Capital and Interest, a comprehensive survey of interest theories, and critiques of these theories. He categorizes writers into groups based on how they account for the reason interest is paid, or in other words, its origin.

I wish to discuss these different classifications of interest theories, along with some of the writers who fit into each category. Using Bohm Bawerk's classification system as a base, I wish to discuss five different types of interest theories. These include the productivity theories, use theories, remuneration theories, exploitation theories and what I term the marginal theories.¹³

The Productivity Theories

Productivity theorists believe that profit is the return paid to capital because when capital is used, a surplus is created. In other words, more can be produced when capital is utilized as a factor of production, and thus should be rewarded. The profit goes to the owner of the capital. Bohm Bawerk classifies the productivity theories into two types; the naive productivity theories and the motivated productivity theories. The naive theorists claim that the use of capital results in an increase in value.¹⁴ The

motivated theorists claim that the use of capital increases the physical amount of goods produced and thus results in an increase in value.¹⁵ With both variations of the productivity theory, the rate of profit falls over time because new technology increases capital faster than the rate of population increase.

To illustrate the productivity theory, its originator¹⁶, Jean Baptise Say should be discussed.

Say basically uses Smith's Wealth of Nations as a model for his own Treatise on Political Economy or the Production, Distribution and Consumption of Wealth.

However, Say's theory of interest is more coherent than that of Smith.

Like other classical writers, Say indicates that the rate of loan interest is determined by the relative demand and supply of capital to be lent, and it fluctuates as a result of different risk premiums. Loan interest exists because a money loan can be converted into productive capital to be used in a business to make profit.¹⁷ Thus Say has not only commented on interest rate determination, but he has also given a reason for why loan interest exists.

As far as profit is concerned, its rate is determined by the level of competition within various industries. Say acknowledges that capital may be considered as accumulated labor, but asserts this is not the reason behind why capital earns profit. The reason for this is that "the profit of capital, like that of land and the other natural sources, is the equivalent given for a productive service."¹⁸ Say is considered a naive theorist because he does not clarify whether capital is capable of increasing physical product, or merely capable of increasing value.

The strength of Say's theory is that he has a consistent theory of value. Unlike Smith, who strays between various value theories, Say repudiates the labor theory of value, replacing it with a theory which depends on the demand for and supply of a good, along with the cost of production.

Due to the fact that the motivated productivity theory is similar to the naive theories, it seems redundant to discuss specific writers who advocated such a theory.¹⁹

From the productivity theory, three other theories of interest were developed. These are the remuneration theory, the abstinence theory, and the next topic of discussion, the use theory.

The Use Theory

As the name suggests, the use theorists claim that loan interest is paid because money has use value, and the use value should be paid for. In other words, if a person borrows money he can use it to either purchase capital equipment which yields a profit when used in production or he can use the money for personal consumption. The use theorists argue that payment of interest is required whether the borrower uses the money in a productive manner or not.

Say, Herman, Menger, and Knies are often mentioned as the main proponents of the use theory.²⁰ I have placed Menger in a group which I call the marginal theorists, even though he does resemble the use theorists. Since I have already discussed Say's theory, I shall concentrate on the theory of Herman.

Herman is said to have taken elements of both Say and Storch and elaborated

on them.²¹ Herman sees interest as not only a payment for the productive services of capital, but also for the use of the capital itself.

Herman's determination of the interest rate mainly depends on the relationship between capital and labor.²² Total product is made up of labor and the use of capital, and the value of the product must cover these costs. In Herman's system, interest represents the exchange value of capital uses for labor. If for any reason there is an increase in capital, or its productiveness, the rate of profits will fall and wages will rise. If for any reason the number of laborers or their productivity increases, we will observe the opposite result, a fall in wages and increase in the rate of profit.

Herman's conclusions coincide with those reached by the productivity theorists with respect to why profits fall over time. For both Herman and the productivity theorists, profits fall as a result of technological improvements and an increase in capital. It is easy to see from Herman's theory that the use theory still retains ties to the productivity theory.

The Remuneration Theory

The second offshoot of the productivity theory is the remuneration theory. The basic premise of this theory is that capital represents stored labor, and interest is a payment for that labor to the capitalist who owns the capital and perhaps has performed some labor. This theory originated in England, and two of its adherents are McCulloch and James Mill.²³ The theories of these men are not very different from these other writers, however. For example, Mill adheres to the wage fund doctrine and differential rent theory, and like Ricardo, profits are a residual that fluctuate

inversely with wages. Like Say, Mill believes that exchange value is determined by supply and demand, and is regulated by the cost of production. The only different aspect of his interest theory is its origin.

The Exploitation Theory

The exploitation theory of interest accounts for interest as the result of a struggle between laborers and capitalists. The capitalists, who own the means of production, take from the laborers a portion of their produce, although they expend no energy in the production process. The laborer accepts this and works for the capitalist because he has no other choice-- either he works for the capitalist, or goes hungry.

Although there were many socialist writers who suggested an exploitation theory of interest, Sismondi, Proudhon and Rodbertus, to name a few²⁴, I would like to discuss the theory of Karl Marx.

Marx has been subjected to a number of different interpretations, even by Marxists. I present what I feel is the most widely accepted explanation of Marx's interest theory.²⁵

Profit in the Marxian system is a simple concept. What Marx calls "surplus value" is the excess of receipts over costs. Capital is split into two groups, "constant capital" and "variable capital", which represents the wage bill. The rate of profit is equal to the ratio of surplus value to total capital. Costs are equal to the sum of constant and variable capital along with an allowance for surplus value which is based on variable capital. Likewise, the price of a good is the sum of constant and variable capital plus an allowance for profit. If price is greater than cost, then profit is

positive. Thus surplus value is in essence a markup on labor costs.

The rate of profit is determined by what Marx called the "organic composition of capital." This is simply the ratio of machine costs to labor costs. If the ratio of surplus value to variable cost, or what Marx called, the "rate of exploitation", is held constant, then the rate of profit is determined by the ratio of machine costs to labor costs.

The result of this theory is that in the long run, as with the classical economists, the rate of profit must fall. There are two main ways in which capitalists can increase their profits. They may increase the workday of their laborers up to a point, and they can accumulate capital. Each firm has incentives to introduce new technology into the production process and accumulate capital. This will result in greater production than rival firms in the short run. In the long run, this incentive causes the organic composition of capital to increase, and by definition, the rate of profit must then fall if the rate of exploitation is held constant.

It may not be clear why this is considered to be an exploitation theory. There are two main reasons for this. First, the capitalist is not producing anything, yet he makes a profit. Secondly, the capitalist and laborer are diametrically opposed. Due largely to the reserve army of the unemployed, the capitalist is able to extend the working day of the laborer in order to increase production and profits.

Volume one of Capital includes Marx's thoughts on profit and value, while loan interest is covered in volume three.

Marx believes that surplus value is naturally split into two parts, the return to

the industrial capitalist (the profit), and the return to the money capitalist (loan interest).²⁶ Any increase in loan interest must diminish the rate of profit, and vice versa, *ceteris paribus*. In this sense the rate of profit sets a maximum for the rate of loan interest.²⁷ Given this scenario, the money capitalist and the industrial capitalist are in a struggle for the surplus value.

The market rate of loan interest is a monetary phenomenon, set by the supply of, and demand for money.²⁸ In addition, the rate fluctuates depending on the security and duration of the loan. Marx did not believe in a long run equilibrium interest rate. He did concede that there was a tendency for the interest rate to follow the rate of profit. This is because money is borrowed with a view to making profit with it. Given the Marxist scheme, profit falls not only because the organic composition of capital rises, but also because the banking system becomes more complex, and the bankers gain control of the money capital within the system.²⁹

It is interesting to note that unlike most classical economists, Marx sees loan interest as a monetary phenomenon. In addition, classical writers see profits varying inversely with wages, whereas Marx sees them varying inversely with loan interest in the short run.

The Marginal Theorists

This is a group of theorists that is untouched by Bohm Bawerk. I believe that Bohm Bawerk fails to recognize a group of marginal theorists, because he believes that he is the first writer to develop a coherent interest theory based on marginal calculations. Instead Bohm Bawerk places those writers who advocate the use of the

marginal concept in decision making in other groups. For example, he places Menger in the group of use theorists³⁰, while placing Jevons in a group that he calls the "Eclectic."³¹ I have placed Jevons and Menger in a separate group because they base the existence and determination of interest on the marginal utility of capital. In an attempt to validate my classification, I wish to discuss the theories of both of these writers.

In Menger's system, the value of all goods depends on their ability to satisfy a human want. Goods are split into two categories; goods of higher order, and goods of lower order. Goods of higher order are used to produce goods of lower order. The value of the higher order goods depends on the value of the lower order goods which they create.³² As a result the value of capital, or the interest paid for it, arises due to its ability to satisfy human wants through the production of lower order goods. In Menger's system, exchange occurs if the marginal utility of the good that is given up is less than that of the good received in the exchange. This concept, when applied to capital, means that the value of the capital, or its interest, must represent its marginal utility.

Menger's theory of capital valuation may seem to be a breakthrough regarding interest, but it should be noted that he is really only concerned with the determination of value for different kinds of goods, and does not provide any substantial theory of loan interest.

Jevons has what I consider to be a stronger theory of profit than that of Menger, because it seems more complete. Jevons regards the rate of interest as the

rate of increase in total product as a percentage of the total product.³³ In other words, the interest rate is equal to the marginal productivity of capital. In addition, Jevons states clearly his belief in the role of abstinence in the theory of interest.³⁴ The last point worth mentioning is that Jevons believes profit to be comprised of a risk premium, capitalist wages, and loan interest³⁵, whereas Menger makes no explicit mention of this, and probably assumes it.

I think that it is obvious that Jevons gave more thought to the problem of interest than Menger did. But do not think that either of these writers have very strong interest theories. This is probably due to the fact that they are the first writers to apply the idea of marginal utility in determining value. The result is that they fail to work out complete systems of production and distribution.

Conclusion

I believe that differing theories of interest are a response to the different distribution frameworks of the various authors discussed. Their theories of distribution and interest also depend on their theories of value. For example, Ricardo's theory of profits as a residual are dependent on his use of the wage fund doctrine, differential rent theory and labor theory of value. Likewise the interest theories of Jevons and Menger are a response to their use of marginal utility to determine value.

All classical interest theories are similar in that profit and interest are determined by market forces and must fall in the long run. The theories, even though they reach the same conclusions, are different in that they account for the origin of interest in different ways.

Endnotes

1. This whole discussion of interest is taken from Eugen Von Bohm Bawerk, *Capital and Interest*, trans. William Smart, Vol. 1, History and Critique of Interest Theories. (South Holland, Illinois: Libertarian Press, 1959), 10-15.
2. This can be found in Bohm Bawerk, *Capital and Interest*. vol. 1, 39-40. In addition, see Edmund Whitaker, *A History of Economic Ideas* (New York: Longmans, Green and Co., 1940), 524.
3. For a complete discussion, see Bohm Bawerk. *Capital and Interest*, Vol. 1, 39-45.
4. Groenwegen, P.D., ed., *The Economics of A.R.J. Turgot*. (The Hague, Netherlands: Martinus Nijhoff, 1977), 77-78.
5. For Joseph Schumpeter's account, see Schumpeter, Joseph A., *History of Economic Analysis*, Ed. Elizabeth Boody Schumpeter (New York: Oxford University Press, 1954), 646-648.
For Taylor's account, see Taylor, Overton H. *A History of Economic Thought* (New York: McGraw-Hill Book Company, Inc. 1960), 112-116.
6. Smith, Adam, *An Inquiry into the Nature and Causes of the Wealth of Nations*, (Modern Library College Edition, 1985) (cited hereafter as *Wealth of Nations*.)
7. Smith, *Wealth of Nations*, 143.
8. For Smith's discussion see, *Wealth of Nations*, 90-100.
9. For an exposition on both these interpretations see Whitaker, *A History of Economic Ideas*, 378, 611.
10. Ricardo, David, *On the Principles of Political Economy and Taxation*, 2nd ed. (London: John Murray, 1819), 371.
11. Panico, Carlo. *Interest and Profit in the Theories of Value* (London: Macmillan Press Ltd, 1988), 14, 17.
12. See Schumpeter, History of Economic Analysis, 651-653.
13. A discussion of each of these classifications except for the marginal theory, can be found in Bohm Bawerk, *Capital and Interest*, Vol. 1.
14. Bohm Bawerk, *Capital and Interest*, Vol 1, 78-79.
15. Bohm Bawerk, *Capital and Interest*, Vol. 1, 79.

16. Bohm Bawerk, *Capital and Interest*, Vol. 1, 80.
17. For Say's exposition of loan interest and profit see Say, Jean Baptise, *A Treatise on Political Economy; or the Production, Distribution, and Consumption of Wealth*, 4th ed., Trans. C.R. Prinsep, (Philadelphia: Grigg & Elliot, 1844), 343-357 (cited hereafter as *A Treatise on Political Economy*.)
18. Say, Jean Baptise, *A Treatise on Political Economy*, 356-357.
19. However in *History of Economic Analysis*, page 656, Schumpeter credits Lauderdale as the first productivity theorist, and Bohm Bawerk categorizes him as a productivity theorist in Vol. 1 of *Capital and Interest*.
20. Schumpeter, *History of Economic Analysis*, 924-926.
21. See Bowley, Marian, *Nassau Senior and Classical Economics*, (London: George Allen & Unwin Ltd, 1937), 152-153.
22. This account of Herman's theory is taken entirely from Bohm Bawerk's exposition in *Capital and Interest*, Vol. 1, 127-135
23. Schumpeter, *History of Economic Analysis*, 657.
24. Bohm Bawerk, *Capital and Interest*, Vol. 1, 242-246.
25. I suspect that most readers are familiar with the following explanation of Marx's theory. A complete guide to Marx, including the terminology that I have adopted is available in Mark Blaug's *Economic Theory in Retrospect*, 4th ed., (London: Cambridge University press, 1985) on pages 225-266.
26. Marx, Karl, *Capital, A Critique of Political Economy: Volume 3, The Process of Capitalist Production as a Whole*, ed. Fredrick Engels, trans. Ernest Untermann (Chicago: Charles Kerr & Company), 434-437.
27. Marx, *Capital*, Vol. 3, 421.
28. See Panico, *Interest and Profit in the Theories of Value and Distribution*, 61-75, and also Blaug, *Economic Theory in Retrospect*, 284-286.
29. See Blaug, *Economic theory in Retrospect*, 284-286 and Panico, *Interest and Profit in the Theories of Value and Distribution*, 56-74.
30. Bohm Bawerk, *Capital and Interest*, Vol. 1, 138-141.
31. Bohm Bawerk, *Capital and Interest*, Vol. 1, 326-329.

32. Menger's discussion of the valuation of higher order goods is found in Menger, Karl, *Principles of Economics*, James Dingwall and Bert F. Hoselitz, trans. and eds., (Glencoe, Illinois: The Free Press), 49-75.
33. See Jevons, William Stanley, *The Theory of Political Economy*, 5th ed., (1965, Reprint, New York: Augustus M. Kelley, 1965), 245-250.
34. Jevons, William Stanley, *The Theory of Political Economy*, 233-235.
35. Jevons, William Stanley, *The Theory of Political Economy*, 268-271.

CHAPTER III. THE ABSTINENCE THEORY

Introduction

Having explained the major types of interest theories, other than that of Nassau Senior, I will devote the current chapter to the abstinence theory of interest. I will first discuss those writers who, like Senior, believed in an abstinence theory, then discuss in detail Senior's theory. A comparison of Senior to other classical writers will conclude the chapter.

Abstinence Theory in Other Writers

The basic idea behind the abstinence theory of interest is that interest originates because the capitalist needs to be compensated for choosing to use his wealth in a time-consuming production process, as opposed to consuming it in the present.

Although Senior is given credit as the originator of the first complete abstinence theory¹, there were other writers who also touched upon it in their writing. Schumpeter points out that almost every writer since Smith mentions "abstinence" in one form or another.²

Various writers have been associated with proposing a concrete abstinence theory prior to Senior. Among them are Read, Bailey, Storch and Scrope.³ Of these writers, I think Storch and especially Scrope did have decent abstinence theories. I fail to find any explicit abstinence theory in Bailey. It is said that Scrope's theory is an improvement on Read's⁴, so I wish to outline briefly the theories of Storch and Scrope.

As Bowley explains, Storch takes the theory of his fellow Frenchman, J.B. Say, and extends it to an abstinence theory.⁵ He starts by considering the return to capital as a rent. He goes on to explain that this return is the reward for saving, or in other words, a reward for abstinence. Bowley explains that Storch, like Say, only accounts for the supply side of capital, and not the demand side. Bowley is correct that none of them had explicit demand side theories for capital, but Say did realize that capital was productive, which is the start of a demand theory.

Scrope has what I consider to be the closest theory to Senior.⁶ Scrope believes that profit is composed of interest, entrepreneurial wage, and a risk premium. Furthermore, he believes that competition results in a reduction of profit in the long run. Lastly, Scrope explicitly states that profit is "remuneration for abstinence."⁷ Interestingly enough, Scrope's theory of interest was published in 1831, several years before Senior's lectures on the subject.

Subsequent to Senior's exposition of the abstinence theory, other writers also adopted it. Among the more well known are Jevons, Bastiat and John Stuart Mill.

Although I have placed Jevons in a group termed the "marginalists", he understood the importance of abstinence and simply transforms this idea into what he calls "the endurance of want."⁸ Bastiat is another writer who adopted the abstinence theory. He states that interest is a payment for sacrifice on the part of the capital owner. Bohm Bawerk points out that even though Bastiat received much acclaim in his day, his theory of interest is a debasement of Senior's due to the fact that his

theory of value does not fit in with the abstinence theory.⁹

The last follower of the abstinence theory whom I wish to discuss is John Stuart Mill. In my opinion, Mill repeats many of Senior's ideas with respect to capital. Mill acknowledges that capital is used in production because it increases the productivity of the workers.¹⁰ He also says that if a person uses his capital as payment for productive laborers, he then shall claim part of their produce as remuneration, this profit being the "equivalent of his forbearance."¹¹ Without profit, there is no incentive for the capitalist to advance capital to the workers. This is just the abstinence theory stated in different terms. Mill, like Senior, adopts a cost of production theory of value, where the value of a good is determined by the cost of wages and profit incurred in producing it. In Mill's system, wages are determined by the wage fund (which he later recanted). Unlike Senior however, he believed that population pressures and capitalist competition would inevitably lead to a situation where the wages fell to subsistence level and profit falls to zero and capital accumulation ceased. So although Mill adopted many of Senior's ideas, his conclusions were quite different.

The Theory of Nassau Senior

Theory of Value

In order to understand Senior's theory of profit, it is important to first understand his theory of value, production and distribution, as well as his elementary propositions regarding the science of economics.

Value Senior begins Outline of the Science of Political Economy by defining the term "wealth" as all of those things which possess value (in exchange).¹² In order for any good to have value, it must meet three requirements; utility, scarcity, and transferableness.¹³ Utility is the ability of a good to prevent pain or produce pleasure, either directly or indirectly. The second requirement is what Senior calls "limitation in supply"¹⁴ or what I have termed scarcity. According to Senior a good in which the supply is limitless, may have use value, but it possesses no exchange value because anyone who wishes to have it can get it himself. For a good to have value there must exist some forces which limit its supply. Senior's third condition for value is transferableness. In Senior's attempt to persuade the reader that economics is a science, he has resorted to classifying all types of phenomena ad nauseam. This is one such case. He points out that in order for a good to have exchange value, one must be able to exchange it. To most readers, this must seem apparent. You cannot exchange something which is not transferable. In concluding his section on wealth, Senior points out that scarcity is the most important condition of the three, as it influences people's love for distinction and variety.¹⁵

Knowing that wealth is all those things which possess value, we must now ask what determines value. In senior's system, value is a reciprocal relationship between two goods which denotes the quantity of a good which is given in receipt for another. Value is determined by the demand for a good and its supply relative to the good that it is being exchanged for.¹⁶ Thus if apples are being exchanged for oranges, we need

to know the supply of and demand for both of these goods. Anything which influences the supply of or demand for apples (the good whose value we are trying to determine) is termed by Senior an intrinsic cause of value.¹⁷ Anything which alters the supply of oranges, or their demand, is termed an extrinsic cause of value¹⁸. The main thing to remember from Senior's whole discussion is that the value of a good, and thus its price in money, is determined by the supply of and demand for a good.

Senior's Four Elementary Propositions.

The next portion of Senior's system to be discussed are his four postulates concerning the science of economics. The following four postulates influence almost all of his ideas relating to production and distribution. I only wish here to list them, explaining their significance as they become relevant later on. They are as follows:¹⁹

1. That every man desires to obtain additional wealth with as little sacrifice as possible
2. That the population of the world, or in other words, the number of people inhabiting it, is limited only by moral or physical evil or fear of deficiency of those articles which the habits of the individuals of each class of its inhabitants lead them to require.
3. That the powers of labor and the other instruments which produce wealth may indefinitely be increased by using their products as the means of further production.
4. That, agricultural skill remaining the same, additional labor employed on the land within a given district produces in general a less proportionate return, or in other words that though every increase in of the labor bestowed, the aggregate return is increased, the increase of the return is not in proportion to the increase of the labor.

These four propositions are for the most part, self-explanatory, and need not be explained here. I wish now to discuss Senior's theory of production, paying special attention to the role of abstinence and the use of capital.

Production

In starting his discussion of production, Senior assumes the reader is ignorant, and defines production as the creation of wealth.²⁰ In the creation of wealth, three instruments are used. The first is labor, any exertion of bodily or mental faculties for the purpose of production.²¹ The second is natural agents. These are any factor of production which do not derive their productive powers from man.²² The third agent of production is abstinence. This is, as Senior puts it, "the conduct of a person who either abstains from the unproductive use of what he can command or prefers the production of remote to that of immediate results."²³ It should be noted that Senior has abandoned the terminology of those before him with regard to the factors of production. What other writers call *land*, he calls *natural agents*. He does this because *natural agents* is a more encompassing term. Likewise, instead of including capital as a factor of production, he renames it *abstinence*. He notes that:

By the word abstinence, we wish to express that agent, distinct from labor and the agency of nature, the concurrence of which is necessary to the existence of capital and which stands in the same relation to profit as labor does to wages.²⁴

He does not include capital as a factor of production and renames the third

factor of production as abstinence for many reasons. First, he understands the difficulty in defining precisely the term capital. Secondly, capital is an article of wealth which comes about from the exertion of labor, thus it is not really an original factor of production. The third reason he uses the term abstinence is because it implies more than just the mere labor of saving. There is a sense of self-denial as capital is used for distant results²⁵. Lastly, by terming abstinence as a factor of production, he is able to justify the payment of profit to the deserving factor.

In Senior's system, abstinence, which achieves the creation of capital, results in the more efficient use of labor and natural agents. Likewise, capital needs the other factors of production to be productive, it is not productive in and of itself. Abstinence is productive when combined with labor and natural agents for two main reasons.

The first reason is that abstinence results in what Senior calls "the use of implements."²⁶ Abstinence, in other words, results in the use of tools which allow for labor to physically produce more goods. In an interesting aside, Senior points out, in error I believe, that a savage in the rude state of society who builds a bow and arrow to aid in hunting practices no abstinence because the time spent in building these implements could not be used in obtaining immediate enjoyment anyway.²⁷ Of course if it took one day to build the bow and arrow, the savage must have saved up one days worth of food, so he could eat during the day that he spent building the bow and arrow.

Secondly, abstinence, or the use of capital, results in the division of labor.²⁸

The result is that laborers are more productive. Senior says that in the rude state of society, men produce all goods for themselves. But once abstinence takes place, implements are created, and it is these implements which give rise to the division of labor.

This discussion of abstinence and capital has a strong relationship to Senior's third and fourth elementary propositions mentioned above. The third proposition basically states that products which are the result of the factors of production can be used to increase production indefinitely. The fourth proposition outlines the Malthusian idea that there are diminishing returns in agriculture. In addition, Senior adds in explaining the fourth proposition that "Additional labor when employed in manufactures is more, when employed in agriculture is less, efficient in proportion."²⁹ Both of these propositions suggest that there are increasing returns in manufacturing. This all seems to indicate that Senior not only supported an abstinence theory of profit, but also supported a productivity theory, which was discussed in the preceding chapter.

The next question to answer is how production relates to price. Senior believes that the cost of production is the sum of the cost of labor to the cost of abstinence.³⁰ If the price of a good, determined by its supply and demand, is less than the cost of production, there is no incentive to produce the good. Thus supply is limited by the cost of production. In the case of perfect competition, there is a long run tendency for the cost of production to equal price.³¹ Senior points out that most goods are not

produced under this case of perfect competition, however. In this case the cost of production is usually less than the price, due to some degree of monopoly power.³² The excess of price over cost represents a rent which then goes to the monopolized element.³³ Having discussed production, and how its cost relates to price, the next step is to discuss how relative shares of produce are distributed to the factors of production, focusing especially on profit.

Distribution

Senior divides society into three classes; the proprietors of natural agents, the laborers, and the capitalists. Each of these classes perform different functions in society and thus receive remuneration for that function. The first group to discuss are the laborers and the payment of wages.

Wages Senior acknowledges that it is difficult to define wages. Often times wages and profit may be confounded with each other.³⁴ In addition, it is ambiguous as to the true meaning when wages are termed high or low. He defines wages as a payment to labor for the exertion of body and mind. He says that when speaking of high or low wages, there may be three different meanings intended. High or low wages may be used to describe money wages, real wages, or the total payment of wages relative to the total receipts of the capitalist.³⁵ By doing this, Senior points out the inaccuracy of Ricardo's statement that the only thing that can lower profits are a rise in wages. In fact the amount of real wages and profits paid may increase in absolute amount while their proportion is the same. Although Senior did not believe

that wages had to hover at subsistence level, he did believe in the wage fund doctrine as did other classical economists. In support of the wage fund doctrine he states:

The proximate cause appears to be clear, the quantity and quality of the commodities obtained by each laboring family during a year must depend on the quantity and quality of commodities directly or indirectly appropriated to the use of the laboring population compared to the number of laboring families.³⁶

Having stated his version of the wage fund theory, Senior is quick to point out many misconceptions regarding the wage fund theory.³⁷ He goes on to explain that there are two factors which alter the size of the fund³⁸.

The first of these factors is the productivity of the laborers who produce goods destined for use by the laboring families. The second is the proportion of laborers who produce goods for the laboring class as compared to the total number of laborers. The more productive the workers, or the greater is the proportion who produce goods for the laboring class, the bigger the wage fund. The productivity of the laborers is a function of four things. Productivity depends on the skill of the workers, the natural agents and capital which assist them, and the absence or existence of government interference.³⁹ By stating this, Senior reinforces the idea that for production to be efficient, capital, labor and natural agents must work in unison with each other. In addition, he shows the interdependence between the three factors of production and the remuneration that they receive.

The actual amount of wages in Senior's system differs from that of Ricardo,

Malthus or Mill in that they do not have to be at subsistence level. High wages may lead to an increase in the population, but considering Senior's proposition number two above, the population is limited by people's fear of having wages lowered to the point that they can no longer enjoy certain habits.

Senior is similar to Smith in that he explains there are wage differentials between different types of employment. Senior says wages may be affected by job agreeableness, trust, probability of success, constancy of employment, and the facility of learning the business.⁴⁰

Although Senior criticizes other writers in their use of the term *wages* in relation to the wage fund, and their determination of wages, he does adhere to the wage fund doctrine. His exposition dispels myths concerning the wage fund while stressing the importance of natural agents and abstinence working in cooperation with labor during the production process.

Rent Senior defines the term rent in many different ways throughout Political Economy. As has been mentioned above, it can be defined as the difference between price and cost of production.⁴¹ It may also be defined as any advantage which comes about as a result of a peculiar situation or ability.⁴² In a more general definition, he calls it the remuneration to a natural agent.⁴³ The use of the natural agent results in greater productivity, and thus it is paid rent. This definition is the focus of the current discussion.

Senior's theory of land rent is basically a recapitulation of Ricardo's

differential rent theory, and there is no need in repeating it. Senior states that the proportionate amount of rent depends on two factors. The first factor is what he calls the "positive productiveness"⁴⁴ of the natural agent. The second factor is what he calls the "comparative productiveness"⁴⁵ of the natural agent. This indicates without a doubt his support of the differential rent theory. Any excess product obtained as a result of using land of superior productivity becomes rent. This corresponds to Senior's reiteration of diminishing returns to agriculture in elementary proposition number four, mentioned above.

For the most part Senior has added nothing new to the theory of rent. He only repeats the theory laid out by Ricardo, adding a few twists and comments of his own.⁴⁶

Profit As in the case with rent, Senior uses the term *profit* different ways in different situations. Earlier in this chapter, it is indicated that Senior believes that profit has the same relation to abstinence as wages does to labor. However he also defines profit as a combination of capitalist wages along with a payment for abstinence termed "interest".⁴⁷ However he says if he was to divide profit into capitalist wages and interest, it would be confusing because he would have to divide capitalists into those who were inactive (similar to Marx's money capitalists) and those who are active (Marx's machine capitalists). Thus to avoid the confusion, he defines profit in following way:

We shall continue therefore, to include under the term profit the whole revenue that is obtained from the possession or employment of capital, after deducting those accidental advantages which we have termed rent, and also deducting a sufficient sum to pay the capitalist, if actively employed, the wages which would purchase an equal amount of labor from a person unpossessed of capital.⁴⁸

If you have the revenue of capital and deduct from it wages of the capitalist, and rent, the result is a payment for pure abstinence. He subsequently defines profit explicitly as the remuneration for abstinence⁴⁹. So all he has really done is renamed profit to avoid the possibility of confusion pointed out above. It seems to me that he has strayed from the common classical definition of profit, and has made the situation more confusing. In fact it seems to me that when discussing profit in most cases, Senior intends it to be the summation of interest and capitalist wage, contrary to the above passage, so when the term *profit* is used with regard to Senior I intend it to indicate both the payment for abstinence and capitalist wage.

In discussing profit, Senior points out that its estimation is difficult. It can only be ascertained with respect to a capitalist's past operations.⁵⁰ He also divides the causes which influence the rate of profit into two types. The first set of causes can be seen as general rules which affect all types of businesses. The second set of influences are those which account for inter-industry profit differentials.

In discussing those causes which affect the rate of profit in all businesses, Senior feels the most accurate way to describe the rate of profit is to denominate it in terms of labor command instead of money, because labor command may be a more

stable measure of value.⁵¹

There are two main factors which regulate the rate of profit in all businesses. The first factor is the percentage of laborers whose job it is to produce goods for the capitalist consumption.⁵² The second factor which regulates the rate of profit is the period of time for which capital is advanced.⁵³ In order to explain these factors clearly, I shall repeat to a great extent, Senior's examples.⁵⁴

In explaining the first cause, Senior sets up a model of twelve-hundred laboring families and ten capitalists. Each capitalist has in his possession, 1000 quarters of corn which he advances to the one-hundred-twenty families that he commands. Assume that one-hundred of the one-hundred-twenty families produce labor-class goods (quarters of corn), and the remaining twenty produce capitalist goods (casks of wine). Within the first year, the capitalist advances to his families, one thousand quarters of corn. The group of one hundred families produce one thousand quarters of corn which can then be advanced the next year, and the remaining twenty families produce twenty casks of wine, which represent the capitalist's profit.

Senior goes on to explain that if for some reason, the population should increase, each capitalist would command more labor with his one thousand quarters of corn. If instead of one-hundred-twenty families, each capitalist had command of one-hundred-twenty-five, he could employ one hundred of them in producing the thousand quarters of corn as before, but now he could have the remaining twenty-five produce twenty five casks of wine. The result is that he has more profit. In the case of a

diminishing population, the result would be just the opposite. If each capitalist only had command of one-hundred-fifteen families, he would have to employ one-hundred of them in the production of corn if he wanted to keep his capital constant, and thus only fifteen casks of wine could be produced by the remaining fifteen families. Senior as it has been mentioned, did not believe that wages were set at subsistence level. However, if real wages were to increase, this would provide incentive for an increase in the population, but not to the extreme Malthusian case. Likewise, in any case that the real purchasing power of the wages of the worker decreased, this would most result in a decrease in population.

From the above examples it can be seen that any increase in the productivity of the workers results in greater profits. If, given the original example, the productivity of the families increased so that only ninety of the families were required to produce one thousand quarters of corn, the capitalist could devote the remaining thirty-five families to the production of thirty five casks of wine, and still end up with the same amount of capital at the end of the year as what he started out with.

If the capitalists choose to do so, they could easily increase their capital, by employing more families in the production of corn. Thus if the capitalist has command of one-hundred-twenty families and is employing one-hundred of them in the production of one thousand quarters of corn, increasing the number of families producing corn to one hundred ten would result in eleven-hundred quarters of corn, an increase in capital of one hundred quarters. The trade-off is a reduction in wine

production from twenty casks to ten casks, and this represents a decrease in profit.

Senior points out in the following passage, that as a group, capitalists do not wish to increase their capital, due to this reduction in the rate of profit.

And as every permanent increase of capital while the number of laborers remained the same, would under the supposed circumstances, occasion a proportionate diminution in the rate of profit, it could never be in the interest of the capitalists as a body to increase their capital.⁵⁵

Eventually straying away from the convenient model presented, Senior says that capitalists do not act together as a body, but compete with each other. If one capitalist is able to increase his capital, he can command (at existing wages) more labor than the other capitalists, and his absolute amount of profit would increase, while the rate decreases. The other capitalists would then experience a decrease in both the amount and rate of profits⁵⁶. Senior mentions that capitalists may try to increase their own profits by the use of machinery. The capitalist can employ some of his workers in building machinery which then does the work of many laborers.⁵⁷

The competition of the capitalists to increase their own capital decreases the rate of profit and increases the amount of wages paid to labor. However Senior says that in the long run, an increase in population would most likely take place, restoring wages and the rate of profit to their original level, prior to the capital accumulation.⁵⁸

The second factor which regulates the rate of profit in all businesses is what Senior calls the *time advance of capital*.⁵⁹ Simply put, the time advance of capital

is the amount of time that elapses between the advance of capital and the return of profit. Senior says that there is no rule as to effect of the time advance of capital on the rate of profit, but he notes that:

As a general rule, the average period is longer or shorter in one Country than in another, in an inverse proportion to the general rate of profit.⁶⁰

In other words, the lower the rate of profit, the longer the period of advancement that is used for production. In a case of low rates of profit, abstinence is a cheap factor of production and is used intensively.

With regard to the time advance of capital, Senior does not say much, but what he says is important. It reaffirms the role of abstinence in production and stresses that roundabout methods of production are more productive.

These two factors regulate profit in all types of work. In addition to these factors, Senior mentions three factors which result in profit differentials between various types of work. These three factors are the constancy of employment, the probability of success, and the agreeableness of work.⁶¹ It may be noticed that Senior mentions these factors with respect to wages also, which I covered earlier in this chapter.

In terms of the agreeableness of work, and its influence on profit, Senior admits the influence is quite small. This is due to the fact that the remuneration for abstinence, which makes up a large part of profit, does not vary much.⁶² Senior's

reasoning for this is as follows:

For abstinence being a negative idea, does not admit of degrees, excepting in the amount of capital from the unproductive use of which the capitalist abstains, and the length of time during which he abstains.⁶³

Senior does admit that there is a small variance in profit between different kinds of work due to trouble and sacrifices separate from abstinence. Obviously, the capitalist must be compensated for this type of toil.

The second cause of profit differentials between businesses is the variance in the constancy of employment. With regard to wages, Senior says that inconstancy of employment may reduce the payment made to labor, but there is a corresponding decrease in the amount of toil. This is not so with the capitalist. If the capitalist's resources go unemployed, he does not get a diminution in his toil and must make a higher profit when he is using his capital for production as compensation.⁶⁴

The probability of success is the third factor which may cause profit differentials between businesses. Senior spends more time commenting on Adam Smith's sentiments on this subject than he devotes explaining his own thoughts, but what he says is easily summarized. As indicated by the following quote, he believes that the greater the risk encountered in business, the greater the expected profit:

If we are right, this risk of enormous loss, when unbalanced by the hope of enormous gain, must be compensated by an extra profit of something more than its value.⁶⁵

In summarizing Senior's method of profit determination, there are two causes which regulate profits in all businesses. The factors are the number of and the productivity of laborers dedicated to producing capitalist goods, and the time advance of capital.

Conclusion

Having discussed Senior's whole theory, the question stands as to whether he has presented us with anything new. To a large extent, Senior has taken Ricardo's work and adapted it, incorporating the role of abstinence, which Ricardo recognized but did not stress. Profits are a combination of interest and capitalist wage, an idea introduced prior to Senior's work. The rate of profit in Senior's model depends on the amount of total produce consumed by the laborers, or in other words, the wage fund. This is again similar to prior economists, except that Senior did not believe in the tendency for wages to fall to subsistence level. The rate of profits are forced down over time as a result of competition between capitalists, again introduced prior to Senior. The main difference between Senior's capital theory and that of his predecessors, is his stress on the role of abstinence, and how the time advance of capital influences the rate of profit. Abstinence is considered a separate factor of production for which interest, a component of profit, is paid. This is in essence the supply side of the capital market. The fact that capital, the result of abstinence, increases the efficiency of labor and natural agents, represents the demand side of the capital market. The result is a capital market in which interest is determined by the

supply of and demand for capital. The difference between Senior and other writers, is the underlying reason behind what motivates people in the market.

Bowley attempts to separate Senior from the rest of the classical economists⁶⁶, but the fact remains that he used both the wage fund and differential rent theory and held a real theory of interest, just as they did. As I said before, the only difference is the logic which he uses to come up with his conclusions.

Endnotes

1. Bohm Bawerk, *Capital and Interest*, Vol. 1, 180.
2. Schumpeter, *History of Economic Analysis*, 639.
3. A good account of abstinence theorists before Senior is given in Bowley, *Nassau Senior and Classical Economics*, 143-153. In addition, see Redvers Opie, "A Neglected British Economist", *Quarterly Journal of Economics* (1930), 101-137.
4. Opie, "A Neglected British Economist", *Quarterly Journal of Economics*, 132.
5. For an account of Storch, see Bowley, *Nassau Senior and Classical Economics*, 153-157.
6. This explanation is taken from Opie, "A Neglected English Economist", *Quarterly Journal of Economics*, 126-133.
7. Opie, "A Neglected English Economist", *Quarterly Journal of Economics*, 132.
8. Jevons, *The Theory of Political Economy*, 234.
9. Bohm Bawerk, *Capital and Interest*, Vol. 1, 191-194.
10. Mill, John Stuart, *Principles of Political Economy*, 108.
11. Mill, John Stuart, *Principles of Political Economy*, (New York: D. Appleton and Company, 1884), 59.
12. Senior, Nassau, *An Outline of the Science of Political Economy*, (1872, reprint, London: George Allen & Unwin Ltd, 1938), 6 (hereafter cited as *Political Economy*)
13. For Senior's complete discussion of value and its determinants see Nassau Senior, *An Outline of the Science of Political Economy*, 6-20.
14. Senior, *Political Economy*, 7.
15. Senior, *Political Economy*, 11.
16. Senior, *Political Economy*, 13-16.
17. Senior, *Political Economy*, 16-20.
18. Senior, *Political Economy*, 16-20.

19. Senior, *Political Economy*, 26.
20. Senior, *Political Economy*, 50-51.
21. Senior, *Political Economy*, 57.
22. Senior, *Political Economy*, 58.
23. Senior, *Political Economy*, 58.
24. Senior, *Political Economy*, 59.
25. See Senior, *Political Economy*, 59-60.
26. Senior, *Political Economy*, 67-68.
27. Senior, *Political Economy*, 69.
28. Senior, *Political Economy*, 73-81.
29. Senior, *Political Economy*, 81.
30. Senior, *Political Economy*, 101.
31. Senior, *Political Economy*, 102.
32. Senior, *Political Economy*, 102-103.
33. Senior, *Political Economy*, 115.
34. Senior, *Political Economy*, 128-131.
35. Senior, *Political Economy*, 141-143.
36. Senior, *Political Economy*, 153.
37. Senior, *Political Economy*, 154-173.
38. Senior, *Political Economy*, 174.
39. Senior, *Political Economy*, 174-177.
40. Senior, *Political Economy*, 200-210.

41. Senior, *Political Economy*, 115.
42. Senior, *Political Economy*, 89-92.
43. Senior, *Political Economy*, 135.
44. Senior, *Political Economy*, 136.
45. Senior, *Political Economy*, 136.
46. Senior makes some comments regarding rent in refutation of Ricardo, found in *Political Economy*, pages 137-139.
47. Senior, *Political Economy*, 133.
48. Senior, *Political Economy*, 133.
49. Senior, *Political Economy*, 185.
50. Senior, *Political Economy*, 187.
51. Senior, *Political Economy*, 187.
52. Senior, *Political Economy*, 185.
53. Senior, *Political Economy*, 194-200.
54. Senior, *Political Economy*, 188-194.
55. Senior, *Political Economy*, 190.
56. Senior, *Political Economy*, 191-192.
57. Senior, *Political Economy*, 193.
58. Senior, *Political Economy*, 192.
59. Senior, *Political Economy*, 194-200.
60. Senior, *Political Economy*, 195.
61. For Senior's discussion, see *Political Economy*, pages 200-216.
62. Senior, *Political Economy*, 202.

63. Senior, *Political Economy*, 202.

64. Senior, *Political Economy*, 207-208.

65. Senior, *Political Economy*, 216.

66. See both Blaug, *Economic Theory in Retrospect*, page 224 and Schumpeter, *History of Economic Analysis*, page 484.

CHAPTER IV. THE THEORY OF EUGEN VON BOHM BAWERK

Introduction

The aim of this thesis, as mentioned in the introduction, is to compare Nassau Senior and Eugen Von Bohm Bawerk in terms of their capital theory, and evaluate Bohm Bawerk's criticism of Senior. Having discussed the capital theory of Senior, it is now necessary to explain that of Bohm Bawerk.

In The Positive Theory of Capital, Bohm Bawerk lays down his theories concerning value, price, capital and interest. Bohm Bawerk, a student of Carl Menger, is undeniably Austrian in his way of thought. With respect to his theory of value and price specifically, he resembles Menger a great deal. Following the format of the discussion of Senior, the discussion of Bohm Bawerk, begins with his theory of price and value before moving on to capital and interest.

Value

Classical writers split value into two different types. The first type of value is value in use. The second type is value in exchange. Feeling that this classification system is inadequate, Bohm Bawerk devises his own categories of value. He splits value into two types, subjective value and objective value. Subjective value is the ability of a good to secure well being for an individual, while objective value is the ability of a good to procure some objective result, independent of an individual's desires.¹ Bohm Bawerk goes on further to explain that objective value is important only in light of the fact that it is related to objective exchange value. Objective

exchange value is simply the ability of a good to exchange for a certain quantity of another good². In other words, it denotes relative price.

In his chapter on the origin of subjective value, Bohm Bawerk formally defines value as the "importance which a good or complex of goods possesses with respect to the well being of the subject."³ Thus in Bohm Bawerk's framework, the value attached to a good is determined by each individual, and is not identical with price. In order for a good to be valuable however, it must be scarce. The ability of the good to satisfy a want does not guarantee that it has value.⁴ This, of course, is a foundation of the Austrian School. Bohm Bawerk furthers his theory of value, by explaining that the value of a good is determined by the last want satisfied by the good, or in other words the marginal utility. The last want satisfied by a good is determined by the number and the intensity of the wants that the good can satisfy as well as the amount of the good available.⁵ Or in other words, marginal utility is determined by the scarcity of the goods and the wants which they satisfy. Through this reasoning, Bohm Bawerk explains the "water-diamond paradox."⁶

Within the remainder of book three, Bohm Bawerk discusses the various problems with estimating value in reality. Included are the cases of goods which have more than one use, complementary goods, and productive goods.

The first case is one in which you have one good which can satisfy many different wants. In this case, the value of the good is determined by the marginal utility associated with the most important want.⁷ Thus if you have one piece of

lumber which can be applied to three different uses, a house, furniture and fuel, with marginal utilities of 10, 7 and 4 respectively, the value of the wood will be 10.

The second case is that of complementary goods. The case of complementary goods can be further divided into three cases. In order to determine the value of complementary goods, one must know whether the goods have substitutes, and/or have other employments besides that within the group. In the case that a group of complementary goods have no substitutes and cannot be used for any other want, the good which completes the group is valued at the marginal utility of the whole group.⁸

Thus suppose, you have three goods, A, B, and C which as a group are complementary and have a marginal utility of 100 and where each single good is useless without the other two. Then if you have goods A and B, but don't have C, C will be valued at the entire marginal utility of the group, 100.

A second case in the valuation of complementary goods is where besides having utility within the group of goods, a good has utility on its own, and has no substitutes.⁹ Using the above example of the three goods, assume that A, B, and C have marginal utilities of 20, 30 and 40 respectively when used independently of one another. Furthermore, assume that used jointly, these three goods have a marginal utility of 100. In a case where a person has in his possession only good A, it is worth the 20 units of marginal utility, however if he owns A, B, and C, he will value good A at 30 because of the fact that losing A results in a decline of marginal utility from 100 (that of the group) to 70 (that of A and B summed)

The third and final case in the valuation of complimentary goods is characterized by the fact that the goods have substitutes and have multiple uses.¹⁰

This case is more complicated than the first two, but it will suffice to say that the value of such goods lies between the marginal utility gained when used as a complement and the marginal utility gained when the good is used by itself.

Bohm Bawerk has gone through all this work in describing the valuation of complementary goods because he realizes that when goods are produced, the factors of production act in cooperation with one another.¹¹ By solving the problem of valuation, he then can move on to describe the value of productive goods, and present a theory of distribution.

Bohm Bawerk concludes book three with a chapter on the valuation of productive goods. What he does here is restate the theory of fellow Austrian, Carl Menger, in which the value of productive goods is determined solely by the marginal utility of the finished product which they create. Given this theory, Bohm Bawerk refutes the classical "cost of production" theory, which says that the value of goods is determined by their cost of production. Bohm Bawerk does say that the value of goods approximates the cost of producing them, but the classical theory has the causation wrong. It is the value of the final good which determines the cost of production, not the other way around.¹² In discussing value, Bohm Bawerk intends to set the stage for book four, on price.

Price

Having established that the value of any good is determined subjectively, by each individual, Bohm Bawerk must now explain how subjective value relates to price. Within book four, he discusses how price is formed in simple cases and then generalizes it to a case of perfect competition. He concludes book four by explaining how the costs, value and price are related.

In the beginning of book three on price, Bohm Bawerk states that the only reason people exchange with one another is because they place different values on the good exchanged¹³. Thus in an exchange of a good between exactly one buyer and one seller, the price is negotiated, and bounded by the subjective valuations of the buyer and seller¹⁴. If the seller values the good at \$2, and the buyer at \$5, the price will fall somewhere between \$2.01 and \$4.99.

In another simple case, Bohm Bawerk assumes that there is one-sided competition, one buyer and many sellers or vice versa. In the case of one buyer and many sellers, the price of a good is bound by the valuation of the two sellers who value the good the least. In the opposite case of one seller and many buyers, the price of a good is bound by the valuation of the two buyers who value it most.¹⁵

From the above cases, we arrive at Bohm Bawerk's conclusion concerning perfect competition. Within perfect competition, there are many buyers who are trying to obtain the good as cheaply as possible, and many sellers who are trying to get as much money for their good as possible. The buyers and sellers make bids based on

their subjective valuations of the goods. Buyers who have very low subjective valuations of the good and sellers who have subjective valuations of the good which are high are bid out of the market by competitors until the number of buyers and sellers are equal. The price is then determined by the range of the values of the seller who values the good the most, but who is still included in the market, and that of the buyer who values the good the least, but is still included in the market.¹⁶

Bohm Bawerk adds that another way of describing the above scenario is by supply and demand.¹⁷ The equilibrium price is reached when the quantity of goods demanded equals the quantity supplied. Bohm Bawerk then goes on to discuss the factors which affect the demand and supply of a good, and thus the price. Bawerk lists two main factors which affect demand. The first is what he calls "Extent of Demand."¹⁸ This is just the number of buyers. The second factor is the "Intensity of Demand"¹⁹, which can be further split into two parts. The first is the subjective valuation of the good by the buyers. The second is the subjective valuation of the money that must be given up for the good. According to Bohm Bawerk, the subjective valuation of money is different for the rich versus the poor.²⁰ Obviously the greater the extent of demand, or the greater the value placed on the good relative to that of money, the higher will be the price.

The supply side is identical to the demand side with regard to factors which affect it. "Extent of supply" and "intensity of supply"²¹ are the factors that affect price from the supply side. The greater the extent of supply, the lower the price,

while the lower the value of the good relative to price placed on the good by the supplier, the lower the price. These conclusions concerning the factors which affect demand and supply are the same that are reached by the simple cases presented above.

Now having discussed value, the costs of productive goods, and the determination of price, Bohm Bawerk simply brings them together in the following manner.²² The value of a good is determined by the marginal utility of the good. In addition, the value of the productive goods is determined by the marginal utility associated with the final good produced. Also the price of any good is determined by the subjective valuation of that good, or in other words it's marginal utility. If the price of a good was greater than its costs, this would induce a greater number of suppliers, which would then result in a lower price, and vice versa. Bohm Bawerk states that there are two reasons, however why the price of a good does not equal the cost of its production. The first reason he terms "Friction."²³ Friction is simply used to describe short run phenomena which alter the equality of cost and price. Bohm Bawerk states that there are many such disturbances and that they exist in every industry, making this law of costs, a law which is only "approximately valid."²⁴

The second reason that cost does not always equal price according to Bohm Bawerk, is the lapse of time. Here the span of time between the start of production and the completion of the final product alters the valuation process which results in a differential between price and costs. Bohm Bawerk states that: "It is this second disturbing cause which gives rise to interest."²⁵ This serves as a point of departure to

discuss Bohm Bawerk's theory of capital and interest.

Capital

The first two books within The Positive Theory of Capital deal strictly with the theory of capitalist production. In other words, Bohm Bawerk begins by defining capital and then explains capital accumulation and its role in production.

Bohm Bawerk claims that the production occurs in order to satisfy our wants, and in general, production can take two forms. The first form is that of direct production. In this case, labor and the power of nature combine with the result of a good produced immediately. The second type of production is what Bohm Bawerk calls the "roundabout method."²⁶ In this case powers of nature and labor combine to first create capital, which then aids in the production of the good. There are two results of the roundabout method of production. The first is the fact that the roundabout method under most circumstances is more time consuming. The second is that the roundabout method enjoys greater productivity than the direct method. Once explaining the two methods, Bohm Bawerk goes on to give a general definition of capital as: "a group of products which serve as a means to the acquisition of goods."²⁷ Within the first book of the Positive Theory, Bohm Bawerk spends a great deal of time discussing the historical development of the theory of capital. He discredits some of the previous theories and praises others in an attempt to devise his own theory, and thus at the end of book one, he systematically divides capital into two parts. The first division is called social (or productive) capital. This consists of things

such as productive improvements to land, as long as they are independent of the land, productive buildings, tools or machines, work animals, raw materials, inventories and money.²⁸ The second division of capital is called private (or acquisitive) capital. It consists of all social capital and as Bohm Bawerk puts it:

Those consumption goods which their owners do not use for themselves, but employ by exchange (sale, hire, loan) the acquisition of other goods, e.g. let-houses, lending libraries, means of subsistence advanced by undertakers to their labourers, and many others.²⁹

With regard to capital accumulation and its role in production, there are many important things to notice. The first of these is that capital in and of itself is not an independent factor of production. Capital is created as a result of the cooperation of labor and nature. Capital serves only as an aid in production to labor and nature.³⁰ In failing to acknowledge capital as an independent factor of production, Bohm Bawerk has broken away from the concept that capital because of its abilities receives interest in the same way that land and labor receive rent and wages.

The second important thing to notice is that capital is, in Bohm Bawerk's phrasing, "the symptom of a profitable roundabout production."³¹ He uses this phrase because in order for a roundabout method of production to be used, capital must first be accumulated. Or to say it a different way, a person chooses a roundabout method, and then accumulates capital before production starts.

The third and last important thing to realize with respect to capital and its role

in production, concerns its accumulation. In Bohm Bawerk's system, two things must occur for capital accumulation to take place. These are saving and production. Saving, according to Bohm Bawerk is very important for capital formation. If a community consumed all of the goods it produced, there would be no resources left for capital. However, saving by itself cannot result in capital. Capital consists of productive goods, and even these goods must be produced.³² Thus far, Bohm Bawerk has defined capital, specified its role in production, and explained its accumulation. We can now look at his theory of interest.

Interest

Before dealing with the specifics concerning interest, that is, its source, and rate, Bohm Bawerk provides some intuitive reasoning behind the existence of interest in book five of *The Positive Theory*, titled "Present and Future"

As was alluded to in the above section on price, Bohm Bawerk asserts that the lapse of time alters the valuation process in such a way that price does not always equal cost. Furthermore, he believes this explains the existence of interest. Bohm Bawerk believes that the lapse of time results in a higher value being placed on present goods than that on future goods. The difference in values is interest. In book five, he must prove that present goods are valued higher than future goods.

As proof of the fact that present goods are valued higher than future goods, Bohm Bawerk offers what I shall refer to as the "three reasons."

The first reason that present goods are valued more than future goods, is

because of what Bohm Bawerk calls the "different circumstances of want and provision."³³ This is just another way of saying that there is a choice between present and future consumption. There are people who borrow in order to satisfy their deficiency of wants, and agree to pay back what they have borrowed in the future, as they believe they will be better off in the future. There are savers, who feel that their future wants will be greater than the resources they have to satisfy them, so they save in order to satisfy these future wants.

The second reason that Bohm Bawerk believes present goods to be of higher value than future goods, is because man is prone to underestimate the utility which a future good will give him.³⁴ Bohm Bawerk splits this reasoning into three further reasons as to why man is unable to realize the utility which a future good will provide.

The first of these three is that man has an incomplete imagination with regard to future wants.³⁵ This would be characterized by the person who feels that he won't have any future wants. Since he doesn't give enough consideration to the future wants, he values them too low. The second reason for underestimating the future value of a good is he says, simply a "defect in will."³⁶ In other words, the person cannot wait for the future to come, therefore he overvalues current consumption relative to future consumption. And the last reason given for the underestimate of a future good's value, is what Bohm Bawerk calls the "shortness and uncertainty of life."³⁷ What is meant by this is that since we are not certain that we will be alive in the future to enjoy future goods, the utility gained from future goods is uncertain to

us, and as a result they are not worth as much to us as present goods. Bohm Bawerk uses the example of anyone who is promised a large sum of money on his one-hundredth birthday would most likely be willing to trade the large sum in the future for a smaller sum today.³⁸

The third and last reason Bohm Bawerk gives in support of his theory is in his terms "The technical superiority of present goods."³⁹ All that is meant here is that present goods applied towards roundabout production will result in a greater number of goods and thus a greater value than future goods applied to a less roundabout method of production. If for example we have a time horizon of two years and we can chose to either use present goods and engage in roundabout production taking the full two years, or start production a year from now, using a roundabout production method of one year, we should prefer the former, as it will result in more goods. It is important to keep in mind however, that in order to avoid a production period of infinite length, Bohm Bawerk assumes the existence of diminishing marginal productivity. Thus each lengthening of the production period results at some point in smaller and smaller increases of output.

As an interesting side note and conclusion to Bohm Bawerk's argument, it should be pointed out that he believes that the first two reasons may act in conjunction with one another, and result in a cumulative effect. In addition, he believed that the technical superiority of present goods could result in a positive rate of interest, even in the absence of the other two reasons.⁴⁰

Thus far, Bohm Bawerk has attempted to show that there is a difference in value between present and future goods. Within book six, titled "The Source of Interest", he attempts to prove this. In doing so, he proceeds to explain various cases in which interest appears, and shows why the interest appears.

The first of these cases is interest which results from a loan. This is the simplest of cases and does not need much explanation. A loan, as Bohm Bawerk states, is "a real and true exchange of present goods for future goods."⁴¹ Thus the person who borrows 100 dollars in the present cannot simply pay back 100 dollars in the future. The value of the 100 present dollars is greater than that of the 100 future dollars and thus he must pay more than 100 dollars back in the future, or as Bohm Bawerk terms it, "an agio."⁴² Bohm Bawerk points out that the key difference between this theory and the use theory, is that with the agio theory, present goods are exchanged for future goods which may or may not be similar. The use theorists see the exchange as entailing the same goods, as if the goods were merely borrowed for a period of time. With the agio theory, the agio arises as a result of different valuations, not as a payment for use.⁴³ Bohm Bawerk also points out the theoretical possibility of a case where the agio is absent, such as the case of a friendly loan, or negative, in which future goods are valued higher than present goods because of a possible change in supply and demand.⁴⁴

Having gone over the simple case of loan interest, Bohm Bawerk now addresses the phenomenon of interest as it arises from capitalist production. The

capitalist takes a group of productive instruments, such as labor, raw materials, tools etc., and converts them to future goods over time. This group of goods, although they exist in the present, are not present goods, and cannot satisfy human want. They must be converted into future goods before they can satisfy human want and thus they are valued in the same way that future goods are. Thus these goods destined for the production of future consumption goods are lower in value than current consumption goods. This difference in value comprises the interest gained by capitalist production. However, Bohm Bawerk must now prove his assertion that this group of goods (land, labor and capital) destined to become future goods is less valuable than current consumption goods⁴⁵.

The first good within this group that Bohm Bawerk discusses is the labor. He claims that the wage paid to labor must be less than the value of the good which labor creates. This is based solely on the fact that more roundabout methods of production yield a greater number of goods. Most laborers do not possess the resources to engage in roundabout production themselves, and thus are willing to work for any wage greater than what they could earn if they engaged in direct (non roundabout) production themselves. Thus the capitalist, acting solely on the third reason, can employ the laborers in the production of future goods via a roundabout process.⁴⁶ The result at the end of the roundabout process are goods which are greater in value than what was paid to the laborers and thus interest has arisen. Of course if the capitalist does not want to deal with the employing of the laborers himself, he may

lend money to someone who does want to enter into roundabout production and receive a market-determined rate of interest.⁴⁷

Bohm Bawerk uses similar reasoning in explaining the interest on durable goods. A durable good is one which provides several services over time. The value of a durable good is the summation of the values of the services it produces, discounted to the present. Again, the durable good represents future services or future goods, which are valued lower than current services and goods. Thus a machine capable of rendering services worth \$100 a year for the next six years is not worth \$600 today, it is worth some amount less than that. Using an example similar to Bohm Bawerk's⁴⁸, the value of the services may be worth in the present \$100 plus \$95 for the second year, \$91 for the third year, \$87 for the fourth year, \$84 for the fifth year, and \$81 for the sixth year. The value of this machine today is \$538. Within the first year, \$100 worth of service is produced and the other five years of service ripen one year. The machine is now (i.e. one year later) worth \$451, the summation of \$100, \$95, \$91, \$87 and \$84. The machine has declined in value by \$81, which represents wear and tear, but \$100 was received in service, and thus the net interest on the machine is \$19. Bohm Bawerk then generalizes this example to explain land rent. Land again represents future goods and services, in the same way that it was done with durable goods, the value of the land is the discounted value of the services which it produces.⁴⁹ By generalizing rent as an interest on land, Bohm Bawerk refutes Ricardo's doctrine of differential rent.⁵⁰

Thus Bohm Bawerk has attempted to explain interest as the natural difference between the value of present and future goods.

Bohm Bawerk must now explain how the rate of interest is determined. He starts, of course, with the case of a simple, two-party exchange. In this case there is a supplier of present goods, and a person who needs present goods. As in any other case of simple two party exchange, the price, in this case the agio paid for present goods, is simply determined by the negotiations of the parties. If the supplier of the present goods has no other use for them then he will be satisfied by any positive agio, but may be able to extract a higher agio depending to the circumstances of the borrower. If the loan is a consumption loan, then the determinants of the upper limit of the agio are the urgency of the demand, the probable provision of the borrower at the time of repayment, and the shortsightedness of the borrower. All of these are positively related to the upper limit of the agio paid for present goods. If the loan on the other hand is a production loan, then the main determinant of the agio is the difference in the return that the borrower can get by getting the loan. The bigger the difference, of course, the bigger the agio the borrower is willing to pay.⁵¹

Having explained the simple case of isolated exchange, Bohm Bawerk must next explain interest rate determination within the complex market.

In a previous chapter, Bohm Bawerk explains what he calls the "subsistence market". The subsistence market is the combination of the loan and labor market where present goods are demanded. In the subsistence market, the supply of a

nation's subsistence (its wealth) is used to maintain the nation during the period of production, and as a result the greater the wealth, the longer the period of production. The subsistence market basically decides the rate at which present goods exchange for future goods. The supply in this market comes from capitalists who do not consume all of their wealth. The demand comes from wage earners, independent producers in need of credit, and individuals seeking credit for consumption.⁵² Interest arises because the demand for subsistence goods is greater than the supply. Within Bohm Bawerk's framework, interest must exist. At an interest rate of zero, producers wish to extend the period of production, and this increases the demand for present goods to the point where interest is positive.⁵³

In the model that he uses to illustrate the determination of the interest rate, he assumes for simplicity's sake that there are capitalists, who are the suppliers of the subsistence fund, and laborers, who are the demanders of present goods. In addition, the productivity of the worker increases at a decreasing rate as the production period is extended. Equilibrium in the market is characterized by two conditions. The first is profit maximization, and the second is complete absorption of the subsistence fund by the laborers. In other words, the average period of production is extended to the point where the subsistence fund is entirely absorbed by the laborers. There is no excess capital which may bid up the wage, and there is no excess labor to drive the wage down. In addition, there is maximization of profit per worker, which indicates that there is no desire by the producers to lengthen or shorten of the average period of

production which would result in lower profit. The rate of interest is in essence determined by the surplus return of the last permissible extension of the production period.⁵⁴

Given this model, any alteration in either the subsistence fund or the number of laborers, *ceteris paribus*, result in predictable changes to the interest rate.

If the subsistence fund is increased, the period of production will lengthen, and the marginal productivity related to the extension declines. The result is a lower interest rate. The same conclusion holds true for a decline in the number of laborers. In addition, any productivity increase, *ceteris paribus*, will result in higher surplus returns, and a higher interest rate.⁵⁵

Bohm Bawerk then goes on to explain that even though his model is not as complicated as reality, it can explain interest rates. He then lists the main factors which influence interest rates. These are: The subsistence fund, the number of people destined to live off of the fund (including capitalists and landowners who live off of their interest and rent), the marginal productivity associated with extending the production process, and the intensity of demand for production and consumption loans.⁵⁶ Any decrease in the subsistence fund or increase in the number of people living off it, results in an increase in the interest rate due to the fact that the period of production must be correspondingly reduced in order to reach equilibrium. For the same reason, any increase in the demand for loans will increase the rate of interest. Bohm Bawerk also realizes that even though the rate of profit is equal in all industries

due to competition, not all branches can use the same average period of production due to differing marginal productivities associated with the extension of the production period, but the model remains valid.⁵⁷

The model which Bohm Bawerk presents, seems strikingly similar to that of the classical economists. The classicals believed that the wage was set by the relation of workers to the wage fund and that interest was determined by the supply and demand for capital. However, Bohm Bawerk claims that his model is different than that of the classicals, basically because they ignore the element of time.⁵⁸

Conclusion

Bohm Bawerk's whole theory of capital, as I see it, rests on his theory of value. He believes that the value of any good is determined by the marginal utility of that good. And in the case of a productive good, its value is determined by the marginal utility of the final goods which are produced. In addition, he believes that due to the "three reasons" the value of present goods must be greater than the value associated with similar future goods. He uses this assumption to prove the existence of a positive rate of interest. And thus, just as the classical writers had to develop interest theories which fit into their theory of value, Bohm Bawerk has done the same.

Endnotes

1. For Bohm Bawerk's discussion of subjective and objective value, see Bohm Bawerk, Eugen V., *The Positive Theory of Capital*, trans. William Smart, (New York: G.E. Stechert & Co., 1930), 130-132. (hereafter cited as *Positive Theory*.)
2. Bohm Bawerk, *Positive Theory*, 131-132.
3. Bohm Bawerk, *Positive Theory*, 135.
4. Bohm Bawerk, *Positive Theory*, 135-136.
5. See Bohm Bawerk, *Positive Theory*, 139-144 and 159-160.
6. Bohm Bawerk, *Positive Theory*, 152-153.
7. Bohm Bawerk, *Positive Theory*, 164-165.
8. Bohm Bawerk, *Positive Theory*, 171-172.
9. Bohm Bawerk, *Positive Theory*, 172.
10. Bohm Bawerk, *Positive Theory*, 172-175.
11. Bohm Bawerk, *Positive Theory*, 176-178.
12. For the complete discussion, see Bohm Bawerk, *Positive Theory*, 180-189.
13. Bohm Bawerk, *Positive Theory*, 193.
14. Bohm Bawerk, *Positive Theory*, 198-199.
15. Bohm Bawerk, *Positive Theory*, 200-202.
16. Bohm Bawerk's long explanation of the pricing process can be found in *Positive Theory*, 203-213.
17. Bohm Bawerk, *Positive Theory*, 214-217.
18. Bohm Bawerk, *Positive Theory*, 219.
19. Bohm Bawerk, *Positive Theory*, 219-220.

20. Bohm Bawerk, *Positive Theory*, 220.
21. Bohm Bawerk, *Positive Theory*, 220.
22. This discussion can be found in Bohm Bawerk, *Positive Theory*, 223-234.
23. Bohm Bawerk, *Positive Theory*, 234.
24. Bohm Bawerk, *Positive Theory*, 234.
25. Bohm Bawerk, *Positive Theory*, 234.
26. For his discussion on roundabout and direct methods of production, see Bohm Bawerk, *Positive Theory*, 17-23.
27. Bohm Bawerk, *Positive Theory*, 38.
28. Bohm Bawerk, *Positive Theory*, 65-66.
29. Bohm Bawerk, *Positive Theory*, 71-72.
30. Bohm Bawerk, *Positive Theory*, 95-99.
31. Bohm Bawerk, *Positive Theory*, 92.
32. For a discussion, see Bohm Bawerk, *Positive Theory*, 100-105 and 119-125.
33. Bohm Bawerk, *Positive Theory*, 249.
34. Bohm Bawerk, *Positive Theory*, 253.
35. Bohm Bawerk, *Positive Theory*, 254.
36. Bohm Bawerk, *Positive Theory*, 254-255.
37. Bohm Bawerk, *Positive Theory*, 255.
38. Bohm Bawerk, *Positive Theory*, 255.
39. Bohm Bawerk, *Positive Theory*, 260.
40. For this discussion, see Bohm Bawerk, *Positive Theory*, 273-281.
41. Bohm Bawerk, *Positive Theory*, 285.

42. Bohm Bawerk, *Positive Theory*, 286.
43. Bohm Bawerk, *Positive Theory*, 286-296.
44. Bohm Bawerk, *Positive Theory*, 296-297.
45. For the complete discussion see Bohm Bawerk, *Positive Theory*, 299-303.
46. Bohm Bawerk, *Positive Theory*, 313-316.
47. Bohm Bawerk, *Positive theory*, 317-318.
48. Bohm Bawerk's discussion of durable goods is quite long, but relatively simple. My example is formed from his example found in *Positive Theory*, 344-346.
49. Bohm Bawerk, *Positive Theory*, 355-357.
50. Bohm Bawerk, *Positive Theory*, 356-357.
51. Bohm Bawerk's discussion of the simple exchange case with respect to consumption and production loans can be found in *Positive Theory*, 375-377.
52. This explanation is a synopsis of Bohm Bawerk's subsistence market. He explains it in detail in *Positive Theory*, 381-394.
53. See Blaug's explanation in *Economic Theory in Retrospect*, 506-507.
54. In essence Bohm Bawerk has taken what could be considered a general equilibrium approach to the determination of interest rates. His explanation of the market given in *Positive Theory*, pages 380-402, but is long and filled with examples. Blaug does a good job of summarizing the model in *Economic Theory in Retrospect*, pages 506-507. For a mathematical approach to Bohm Bawerk's model see Kuene, Robert, *Eugen Von Bohm Bawerk*, (New York: Columbia University Press, 1971.)
55. Bohm Bawerk, *Positive Theory*, 380-402.
56. Bohm Bawerk, *Positive Theory*, 408-409.
57. What is presented here is again, a summary of Bohm Bawerk's model. If interested in the model he uses, one must read the entire last book of *Positive Theory*. except for the first chapter dealing with the rate determination in a simple exchange. For a good summary of the influences which alter interest rates see pages 408-409 in *Positive Theory*.
58. Bohm Bawerk, *Positive Theory*, 419-422.

CHAPTER V. BOHM BAWERK'S CRITIQUE AND ITS EVALUATION

Introduction

The previous two chapters of this thesis have been taken up with discussions of the theories presented by Senior and Bohm Bawerk. In an effort to evaluate Bohm Bawerk's criticism of Seniors' abstinence theory of interest, I think that it is necessary to first compare the theories of the two writers. Once the writers are compared, a complete exposition of Bohm Bawerk's criticism of Senior is given. The last section of this chapter will evaluate Bohm Bawerk's criticism, and present some ideas on how Bohm Bawerk could have altered his criticism in a positive manner.

Senior and Bohm Bawerk Compared and Contrasted

I find similarities between Senior and Bohm Bawerk in several aspects of their theories. The main areas in which there are similarities are in their theories of value, capital accumulation, production, price determination, and lastly interest determination. Of course there will always be differences between writers. One may touch upon topics that the other doesn't, or one may have a more complete discussion of a topic than another. It is beyond the scope of this chapter to discuss many of the differences between these two writers, but some are covered.

Value

Within Senior's framework, the value of a good is determined by three main factors. The first is the utility of the product. The second is the scarcity or limitation in supply of the product. The last is the transferability of a good. This last factor is

really only a necessary condition for a good to have value; it does not have a role in the determination of the goods value. So really there are two determinants of value, utility and scarcity.

Bohm Bawerk believes that the value of a good is determined by the marginal utility associated with its consumption. The marginal utility of a good is determined by the number of wants which a good satisfies, and the number of goods available.

Thus for both of these writers, value is determined by essentially the same factors, utility and scarcity. Senior has not of course spelled out the fact that value is determined by marginal utility, nor does he emphasize the role of the individual in assigning value, as the Austrian Bohm Bawerk does.

Price

For both writers, price is determined by the relationship between the supply of and demand for a good. For Senior, price is the exchange relationship between two goods. Senior believes that exchange value (price) is determined by the supply of and demand for a good, which are basically a function of scarcity and utility, respectively. Bohm Bawerk also believes that price is determined by the supply of and demand for the good. The supply of and demand for a good are based on the subjective valuations placed on the good by the seller and buyer. Equilibrium price is reached when the quantity supplied is equal to the quantity demanded. The main difference between Senior and Bohm Bawerk in the determination of price is that again in the tradition of the Austrian school, Bohm Bawerk places more emphasis on the

individual's subjective valuation of a good in determining supply and demand and thus in determining price. Therefore an individual's valuation of the good can differ from its price. Senior, although he realizes that utility and scarcity determine supply and demand, does not address the role of subjective valuation. In his system price and value are essentially one and the same, price being value in money terms.

With regard to price, the two writers are similar in that they believe that there is a long run tendency for the price of a good to equal its cost of production in a competitive setting. The main difference, as Bohm Bawerk points out, is that classical writers, including Senior, believe that the cost or value of the inputs determine the price of the final good whereas he believed that it was the value of final good which determined the price of the input.

Capitalist Production and Capital Accumulation

Again, both of these writers are similar in their views on the role of capital in production as well as the method by which capital is accumulated.

Senior believes that capital is accumulated through the cooperation of land, labor and abstinence. Capital is therefore not an original factor of production. In addition, the use of capital aids in the efficiency of land and labor because it results in the use of tools and the division of labor which allow more productive methods to be used.

Bohm Bawerk believes that two things must occur for capital to be accumulated. These are saving, and production. Resources must be diverted from

consumption and then formed into capital which can be used for production. Again the main advantage that capital affords, is the roundabout methods of production. The use of roundabout methods of production are more productive, but are also in most cases more time consuming.

As I look at these theories of Senior and Bohm Bawerk, I see essentially the same thing, only worded in a slightly different way. Of course objections may be raised, claiming that these two writers have different conceptions of various types of capital, e.g. fixed versus circulating etc. However in my opinion, these differences are trivial. I skip over them, believing that they do not affect the validity of the conclusions reached in this thesis.

Interest

Of these two writers, I believe that Bohm Bawerk has outlined a more detailed theory of interest than Senior. Bohm Bawerk believes that present goods are valued higher than future goods and this difference in value represents interest. He supports this by giving three reasons for the difference in value. The rate of interest is determined in what he calls the subsistence market. The determinants of interest are the size of the subsistence fund, the number of people living off the fund, the marginal productivity of extending the production process, and the demand for consumption loans.

Senior believes that two factors influence the rate of interest among all businesses. The first is the relationship between the amount of capital within a

community and the number of laborers. Like Bohm Bawerk, Senior believes that any increase in the amount of capital or diminution in the amount of laborers results in a lower rate of interest. The second factor that affects the rate of interest is the "time advance of capital". In discussing this, he says that the lower the interest rate, the longer the production period that is used.

Senior's theory of interest determination is similar to Bohm Bawerk's in that he comes to the same main conclusions as Bohm Bawerk. Both of them believe that the greater the capital, the longer the production period, or the smaller the amount of laborers, the lower the rate of profit will be.

In addition, I believe that some of Bohm Bawerk's statements pertaining to the three reasons on which he bases the payment of interest are similar to sentiments expressed by Senior. It has already been mentioned that Senior believes that the use of capital is more time consuming and more productive, going along with Bohm Bawerk's phrase "technical superiority." Senior also mentions that abstaining from current consumption is one of the most "Painful exertions of human will" that may be encountered. This seems similar to Bohm Bawerk's claim that man underestimates the future as a result of a defect in will.

There are many recognizable differences between these two writers. The first is that Senior discusses those forces which result in different profit rates because of industry characteristics, whereas Bohm Bawerk does not. Secondly, Bohm Bawerk includes consumption loans as a factor which can influence interest rates, whereas

Senior does not. The main idea of Bohm Bawerk's whole argument is that there is a change in value over time, and that interest, which is really equal to the marginal productivity of capital, is this difference in value. It is simple reasoning, and it rests on, again, the Austrian emphasis on value.

Senior bases his theory of the determination of interest rates largely on the work done by classical writers before him. It should be noted that he does place emphasis on the element of time in production, but he is not able to explain how the period of production influences the rate of interest, he just asserts that there is a relationship between the two. Senior does not explain, as Bohm Bawerk does, the mechanisms by which equilibria in both the labor and capital market are reached. And thus even though these two writers end up with basically the same conclusions regarding wage and profit determination, Bohm Bawerk's explanation seems to me to be a more complete one.

The main point to be made from comparing these two writers is that although they come from different schools of thought, the conclusions that they arrive at with regard to value, price, capital and interest are strikingly similar.

Bohm Bawerk's Criticism of Senior

Volume I of Bohm Bawerk's *Capital and Interest* provides a comprehensive history of interest theories, along with criticisms of each theory. He begins this volume by discussing what he calls the "Theoretical" problem of interest and the "Social" problem of interest. The theoretical problem deals with the origin of interest,

while the social problem deals with whether interest should be paid.¹ After explaining that it is his goal to investigate only the theoretical problem of interest, he starts to systematically list and critique the various interest theories that I have discussed earlier. It is here that he lays out his main criticisms of Senior's abstinence theory.

Prior to discussing Bohm Bawerk's critique of Senior, it should be said that Bohm Bawerk praised Senior's attempt to put forth a clear theory of interest. He felt that Senior's work was superior to other classical writers, because he attempts to give a coherent theory, and meets the problem of interest head on instead of avoiding it.²

For the sake of completeness, three arguments that Bohm Bawerk makes against Senior's abstinence theory are discussed, even though he believes that only two of the arguments are essential in order to discredit the abstinence theory.

The first of these criticisms is that the rate of interest is not a function of the degree of abstinence occurring. Having put forth the thought that there is some abstinence from immediate gratification that occurs in the accumulation of capital Bohm Bawerk adds:

But it is also undeniable that the existence of interest and its rate do not exhibit the slightest degree of correlation with the existence and the degree of the "sacrifice of abstinence."³

Bohm Bawerk did not consider this to be a main argument against the abstinence theory, and in fact he borrows it from Lassalle. He includes it in his critique of Senior, because he finds it to be persuasive.

The second criticism, and one which Bohm Bawerk feels is crucial, is that Senior's theory is too generalized. As he puts it:

I believe that Senior has taken a thought which is essentially correct, and has based generalizations on it that are insufficiently discriminating and excessively stereotyped. There can, to my mind, be no doubt that the factor of postponement of gratification, which is given great prominence by Senior does in fact exercise a certain amount of influence on the origin of interest. But I do not think that that influence is so simple, nor so direct, nor so exclusive that we may say that "interest is the wage of abstinence, and that's that."⁴

Bohm Bawerk then explains that he will elaborate on this within the Positive Theory of Capital, which he does. Within the last chapter of book two, Bohm Bawerk raises what I consider to be an extension of the aforementioned argument. He argues that saving basically involves no sacrifice. Observe the following:

It may serve towards the settling of this controversy to remark that the idea of sacrifice, of renunciation and thus of moral desert, need not be associated with the conception of saving. There may be sacrifice in saving, and it may be praiseworthy, but not at all necessarily.⁵

The last, and most crucial criticism that Bohm Bawerk makes is that Senior makes an error in counting abstinence as a separate factor from the labor sacrificed in production. He says:

For I consider it an error in logic to present the renunciation of gratification, or abstinence in the abstract, as a second and independent sacrifice, apart from the labor that is sacrificed in production.⁶

I believe that Bohm Bawerk has formulated this objection based on the following quote from Senior, found in *Outline of the Science of Political Economy*:

Attention is usually drawn to abstinence only when it is not united with labor. It is recognized instantly in the conduct of a man who allows a tree or a domestic animal to attain its full growth; but it is less obvious when he plants the sapling or sows the seed corn. The observer's attention is occupied by the labor, and he omits to consider the additional sacrifice made when labor is undergone for a distant object.⁷

In an attempt to clarify his objection, Bohm Bawerk then proceeds to go through many examples.⁸ In the first he assumes that a man has two choices of how to spend a day. He can either fish or hunt. If he fishes, the sacrifice made is whatever he could catch hunting. He extends the example to one in which a man has three hundred dollars to spend on either vacation or a rug. If he chooses the vacation, the sacrifice is the rug only, not the rug and the three hundred dollars. In third extension, Bohm Bawerk assumes that a tree is planted which will bear fruit in some future time period. If the tree is destroyed by a storm later that same day, has any sacrifice other than time it took to plant it been made? Bohm Bawerk asserts that the only sacrifice is labor, and thus the amount of sacrifice does not change based on whether or not the tree is destroyed in a storm or lives on to bear fruit in the future.

Bohm Bawerk believes that the magnitude of this one sacrifice, labor, is altered by the passage of time. Since, present goods are preferred to future goods, a sacrifice

of labor seems larger if it is used to procure future goods.⁹

Evaluation of Bohm Bawerk's Criticism of Senior

Before analyzing Bohm Bawerk's critique, it is important to reiterate some key facts which make the analysis more coherent.

First, Senior believes that abstinence is an act by which a person forgoes current consumption in order that he may engage in production which yields results at some time in the future. Second, Senior believes, as I have indicated in Chapter Two, that abstinence does not vary in degree. The only way that we can tell that abstinence has occurred is that capital has been saved, and advanced for production. Lastly, I believe that the origin of interest in Senior's system is the increase in productivity that occurs when capital is used in time consuming production. Abstinence leads to capital accumulation which results in a time-consuming production processes. I think that Senior uses the term abstinence for two main reasons. The first is that by using this term he can easily attach a factor to a factor payment. Secondly, and more importantly, he uses the term abstinence in order to stress the role of saving in capital formation and justify the payment of interest to those who save.

Bohm Bawerk's first criticism mentioned above, "that the existence and rate of interest do not have anything to do with the existence and degree of abstinence", is partially true, but it is a poor criticism of Senior's theory. Senior did not intend to prove that the degree of abstinence influenced the interest rate, nor did he believe that abstinence was the origin of interest. As I have pointed out above, Senior believes

that abstinence does not vary in degree, thus if it does not vary in degree, it cannot influence the rate of interest directly. Of course abstinence results in capital accumulation, and capital accumulation influences interest rates, but it is the amount of abstinence, not its degree which influence the rate of interest. In addition abstinence is not the origin of interest. Senior realizes that abstinence is useless unless aided by labor and land to create capital. Capital is also useless unless aided by land and labor in the production of other goods. Capital aids by making the production process more fruitful. Thus it is not abstinence which is the origin of interest, but it is the prospect of increased productivity through the use of capital which gives rise to the payment of interest.

Bohm Bawerk's second argument is that Senior's theory is too generalized, and that saving does not always require a sacrifice. In addition, he says that the delay of gratification, although it may have some influence on the origin of interest does not influence the amount interest directly. This criticism misses Senior's point entirely. In making this criticism, I believe, although he has not explicitly pointed out any generalizations, Bohm Bawerk feels it is incorrect for Senior to assume that it is a painful exertion of will for people to abstain from current consumption for future results. Bohm Bawerk asserts within *The Positive Theory of Capital*, that money does not have constant marginal utility. That is that the marginal utility of one dollar to a millionaire is much lower than that of a poor man.¹⁰ The result of this is that Bohm Bawerk assumes saving originates from wealthy capitalists who do not consume all of

their wealth. He assumes that these savers, since they have an abundance of present goods, are willing to put them into the subsistence market for little return, thus no sacrifice is occurring. This can be seen from the following quote:

To the capitalist, the subjective use value of present goods is not greater than that of future goods. In the most unfavorable case, then, they would be willing to give almost 20s. present money for 20s. obtainable in two years, or, what is the same thing, for one week of labor which would bring them 20s in two years.¹¹

It seems that all Bohm Bawerk has done is replaced Senior's generalization that pain is felt when saving occurs, with his own assumption that saving comes from people who hold such a low marginal utility on their wealth, that they are willing to lend it for little interest. What Bohm Bawerk fails to realize is that not all of the savers will be wealthy to the point where they could put their money into the subsistence market without even caring about the return. Even for the wealthy, there is some opportunity cost of saving as long as we assume that there is no possibility of satiation. In addition Bohm Bawerk's criticism that saving does not always require a sacrifice, can be interpreted as meaning that interest is sometimes paid to people who endure no pain when saving. It seems that he is criticizing the theory simply because the rate of interest paid to a saver does not always correspond to the amount of pain that the person endures when saving. This criticism fails on many points. The first is that Senior never intended for the amount of interest to be a function of the intensity of pain felt when saving. Also, since, utility comparisons cannot be made between

individuals, it would be difficult to ensure that each person was compensated in exact proportion to his pain endured. This would be similar to saying that when a person purchases a good he must pay a price that is equal to the value of that good for him, leaving zero consumer surplus.

In saying that the rate of interest is not a function of the degree of abstinence, and that capitalists hold such a low marginal utility of money, Bohm Bawerk is in essence saying that saving is inelastic to the rate of interest. Although Senior's theme throughout *Political Economy* seems to be that interest must be paid to encourage saving the following quote seems to indicate that for the very rich, saving may also be interest inelastic:

Now there is nothing to which a capitalist submits to so reluctantly as the diminution of the value of his capital. He is dissatisfied if it even remains stationary. Capitals are generally formed from small beginnings by acts of accumulation, which become in time habitual. The capitalist soon regards the increase of his capital as the great business of life; and considers the greater part of his profit more as a means to that end than a subject of enjoyment.¹²

It is not exactly clear here what Senior means by all of this. I think that one interpretation might be that as the capitalist starts out saving, a rate of interest may be necessary for him to save. However as time passes, the capitalist saves only with a view to increasing his capital, and absolute amount of profits. I think that the interest payment probably still necessary for the saving to occur, but once the capitalist becomes wealthy, it becomes less important. So, this passage has a somewhat

different meaning than Bohm Bawerk's above, which says that capitalists save just because they are rich, but the underlying idea that saving becomes more interest inelastic as you become wealthy, is the same.

The last argument that Bohm Bawerk raises against Senior, and the one that he spends most of his time discussing, is that Senior is in error in counting abstinence as a second sacrifice apart from labor. Bohm Bawerk believes that Senior is mistaken because it is the passage of time which alters our perception of the sacrifice involved with the exertion of at labor for remote results.

I find many errors within this argument. The first criticism is that Bohm Bawerk's examples do not clarify his point. Of course if a tree is destroyed, the same day you plant it, you have lost nothing but the day's labor in planting the tree. This proves nothing. If we modify his example, my point should be clarified. If we spend a day planting a tree which bears fruit at some period in the future, we must wait for the fruit to be produced by the tree. The production of the fruit takes place in stages, until it reaches full maturity, and thus we can pick the fruit from the tree before it reaches maturity if we wish. If we do chose to pick the fruit before it reaches its full size, we are making a trade off between current consumption of the fruit, and the consumption of a larger piece of fruit in the future. The reason we do not pick the fruit in the future is that for some reason or another, we are not willing to wait for it, or abstain from current consumption. Thus there are really two sacrifices being made in the growing of the fruit tree. One is the labor expended, and the waiting that must

occur before the fruit reaches maturity.

The second, and main criticism that I have against this argument is that Bohm Bawerk is simply substituting his own expression for Senior's expression, thinking that the two expressions are different. For Senior, the complete sacrifice that one undergoes when choosing remote production to direct production is the sum of the labor effort and abstinence. Bohm Bawerk says that the complete sacrifice made up entirely of the labor effort. In the following passage he claims that the passage of time exerts influence on the value of labor effort:

If we have the choice of expending our means of obtaining satisfaction- and our labor is such a means, on filling an immediate need on one hand, and a future need on the other, the attractiveness of the immediate satisfaction will increase the difficulty of deciding in favor of the future one. But if we do nevertheless decide in favor of it, we are prone to measure the extent of the sacrifice we have made by the extent of the gratification which we forego. And since the latter is invested with the alluring character of instantaneousness, the scales will tip to that side and make our sacrifice seem even harder than it would have appeared.¹³

Bohm Bawerk is saying that due solely to the preference of present goods to future goods, labor effort which is used for future production seems to be a bigger sacrifice than the same labor effort used for direct production.

Through an example, I hope to show that the sentiments expressed by Bohm Bawerk, are basically the same as those expressed by Senior. If we represent an hour's worth of labor as a arithmetic value of -10 and a year's worth of abstinence

from current consumption as -3, under Senior's method, the total sacrifice of one hour's worth of labor used for roundabout production taking one year would be equal to -13. The amount is negative because there is pain involved both in working and in abstaining from current consumption.

Using Bohm Bawerk's method, we would have the original labor effort, which is represented by -10, but due to the use of the labor for time-consuming production, the actual sacrifice is greater. It should also equal -13. Since in both cases, one hour's worth of labor is being devoted to production taking one year, the total sacrifice must be the same. It is just that Senior and Bohm Bawerk have a different way of accounting for this passage of time.

It may still be argued that time influences the theories of these two writers in a different manner. The influence of time is different in each writer's case, but the difference is slight. In Senior's framework, the passage of time plays two key roles. The passage of time allows for capital to be used in production as a result of saving. In addition, the delay of consumption which results in saving represents a certain amount of pain for those who save. Thus, without a positive rate of interest, saving would not occur, and the demand for capital would exceed the supply. In Bohm Bawerk's framework, the passage of time results in the ability to utilize roundabout methods of production which are more productive. In addition, an *agio* is paid for present goods because people are not willing to go without present consumption, even though they may enjoy a very large amount of future consumption. Without a positive

rate of interest, the demand for capital exceeds the supply. If people are willing to pay an agio on present goods, this must mean that going without the present goods must present some hardship to them. Thus non consumption results in pain for both writers. The only difference is that Senior is looking at the influence of time, and the postponement of consumption from the supply side and Bohm Bawerk is looking at it from the demand side. However, as I have pointed out above, I believe that Bohm Bawerk's assumption that savers do not make a sacrifice is not valid. He realizes that those who demand loans, demand them because they are attempting to avoid the displeasure associated with non- consumption, but he refuses to address the fact that the same displeasure could occur for those who are the suppliers of capital, insisting without proof that the first two reasons that interest is paid do not apply to them.¹⁴

For the reasons outlined above, I think that it is evident that Bohm Bawerk's criticism of Senior is not valid. I think that the main problem is that Bohm Bawerk misinterprets Senior's intention. Within the next section, a commentary on why the misinterpretation, as well as some suggestions on how Bohm Bawerk could have improved his critique of Senior are offered.

Commentary

I have attempted to show that Bohm Bawerk's criticism of Senior, does not accomplish its goal. I believe that in an effort to prove the superiority of his own theory, Bohm Bawerk feels he must first discredit those theories of writers before him. It can be seen from some of the passages quoted above, that Bohm Bawerk does hold

Senior's theory in high regard with respect to certain aspects. But I think the theories of these two writers are much more similar than Bohm Bawerk perceived, and as a result, he is unable to present a truly accurate critique. I think this error in perception can, as I have alluded to, be traced to the fact that Bohm Bawerk is from the Austrian School of thought, and thus has a slightly different perspective on things than other writers. In addition, if he did feel the need to discredit other writers in order to prove the superiority of his theory, this could also distort his perception of the theory, in order to fit a preconceived critique.

Bohm Bawerk misinterprets Senior's usage of the abstinence argument. Senior uses abstinence more as a way of justifying the payment of interest, rather than explaining its origin. Bohm Bawerk repeatedly makes the mistake that abstinence is the origin of interest, or associates the payment of interest with the degree of abstinence. In my opinion, the best argument against Senior would have been to criticize his justification of interest. But this deals with the social problem of interest. Within The Positive Theory of Capital Bohm Bawerk comments that even though saving is necessary for capital formation, it should not be used to justify the payment of interest.¹⁵ This idea in itself could serve as the basis for an effective criticism of Senior's theory. If he could formulate reasons why saving does not justify interest, this would seriously discredit Senior's use of the term *Abstinence*. Unfortunately, Bohm Bawerk does not extend the statement any further, he is more concerned with the theoretical problem of interest, rather than the social problem.

Concluding Remarks

I think that it has been shown that Senior's theory is similar to Bohm Bawerk's with respect to the conclusions that it reaches. Bohm Bawerk has unfortunately confounded the social problem of interest with the theoretical problem of interest with respect to Senior's use of the term abstinence. Senior uses abstinence to justify interest, not to explain its origin. In order to present a critique which discredits Senior, Bohm Bawerk would have had to address the social problem of interest, which was not within the scope of his work.

Endnotes

1. Bohm Bawerk, *Capital and Interest*, Vol. 1, 2-4.
2. Bohm Bawerk, *Capital and Interest*, Vol. 1, 181-184.
3. Bohm Bawerk, *Capital and Interest*, Vol. 1, 183.
4. Bohm Bawerk, *Capital and Interest*, Vol. 1, 184.
5. Bohm Bawerk, *Positive Theory*, 120.
6. Bohm Bawerk, *Capital and Interest*, Vol. 1, 184.
7. Senior, *Political Economy*, 59.
8. This discussion can be found in Bohm Bawerk, *Capital and Interest*, Vol. 1, 185-190.
9. Bohm Bawerk, *Capital and Interest*, Vol. 1, 187.
10. Bohm Bawerk, *Positive Theory*, 161.
11. Bohm Bawerk, *Positive Theory*, 330.
12. Senior, *Political Economy*, 192.
13. Bohm Bawerk, *Capital and Interest*, Vol. 1, 189.
14. Bohm Bawerk's whole discussion of saving on the part of the capitalist is in *Positive Theory*, 313-335.
15. Bohm Bawerk, *Positive Theory*, 120-121.

CHAPTER VI. CONCLUSION

Although Nassau Senior and Eugen Von Bohm Bawerk belong to different schools of economic thought, I have attempted to show that their theories of interest are in fact very similar. These similarities, along with what I consider to be a misinterpretation of Senior by Bohm Bawerk lead to critical errors within Bohm Bawerk's criticism of Senior.

In comparing the various interest theories that existed prior to Bohm Bawerk, we see that many of them are similar in their conclusions. Senior and Bohm Bawerk exhibit such similarities. For Senior the rate of interest is determined by the wage fund and the number of laborers, as well as the time advance of capital. In Bohm Bawerk's system, interest is determined again by the wage fund and the average period of production.

Bohm Bawerk's main error in criticizing Senior is failure to understand Senior's use of time. Bohm Bawerk believes that interest results from the passage of time. He interprets Senior as saying that interest is the result of abstinence. Senior uses abstinence not to explain the existence of interest but to justify its payment. For Senior, the passage of time results in saving, and capital formation which lead to interest. Both writers understand the influence of time on the existence of interest, but perceive it in different ways. I do not doubt that Bohm Bawerk's exposition of interest is clearer than Senior's, but I think that Bohm Bawerk fails to see the similarities between him and Senior, and is unjustified in his criticism. As I have

pointed out in the previous chapter, Bohm Bawerk could have presented an effective rebuttal of Senior had he focused on the "social" problem of interest rather than the "theoretical" problem.

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