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Marx, Economic Sustainability, and Ideal Capital

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Under the Direction of Dr. Andrew J. Cohen

ABSTRACT

My purpose in this work is to argue that the resolution of capitalism's contradictions, as they are understood by Marx, fits the criteria of an economic movement towards sustainability. The Marxist analysis of capitalism, while accurate in many respects (especially with the explanation of contradictions generated in the capitalist free market), requires more explanation of the manner in which the economic process of valuation is to continue in the stages succeeding late capitalism. This work will provide an explanation of this economic transition that remains faithful to Marx's understanding of history and the historical development of the productive forces and the relations of production. I will propose the inclusion of ideal capital (the valuation of non-material goods) as an economic component to help explain a sustainable economic arrangement under a Marxian framework. I will additionally address critiques arising from Bohm-Bawerk in my endorsement of a Marxian economic analysis.

INDEX WORDS: Sustainability, Marx, Marxism, Ecology, Capital, Surplus-value, Surplus value, Economic sustainability, Labor theory of value, Ideal capital

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CHAPTER I: CAPITAL'S STRUCTURE: TOWARDS ECONOMIC SUSTAINABILITY

1. INTRODUCTION

My purpose in this first chapter is to argue that the resolution of capitalism's contradictions,[1] as they are understood by Marx, fits the criteria of an economic movement towards sustainability. The Marxist analysis of capitalism, while accurate in many respects (especially with the explanation of contradictions generated in the capitalist free market), requires more explanation of the manner in which the economic process of valuation is to continue in the stages succeeding late capitalism. This chapter will provide an explanation of this economic transition that remains faithful to Marx's understanding of history and the historical development of the productive forces and the relations of production.

The second section will provide a "social reading" of capital, arguing that the general form of capital can be understood as having economic properties (which would place it in the category of relations of production) as opposed to being a mere component of the productive forces. To provide support for this reading, I will look at G. A. Cohen's work on the matter.

In the third section, I will provide an account of how the general form of capital can be explained by productive forces. I will use G. A. Cohen's formulation of Marx's primacy thesis, which states that the relations of production can be explained by the productive forces. In occupying the same relationship to the productive forces as the relations of production, the general form of capital can be understood as sharing the economic properties characteristic of the relations of production. That is, the general form of capital shares economic properties that the relations of productions have insofar as the general form of capital relates to the productive forces in the same way the relations of production relate to the productive forces. This argument

[1] "Contradiction" is used throughout in the Marxian sense: it indicates a particular issue which renders an economic (social) scheme unsustainable in the long term.

assumes that the established relationship to the productive forces provides the grounding for possession of economic properties. The importance of identifying economic properties of capital is that it allows us to see that economic growth can be understood through an understanding of how goods are valued within a given set of material circumstances. The things that are valued under the general form of capital, particular capital, provide a useful explanation how market relations develop and the kinds of labor relations that are present in an economy at a particular historical period. It also provides the resources to outline different economic arrangements that may arise from particular states of productive forces.

The fourth section will explain the dynamics of the capitalist economic system, focusing on its need for scarcity and depletion (both of natural resources and labor power) to generate surplus-value—elements that run contrary to the expansionist character of the productive forces. I will conclude in this section, along with Marx, that the general form of capital within the capitalist economy (how particular capital is valued) prevents that economy's long-term subsistence through the creation of irreconcilable economic contradictions. These are the curbing of productivity and the incentive to push labor wages down. Both are meant to increase profit for the capitalist, the owner of the means of production. In curbing productivity, profit is increased for the capitalist by controlling supply of produced goods and generating competition for the acquisition of the controlled goods (increasing scarcity to increase surplus value). To increase profit, the capitalist is also encouraged to constantly lower (as much as she can) the wages for labor in order to derive greater profit from the production of goods. If Marx's characterization of

late capitalism[2] is accurate, the continuation of history must rely on a shift in the general structure of capital. I will identify this shift as the process towards economic sustainability.

In the fifth section, I will develop a clearer definition of what I mean by my usage of the term "sustainability" and argue that it inverts the economic arrangement that causes the crises and contradictions of late capitalism.

2. THE FEEDBACK LOOP: CAPITAL AND THE FORCES OF PRODUCTION

Marx provides the following statement on the composition of capital: "Capital as a form consists not of objects of labor and labor, but rather of *values*, and, still more precisely, of *prices*."[3] Capital, in its most general form, consists of the valuing framework of prices. This means that the general form of capital consists in the social process through which things acquire value. Particular things acquire value insofar as they fit into a general value arrangement; that is, insofar as a particular thing has value it is particular capital, which fits into an economic (social) system.

In speaking of the relations of production in general, G. A. Cohen states that Marx refers to something as having economic properties only if it deals with "relationships."[4] Forces of production, which include raw materials, means of production, and labor power, are excluded from having economic properties[5] because they are not relationships or necessarily in relationships; relations of production are in relationships in that they coordinate the particular productive forces present in a given place and time. What needs clarification is whether capital can, in fact, be considered to have the same economic properties that relations of productions

[2] "Late capitalism" is used throughout as the stage at which contradictions become problematic for capitalism (an increasing slowdown in economic growth, leading to economic crises).
[3] Karl Marx, Grundrisse (New York: Penguin Books, 1993), 312.
[4] G. A. Cohen, Karl Marx's Theory of History (Princeton: Princeton University Press, 1978), 111.
[5] Ibid, 33.

have. That is, whether capital, in its general form, has the property of providing a value arrangement that "moves" the resources towards productive ends.

Cohen understands Marx as positing two basic properties that distinguish forces of production from relations of production:

> First, a force or power… is not a relation. It is not something that holds between objects, but rather a property of an object, or… an object bearing that property, an object having productive power, and such an object is not a relation.
>
> Second, production relations are said to *correspond* to productive forces at a certain stage of development of the latter.[6]

If the initial general composition of capital is accepted, capital must then be an intrinsic part of the relations of production insofar as the general form of capital provides the value framework (itself comprised of relationships) that serves as a base for the usage of the productive forces for productive means. In other words, the general form of capital provides the parameters through which a particular thing acquires value (that is, is transformed into particular capital). Marx characterizes the role of capital in economic relationships by stating that:

> Capital, as exchange value existing prior to circulation, or as presupposing and preserving itself in circulation, not only is in every moment ideally both of the two moments contained in simple circulation, but alternately *takes the form of the one and of the other*, though no longer merely by passing out of the one into the other, as in simple circulation, but rather by *being in each of these roles at the same time a relation to its opposite*, i.e. containing it ideally within itself.[7]

Value is not a something that attaches to an object in isolation; in establishing the value of a thing, that thing is being put in a value relationship with something else—or a great number of something elses. Thus Marx notes that capital is simultaneously particular and general. In the general form, it consists in the broad value structure; in the particular form, it is a good that relates to the general structure of values. The general form therefore becomes particular in a good's acquisition of a distinct value; the particular, in turn, relates to the general form insofar as

[6] Ibid, 28.
[7] Grundrisse, 259 (my emphasis).

its value falls within (and is determined by) a larger value structure. They are, therefore, mutually dependent on each other; there is no general value structure devoid of particular goods that have value and there is no particular capital without a general value scheme.

Putting the point differently, "the economic categories are only the theoretical expressions, the abstractions, of the social relations of production… The same men who establish social relations conformably with their material productivity, produce also the principles, the ideas, the categories, conformably with their social relations."[8] The economic relationships generated by individuals include the content that dictates social relations; the manner in which valuation occurs within the process of production is bound to the social dynamic of relations between individuals. For example, the productive relation between the capitalist and the worker must include a value relationship: in particular, ownership over the means of production places the capitalist in the superior position of the value relationship insofar as the productive means he owns have a greater value potential in the production process, while the easily replaceable labor that the worker can offer places her in the inferior position of value generation and thus of reduced remuneration for labor. The general form of capital, as an organizing feature that posits values, holds as a relation between two things (at least one of them being a person). While it acquires particularity in a specific situation, as a determined value relationship, it constitutes the general value scheme that extends throughout an entire economic system.

The second quality of the productive relations involves what Cohen has named "Marx's primacy thesis."[9] The primacy thesis is formulated in the following way: "The nature of the productive relations of a society is explained by the level of development of its productive

[8] Karl Marx, The Poverty of Philosophy (New York: International Publishers, 1963), 119.
[9] G. A. Cohen, Karl Marx's Theory of History (Princeton: Princeton University Press, 1978), 134.

forces."[10] The link provided between the productive forces and the relations of production must not, however, be presumed to be causal. Not all changes in the productive forces will generate changes in the productive relations. Cohen provides a "dynamic" reading that specifies the kind of relationship between both components: "For any set of production relations, there is an extent of further development of the productive forces they embrace which suffices for a change in those relations."[11] The establishment of specific relations of production can be explained by the stage of development in the productive forces. The primacy thesis allows for a functional explanation of the relations of production; productive relations of a specific kind exist insofar as the productive forces provide the "material" that is used by those productive relations. The forces of production are not said to have greater (causal) hold over the productive relations, because specific relations may persist despite some changes in the productive forces.

In the following section, I will defend the claim that capital, in its general form, constitutes part of the category of relations of production on the grounds that, much like the relations of production in the primacy thesis, capital is explained by the productive forces. My goal will then be to provide an explanation of the economic property of capital, namely the organizational quality that is necessary to an economy. This explanation will include an illustrative analogy between a living cell and capital. Through this analogy, I will explain how capital has a social composition that contributes to economic development. In defining capital in this social manner, we will understand economic development as aiming towards a social organization of prices and values which are able to sustain consistently further economic growth; a social organization that can absorb the continuous expansion of the productive forces.

[10] Ibid, 134.
[11] Ibid, 135.

3. THE CELL-CAPITAL ANALOGY

Richard Marsden presents an analogy that illuminates Marx's understanding of capital and its economic relevance as a social organizing feature: "Capital is analogous to a cell because it contains the primary, self-replicating genetic mechanism structuring individuals' capacity to act and is present in nearly all social organisms."[12] A cell can be said to have two features that determine its existence and function: its genetic (internal) composition and its particular function in the organism (external). On the one hand, the cell is manifestly identified as a cell of a particular organism because of its internal identity, its genetic configuration, and a foreign cell is identifiably *foreign* (is differentiated from other cells) because it does not contain the same genetic information that characterizes the biological identity of the organism. On the other hand, a cell has a specific function within the organism, a function that differentiates one cell from another within the same organism.

The cell's particular genetic configuration explains the manner in which cells are arranged within the organism. Much the same way, capital contains the organizational quality that permits a social system to prosper in its productive function. "These organizational cells are not a microcosm of the social body; they constitute the social body, just as actual cells constitute actual bodies."[13] Cells are then organized in a particular manner in accordance with their shared internal genetic feature. Furthermore, the very organization that cells possess makes the organism the organism that it is. Marx comments that capital "makes a world out of itself."[14] Capital, in accordance with its general form, constitutes the social world as an organized economic system: a system that provides a social organization through values and prices. An economy, understood

[12] Richard Marsden, The Nature of Capital (New York: Routledge, 1999), 118.
[13] Ibid, 118.
[14] Karl Marx and Friedrich Engels, "Manifesto of the Communist Party," in The Marx-Engels Reader, ed. Robert C. Tucker, 2nd Edition (New York: W. W. Norton and Company, 1978), 477.

as the sum of productive relations between individuals, is productive and hence social only because it presents an organized structure—a structure that is determined or codified by capital (as the internal genetic feature shared among material goods and labor skill-sets that are necessary for production of a certain kind).

When an organism's cell organization allows that organism to function or survive, it means that the organism can cope with or absorb the environmental resources available to it. However, the material environment is constantly changing (this includes the particular productivity of each cell as well): raw materials are available at differing quantities at different times (and sometimes depleted entirely), new species migrate and emigrate to and from places within the environment, individual cells develop new traits and acquire new functions, and so on. These ongoing changes shift the organism's possibility of survival and reproduction (hence its historical continuation). In the same manner, a social organization can become quickly inefficient if it does not match the resources that are available to it. Capital must have the ability to adapt to the productive forces in order for productivity to continue its course of development. In cells, the adaptation process can be accounted for through the process of genetic recombination, mutation. Capital can also be said to have the capacity for "mutation" through its constant process of "genetic recombination."

As history progresses, material goods become either more or less readily available for social usage.[15] Additionally, individuals also develop varied productive skills. The constant evolution of prices and values in society represents this continuing process of mutation and evolution. Marx's understanding of capital allows for a process of mutation whereby capital adapts to the constantly changing material environment that provides changing sources of

[15] "Social usage" here merely denotes "for the usage of individuals in society"; there is no specification on the kind of social arrangement which it serves.

production. Genetic configuration of the social type, embodied in the general form of capital, is represented in historical stages of economic development where price-values match the availability and variety of the productive forces. Marx's functional explanation of production is then explained through the cell-capital analogy in the following manner: the organization presented in an organism's cell configuration is explained by the immediate environmental features (this includes the skill-sets that particular cells have).[16] Capital, in its general form, has the same kind of organizational feature that cells have in an organism: the general form of capital represents the organization of values that allow the economy to function.[17] Furthermore, capital can be explained by the material resources and labor power present in a particular society. The method of analysis presented by the functional explanation allows for the possibility of discovering the "material causes, that is, that structure of internal relations which bestows on the individuals who constitute it a capacity to act."[18] In other words, the functional explanation employed to explain the productive relations (including the general form of capital) explains the range of productive relations and general structures of capital that can exist given a particular material situation. This does not mean that the environmental features will causally determine the organism's cell organization; in the process of evolution, an organism's (internal) genetic configuration may change in a myriad of ways.[19] In much the same way, the general form of

[16] Skill sets, insofar as they pertain to the external capacity for a cell to act in accordance to its function, are a factor that is not internal. The internal quality of a cell is then restricted to its genetic configuration, which explains its "place" in the overall functioning in the organism.

[17] This quality of value organization is internal because it does not directly consist in the particular value a thing has; the general form consists in the capacity a thing has to relate to an economic system. This internal feature explains the particular value a thing acquires within the social (economic) structure.

[18] Richard Marsden, The Nature of Capital (New York: Routledge, 1999), 118.

[19] I am presupposing a straight forward Darwinist (as opposed to a Lamarckian) understanding of evolution, occurring through the chaotic process of genetic mutation, where changes in the environment are generally understood to not dispose specific changes in the organism's genetic composition. I take it that extreme situations of environments causing particular genetic changes (think of an organism falling into a radioactive pit and surviving) are merely accidental and do not correspond to the manner in which speciation and genetic mutation occurs.

capital is not causally determined by the productive forces of a society. Capital can, however, be explained in a non-causal manner by the level of development in the productive forces. This method provides the possibility of determining the range of market prices and values that can emerge within a particular environment, with particular material features.

The second feature that the analogy picks out is the particular function the individual cell has in relation to the organism's general functioning. While all cells share the internal genetic feature, the purpose of each cell may vary. Each particular kind of capital has a specific productive function, though all things taken to be capital in an economic system share the same internal (economic) feature that determines the overall organizational configuration that makes the productive system an economy (each particular capital "returns" to the general form). In other words, by virtue of being a productive component of an economic arrangement, each particular kind of capital contains the information that organizes the entire price relationship scheme of the economy, even though each particular kind of capital has its specific use in a particular kind of production (as a force of production).

4. SURPLUS-VALUE AND CAPITAL

Marx claims that, "The self-preservation of capital is its self-realization."[20] The preservation of capital is represented by the value that is given to it by the economic system. Capital is no longer considered to be capital if its value does not increase or contribute to the economic expansion of society's production. If it did not, it would not match the historical character of the productive forces: continuous growth and expansion.[21] Capital must then grow

[20] Grundrisse, 324.

[21] A piece of machinery is said to depreciate in value as time goes by; its value, as capital, does not increase. However, insofar as it has produced goods, it has contributed to the expansion of the value of capital (the goods it produced). That is, it increases the value of the raw materials which are transformed into more valuable goods. The machine then contributes to the expansion of capital only if it produces more value in goods than the equivalent of its

alongside the productive forces. The increase in value is what promotes the further development of production (capital "absorbing" or "matching" the continual growth of the productive forces). Early capitalism is characterized by the constant addition of products in a free marketplace for exchange. Continual production allows for producers and owners of the means of production to generate benefit, while growing alongside the productive forces. Through time, however, more and more material goods are incorporated into the market, generating competition and therefore fluctuation of market values and prices.[22] Risk is continually involved in the investment of resources in the production of goods. Furthermore, competition forces a reduction in the prices of produced goods over time. Newer products continually enter the market and these compete with the previously produced goods, resulting in downward pressure on prices. With the growth of production, the producer must seek to cut the cost of production in order to maintain a margin of benefit or profit, which will account for the competition and lowering of prices in a competitive market.

The expansion of the forces of production fuels the lowering of prices, generating a need for value compensation: "The constantly ongoing devaluation of capital, resulting from the increase in the forces of production, has to be compensated."[23] This pressure from the increase of productive forces makes it necessary for producers to find a way to offset what would otherwise be a net loss to them; this is surplus-value. In other words, as a market grows in production, there is a further increase in the demands for economic growth. This demand for economic growth comes from the productive forces, the "resources" that make an economy move. As more

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own original value. In isolation, the machine does not increase in value; only when looking at its production rate of goods we can say that it expands the value of capital. More simply, the machine expands the value of capital when providing profit for its owner.

[22] Of course, the market stabilizes over time even though there are fluctuations due to no new additions or reductions of competitors and competing products.

[23] Grundrisse, 317.

production is made possible, new needs arise that fuel the demand for further economic expansion. Surplus-value serves as an additional value that allows the accumulation and, potentially, the reinvestment of capital into production. It represents, therefore, an "excess" value addition that allows itself to be accumulated and channeled to the producer.

Marx defines surplus-value as excess value that is necessary in the production process within a capitalistic system:

> Surplus value in general is value in excess of the equivalent. The equivalent, by definition, is only the identity of value with itself. Hence surplus value can never sprout from the equivalent; nor can it do so originally out of circulation; it has to arise from the production process itself.[24]

In order to account for the risk of competition in the marketplace, surplus-value must be present in the production process. The creation of surplus-value production is due to a cut in production costs. The cost of production can be reduced in two distinct manners: increasing efficiency and reducing labor remuneration. Production efficiency is inherently limited by the stage of advancement of productive forces. That is, the production costs of capital, including the maintenance and replacement of machinery, are limited by technology. Labor costs, however, remain a variable element in the production process.[25] If a laborer can work for an entire day and get paid only for half a day, the capitalist can obtain half a day's work for free. This unpaid work-time serves to increase capital's value despite market price fluctuations; unpaid work allows capital to produce more for less "because the labor time objectified in the price of labor (the wage of labor) is less than the living labor time by which it is replaced in the production process."[26]

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[24] Ibid, 324.
[25] I am not disregarding the variation of used up capital in the process of production; I am merely pointing to the malleability of variable capital, namely wage-labor. The point made merely states that variable capital is more malleable, in terms of cost, than constant capital.
[26] Karl Marx and Friedrich Engels, Collected Works, Vol. 30 (New York: International Publishers, 1975), 172.

The growth of capital's value in the capitalist economy can then be understood as the generation of surplus-value, which is an increase in a laborer's working time for no additional remuneration, known as surplus-labor: "What appears as surplus-value on the side of capital, appears as surplus-labor on the side of the worker."[27] The question remains, however, as to why a laborer would agree to an arrangement that only contributes to her exploitation (getting paid less for more work). The practice of using surplus-labor as a means of production can only be accomplished where there is a surplus of laborers. Where there is such a surplus, the refusal of one laborer to give away her surplus-labor poses no risk to the owner of the means of production, the capitalist. If the laborer refuses the labor contract, another fills her shoes; the laborer must thus give surplus-labor to prevent unemployment and starvation. Therefore, a surplus quantity of laborers creates the required competition that permits the capitalist to objectify the worker's labor (increasing the value of capital) while diminishing the cost of living labor (wages). The contradiction present in this dynamic is that to permit this process to continue, the availability of produced goods must be limited to generate the necessity of wage-labor in society. That is, scarcity of produced goods is needed to create a need in the population to continue working according to the stipulations of wage-labor.[28] So although production increases quantity and quality, the relations of production along with the general form of capital remain static; the relationship between owner of the means of production and the wage-laborer does not change (the owner strives to decrease wage-labor costs, leaving the laborer fixed in her labor position—

[27] Ibid, 172.

[28] Perhaps an additional example will suffice here: The only reason for grad students accepting low paying assistantships is because there is greater demand than supply of offered positions. The more limited the positions are in general, the more likely grad students will be willing to accept lesser paying positions that have the same (or more) amount of work. GSU can then lower the stipend and increase the workload of grad students (thus economizing school and/or department budget) if all other universities follow the same trend. The current state of affairs reflects this phenomenon: because universities offer less positions with assistantships, students are willing to accept less payment and higher workloads because competition is increased (there is a surplus grad applicant pool); conversely, universities use less money to "produce" scholars (people who have a graduate school education).

she cannot have a different relationship to the means of production and to the owner of those means of production).

The system of capital just described reveals itself as being solely concerned with the advancement of wealth; in particular, wealth for the capitalist (the few who exert the greater influence over the market forces of supply and demand). "Every degree of the development of the social forces of production, of intercourse, of knowledge etc. appears to it [capital] only as a barrier which it strives to overpower."[29] The advance of the productive forces is then accomplished at an early stage of capitalist production where the market has not yet developed advanced methods of production. This is because, at an early stage, capitalism promotes incentives for increasing productivity through ownership of the means of production and increasing the supply of goods in the marketplace. As production increases, the owners of the means of production increasingly rely on the accumulation of capital goods (surplus value) to derive profit. This situation increases the incentive of reducing wages, polarizing wealth distribution on a social level and reducing overall market productivity (insofar as increasingly fewer individuals have greater control over the supply of goods in the marketplace). The advanced phase of capitalism described by Marx poses perils to the continuing growth in productivity required by the constant advancement of the productive forces.

The state of scarcity and depletion is, furthermore, linked to the natural resource usage in agricultural and industrial methods of production:

> Large landed property reduces the agricultural population to an ever decreasing minimum and confronts it with an ever growing industrial population crammed together in large towns; in this way it produces conditions that provoke an irreparable rift in the interdependent process of social metabolism, a metabolism prescribed by the natural laws of life itself… Large-scale industry and industrially pursued large-scale agriculture have the same effect. If they are originally distinguished by the fact that the former lays waste and ruins labor-power and thus the natural

[29] Grundrisse, 541.

> power of man, whereas the latter does the same to the natural power of the soil, they link up in the later course of development, since the industrial system applied to agriculture also enervates the workers there, while industry and trade for their part provide agriculture with the means of exhausting the soil.[30]

A dual contradiction is generated in the capitalistic production process: first, the worker's remuneration is lessened while she must invest greater surplus-labor, crippling the development and expression of her labor-power (including the skill-sets that would increase productivity in the long-term). Second, the short-term gain of surplus goods by means of gains in private wealth depletes the resources that feed the production process of market products.

5. THE ECONOMIC TRANSICTION OF CAPITAL: SUSTAINABILITY

The move towards a sustainable economy can be understood, in Marxian terms, as the resolution of the contradictions generated by capitalism. The increase in surplus-labor and the depletion of the soil (natural resources) results in a tension between the capitalistic relations of production and the productive forces. Through the exploitation of land (natural resources) and labor-power,[31] capitalism increases the value of particular capital through scarcity and resource depletion. The eventual shift in the economic base occurs as a result of capitalism's inability to sustain itself. In supporting an economic system that can support the continual expansion of productive forces, Marx supports a system that assures the continuation of the human species, with each generation bettering the economic conditions for succeeding ones.[32] In this sense, Marx endorses sustainability as defined by the Brundtland Commission: "development which

[30] Karl Marx, Capital, vol. 3 (New York: Vintage, 1981), 949-950.
[31] I realize that I have not discussed natural resources in the same detail as labor-power. Both, however, have parallel arguments. This is because both are parts of the productive forces.
[32] Karl Marx, Capital, vol. 3 (New York: Vintage, 1981), 911.

meets the needs of the present without compromising the ability of future generations to meet their needs."[33]

The cell-capital analogy illustrates the move towards sustainability. If the organism is to continue its survival, it must be able to successfully absorb and cope with the resources in its immediate environment. Furthermore, the organism must consume resources in such a way as not to compromise its future survival.[34] In other words, the organism's cell organization must allow the organism's needs to match the environment's resources and not prevent the organism's continuation of survival. The more the organism's cell organization fits these two criteria for survival, the more likely it will be able to survive.

The historical development of an economy relies on two parallel features for its continuation: production must match the productive forces and environment of the society and it must not rely on methods that compromise its continuation. The general form of capital, as the organizing feature of values in an economy, must allow the economy to function in such a way as to fit the two criteria for the continuation of economic development. The closer the general form of capital is to positing a system of values that fits the two criteria for economic sustenance, the better suited will the economy be for further growth and continuation; that is, the economy will be closer to complete sustainability.

To accomplish the transition to sustainability, we must understand the dialectical relationship between the general and particular forms of capital. Capital has a dialectical character insofar as one form affects the other in a constant process of general value-positing and

[33] From UN Documents, "Report of the World Commission on Environment and Development: Our Common Future" (http://www.un-documents.net/wced-ocf.htm), I.2.I.

[34] The two criteria might very well be seen to be part of a single concern for economic growth. Insofar as it fits into the same concern, it is not essential that they be distinguished as independent; to this extent, the division into two criteria is arbitrary, but not problematic to the explanation of a sustainable approach to economic growth.

particular value-reception. The value standards of a market affect the valuing of a particular good as much as the introduction of that particular good affects the valuing scheme of the market. All "revolutionary" or violent change in an economy must affect the manner in which the two dialectical components function, i.e. the dynamic through which the valuing occurs. In other words, in order to overcome the crises generated through capitalism and to continue production, the valuing process, as well as the goods that acquire value, must change in character.

The general form of capital in a sustainable system is guided by the increase in production and productivity.[35] It thus opposes the positing of surplus-value insofar as this form of value necessitates scarcity or limitations in productivity as a means of creating competition and reducing the costs of production. That, of course, is one of the contradictions of capitalism. The specific form of capital, in following the productivity-driven requirements of the general form, takes the shape of renewable resources that permit for the long-term continuation of production and increased productivity.

Increased production and productivity required by the general form of capital points to two issues that must be addressed: work (job) openings and distribution of goods. Limited job openings were necessitated in the capitalist scheme to generate competition, but now only render the majority of the working population mere replaceable tools while preventing any advances in individual labor-power. The way to eliminate the crisis of job competition and stagnation of labor-power is through the increase in production capacity;[36] in recognizing each member as a

[35] Even if population were to remain at a constant number, production must still increase consistently because of the continually changing (growing) public demand for goods of particular kinds (in the coming chapter, public demand will be identified as part of the "social bases of productivity").

[36] Even in mechanized production lines, a good number of specialized workers (with a highly developed labor power) are needed: engineers (systems designers), maintenance technicians, and supervising technicians. In highly mechanized industries, like car manufacturers, jobs are not lost because of mechanization; they are lost when companies are shipped overseas or in downsizing shut downs.

needed component of the production process, work again becomes a "home" to the worker.[37] In having productivity as the engine that structures the general form of capital, each producer gains responsibility in increasing individual labor-power to further the process of widespread production.[38] Marx refers to the "epidemic of overproduction" in capitalism as a negative trait of bourgeois production.[39] But that particular kind of "overproduction" is problematic because goods are only distributed to those whose basic needs are already fulfilled.

Capitalistic overproduction does not present the fundamental features of a system that "overproduces"; it relies on the general scarcity of goods among the working classes (this is how market forces are kept intact and fully functioning). In a system of widespread production, increased productivity instead overwhelms the regulating market forces because goods are made ever more readily available. Widespread production decreases the prices of material goods because of the quantity made. Therefore, surplus-value cannot be generated through accumulation.[40] The increase in value of particular capital in such a system does not occur because of surplus-value but rather because of the increased goods generated through widespread production. In a system of widespread production, producers would produce in order to fulfill their necessities and better their lifestyles. The point is that production is not necessarily dependent on the generation of surplus-value (and therefore of the accumulation of goods). While there may be a continuing survival of the forces of supply and demand, the two forces impact economic growth differently; the increased ratio of supply to demand disarms the

[37] In Karl Marx's Economic and Philosophic Manuscripts of 1844, on Estranged Labor, he states of the laborer in a capitalistic system: "The worker… only feels himself outside his work, and in his work feels outside himself. He is at home when he is not working, and when he is working he is not at home." (74)
[38] Even if increased labor power per worker would require less workers in a particular production line, more workers would be needed in other production lines. This is because more production is needed throughout the economy.
[39] Karl Marx and Friedrich Engels, "Manifesto of the Communist Party," in The Marx-Engels Reader, ed. Robert C. Tucker, 2nd Edition (New York: W. W. Norton and Company, 1978), 478.
[40] Who would care, after all, if someone were to accumulate a good that is found in vast amounts? This situation would be most akin to someone who decided to bottle air and begin accumulating it.

possibility of generating value through the accumulation of goods. This means that scarcity no longer serves as the condition that determines wage distribution.

John Bellamy Foster identifies Marx's endorsement of a system of widespread production, grounded in the potential presented by primitive Russian communes: Marx points out that, "it would be possible to form an agricultural system 'organized on a vast scale and managed by cooperative labor' through the use of modern 'agronomic methods' not fully or rationally employed under capitalism."[41] This system would have the merit of using the technological advances in productivity generated by capitalism "without falling prey to the purely exploitative relation to the soil."[42] Because accumulation of goods does not produce any value, extraction is not a means by which agriculture would be managed. That is, without the possibility for deriving surplus-value from accumulation, productivity is not tied to the single benefit of a landowner; as productivity increases, goods cost less and are more available for all. Extraction would then be supplanted by rational means to increase productivity without the depletion of the source of goods.

The shift in the general form of capital is accompanied by a change in the determination of particular capital insofar as the character of goods that are produced under the new economic system must correspond to the new general form (and vice versa); if particular material capital is to elude the problems of capitalistic production, it must follow the parameters established by the sustainable form of general capital. A system of widespread productivity that is in accord with ever growing productive forces cannot rely on material resources that are inherently limited. The immediate conclusion points to the inability of scarce resources to provide for a stable and sustainable economic growth that could support a scheme of widespread productivity. Renewable

[41] John Bellamy Foster, Marx's Ecology (New York: Monthly Review Press, 2000), 165.
[42] Ibid, 165.

sources of production[43] are required insofar as productivity must be constantly increased, matching the growth and expansion of technology, labor-power, and the additional components that constitute the productive forces. Furthermore, the continual increase in productivity is the "inalienable condition for the existence and reproduction of the chain of human generations,"[44] a point that is emphasized by Marx in the explanation of developmental economics.

6. CONCLUDING REMARKS

Through the explanation of the general form of capital as a part of the relations of production, economic development can be analyzed through the economy's organizational feature, the value-positing mechanism. The contradictions generated by late capitalism are the result of an organizational quality of the relations of production, manifested specifically in the general form of capital (in the positing of value through surplus-value). The development of an economy can then be understood as the overcoming of contradictions in the organizational form of economic relationships. This method provides support for the conclusion of the continuation of economic development through a model of sustainability.

[43] Renewable sources of production include, but are not restricted to, reusable sources of production. Renewable sources of production which are not reusable include, for example, solar energy.
[44] Karl Marx, Capital, vol. 3 (New York: Vintage, 1981), 754.

CHAPTER II: USING A MARXIAN ECONOMIC ANALYSIS FOR THE PROPOSAL OF A SYSTEM OF ECONOMIC SUSTAINABILITY DESPITE THE FAILURE OF THE LABOR THEORY OF VALUE

1. INTRODUCTION

This chapter will look closer at some significant complications caused in using the Marxian labor theory of value and an advantage of using Marxian economic analysis in the proposal of a system of economic sustainability.[45]

For the critique of Marx's labor theory of value, I will present (in section II) an argument coming from Bohm-Bawerk, one of the founders of marginalist economic theory. The critique against Marx's labor theory of value by Bohm-Bawerk claims that labor does not serve any explanative purpose in determinations of value. That is, the amount of labor in a product does not yield an accurate (or any) depiction of the product's price in the marketplace.

While the labor theory of value may fail, there are portions of the Marxian economic analysis machinery that allow the proposal of alternative economic arrangements (in particular an economic system of economic sustainability). The third section will be devoted to looking closer at the advantages of using a Marxian economic analysis. In identifying a general form of capital, we may be able to track the valuing of goods in an economic system with particular resources (forces of production). Given radical changes in the resource pool or in forces of production, the idea of a different economic arrangement (particularly in the valuing structure of a society and in the relations of production) is intelligible. The possibility of proposing an alternate economic system, as economic sustainability, is not open to other economic systems, as one which relies

[45] While both are interconnected (insofar as endorsement of a labor theory of value might require a Marxian economic analysis), a Marxian economic analysis does not necessarily require a full endorsement of the labor theory of value.

only on the forces of supply and demand. This is because there is no correlation present in these other systems between productive forces and the relations of production (including the general form of capital). In other words, a Marxian economic analysis takes the social bases of productivity, understood as the socially expected rate of productivity and work efficiency, as a relevant factor that tracks the structure of an economy and, particularly, how individuals value goods at particular times.

For my proposal of an economic system of sustainability, I have used the discussed Marxian concepts of general and particular capital to understand the impact of surplus in forces of production on the relations of production (shifting from capitalist relations of production). In the fourth section of this chapter I will introduce what I call "ideal capital" as a particular form of capital that fills the value void left with the exclusion or phasing out of surplus value. "Ideal capital" is defined here as particular capital that takes the form of non-material goods. If surplus value is not possible in a sustainable economic system, then the increase of the value of capital must be realized through other forms. Ideal capital is this "other form"; because value cannot be derived from the accumulation of goods, capital increases in value in taking ideal capital as a value-attributing feature of production.

The fifth section will be devoted to clarifying the primary function of a system of economic sustainability, which is to increase productivity and efficiency. Although the non-exploitative relation to resources is an added benefit of such an economic system, it is not its primary concern. I will clarify this point by critiquing John Bellamy Foster's understanding of a Marxian sustainable economic system.

In the sixth section, I will address a critique of the plausibility of a system of Marxian economic sustainability that questions the incentives for a laborer to produce. Because an

economic system of sustainability presents a limitless pool of resources, the critique questions why producers will continue increasing productivity and efficiency. My response will consist in proposing that production incentives are derived, to a great extent, from socialized values. Given the primacy thesis, this allows me to conclude that a working economic system (one in which production continually increases the value of capital) generates incentives that serve to its own continuation.

2. BOHM-BAWERK ON THE FAILURE OF MARX'S LABOR THEORY OF VALUE

a. Labor representing the value of goods

Marx begins his analysis of production with the exchange relationship: one kind of good being exchanged for another. The question for Marx is how these two goods can be exchanged; in other words, what makes these two goods commensurable with each other? Marx claims that the exchange "tells us that there is a common factor of the same magnitude in two different things… The two things are therefore equal to a third which is in itself neither the one nor the other. Each of the two, so far as it is an exchange value, must therefore be reducible to that third."[46] An initial possibility that determines the commensurability is the use value of each one of these goods. "But," Marx comments, "the exchange relation of commodities is obviously determined without reference to their value in use… As values in use commodities are above everything of different qualities; as exchange values they can only be of different quantities, and they can, therefore, contain no atom of value in use."[47] The commensurability of two goods is rooted in a common factor between all goods that can be exchanged. This means that there is a common element in things that are exchanged that makes them able to contain a value for exchanges.

[46] Karl Marx, Capital, vol. 1 (New York: Vintage, 1981), 42.
[47] Ibid. 45.

Use value is not a reliable source of value because its value impression is qualitatively different in all goods. The use value of a good is contained in the end of its economic cycle, where the good is consumed. The exchange relationships that occur within the economic life cycle of the good impress a distinct kind of value that excludes the particular use (end) of the product; the good, as an exchangeable product, has an exchange value. Exchange value is then an objective manifestation of value. In other words, it is an expression of value that is retained by a product; both individuals engaged in the exchange relationship have a direct knowledge and appreciation of the value imbued in each good involved in the market transaction.

> If we abstract from the value in use of commodities, there remains to them only one common property, that of being products of labor… With the useful character of the labor products there disappears the useful character of the labors embodied in them, and there vanish also the different concrete forms of these labors… [All are] reduced to identical human labor—abstract human labor.[48]

The "ghostly objectivity" regarded by Marx to be the residuum of all labor products establishes a kind of concrete currency that is socially recognized; that is, expended labor, without regard to the particular output, is the essential reflection of social production. "All that these things have to show for themselves is that human labor has been expended in their production—that human labor has been stored up in them; and as crystals of this common social substance they are—values."[49]

At this stage of the Marxian presentation of value, a difficulty arises: how can labor alone present a standard of prices for market products? The matter seems more plainly visible when we view similarly priced products in the market that required different amounts and kinds of labor for their production.

[48] Ibid. 45.
[49] Ibid. 45.

Marginalism provides an answer to this issue by relying on the marginal utility of goods instead of the labor expended in their production and the total use value of the good. For marginalists, price corresponds "to the utility of the last unit of the good that was acquired. They also observed that as an individual acquired more of a given good the utility of the marginal unit tended to diminish."[50] This is because "the individual will take up the opportunity to exchange if by so doing he or she can achieve an increase in the sum of utilities at his or her disposal."[51] Through the sum of individual supply and demand functions, the total market ratio of supply and demand (and prices) can be established. Such an analysis allows the marginalist to solve the Marxian paradox of two goods having the same price even though they require different amounts of labor for their production. The marginal utility of a good represents the synthesis of the good's state of scarcity and the individual's desire for its acquisition. The resulting calculation serves the practical purpose of price determination based on the particular market circumstance of moderate scarcity.

Marx seems to run into the problem of commensurability when setting the standard of value in labor, unlike the marginalist that uses the standard of marginal utility and individual's purchase opportunities. Bohm-Bawerk points to this issue explicitly in the following passage:

> [Marx] had stated that as a consequence of his principle [in which it is stated that commodities are exchanged according to their value,] that the value of different commodities is in proportion to the working time necessary to their production. Now it is obvious to the casual observer that this proposition cannot maintain itself in the face of certain facts. The day's product of a sculptor, of a cabinet-maker, of a violin-maker, of an engineer, etc., certainly does not contain an equal value but a much higher value than the day's product of a common workman or factory hand, although in both the same amount of working time is 'embodied.'[52]

[50] Simon Clarke, Marx, Marginalism and Modern Sociology (London: The Macmillan Press, 1983), 152.
[51] Ibid. 152.
[52] Eugen von Bohm-Bawerk, Karl Marx and the Close of His System (New York: Sentry Press, 1966), 80.

The question remains as to whether labor can track any value in goods. Furthermore, since price calculation is most practically calculated by the marginalist method, it remains unclear what purpose a labor theory of value might still have.

b. The issue of circularity in Marx's labor theory of value

In presenting Marx's labor theory of value, Bohm-Bawerk points to a key component that is included in using labor as the essence of value: "As labor is the substance of value so the amount of value is the amount of the value of all goods is measured by the quantity of labor contained in them, which is, in its turn, measured by its duration—but not by that particular duration, or working time, which the individual who made the commodity has happened to need, but by the working time that is socially necessary."[53] The key to the issue rests in the qualification "socially necessary" on the term "labor." Value is derived by the addition of labor to a thing, but different kinds of labor enhance value in different ways; the many forms of labor have qualitatively different values, which are tracked by socially necessary forms of production. In this respect Marx's historical materialism gains significance and separates itself from marginalist economic calculation, but in doing so disqualifies labor, as an isolated component, from tracking value. Value is then rooted in labor, but in a qualified form of labor: socially necessary labor.

Marx provides some indication of this qualification to labor in the distinction between skilled and unskilled labor. "Skilled labor," Marx states, "counts only as concentrated or rather multiplied unskilled labor, so that a small quantity of skilled labor is equal to a larger quantity of unskilled labor… The different proportions in which different kinds of labor are reduced to unskilled labor as their unit of measure are fixed by a social process beyond the control of the

[53] Ibid. 11-12.

producers, and therefore seem given to them by tradition."[54] Bohm-Bawerk, however, does not buy this explanation; to him there is still a difficulty in understanding how this explanation will help calculate the prices of goods in the marketplace.

> Under these circumstances, [he asks,] what is the meaning of the appeal to 'value' and 'the social process' as the determining factors of the standard of reduction? Apart from everything else it simply means that Marx is arguing in a complete circle. The real subject of inquiry is the exchange relations of commodities… How does Marx explain this? He says the exchange relation is this, and no other—because one day of sculptor's work is reducible exactly to five days of unskilled work. And why is it reducible to exactly five days? Because experience shows that it is so reduced by social process. And what is this social process? The same process that has to be explained, that very process by means of which the product of one day of sculptor's labor has been made equal to the value of the product of five days of common labor.[55]

Bohm-Bawerk correctly shows that there is a problematic circularity rendering Marx's labor theory of value useless. Furthermore, more work needs to be made on the part of Marx to relate "social processes" to the calculation of value and price.

3. THE ADVANTAGE OF A MARXIAN ECONOMIC ANALYSIS

Given Bohm-Bawerk's critique of the labor theory of value, much (if not all) of Marx's economic calculations (the quantitative analysis of particular goods' value and price) must be discarded. What can be rescued from the labor theory of value is the socio-historical analysis it provides. Rudolph Hilferding provides a good explanation of this portion. Most of his response to Bohm-Bawerk consists in a clarification of Marx's position with respect to social (economic) composition; although he is unsuccessful at reviving the labor theory of value, he emphasizes the social character inherent in exchange relationships. His explanation of the Marxian analysis links particular social relationships to the economic structuring of a society (which, in turn, includes the usage of particular resources). The upshot of this analysis is that the economic composition of a society is explained through the way exchanges occur (including the particular usage of

[54] Karl Marx, Capital, vol. 1 (New York: Vintage, 1981), 46.
[55] Eugen von Bohm-Bawerk, Karl Marx and the Close of His System (New York: Sentry Press, 1966), 83-84.

resources in the economic movement of capital). Different economic systems are possible because production (as a social phenomenon) is explained by the kinds of resources available to that system.

Production, in Marxian terms, must be understood as the core of social relationships. The manner in which society structures itself (social relationships) is reflected directly in its economic composition and the relations of production established throughout. Furthermore, as explained previously with the primacy thesis, the availability and use of resources explains the manner in which the relations of production establish themselves and how economic progress is defined. Hilferding emphasizes the social and economic character imbued in the process of production in all societies:

> A commodity… can be the expression of social relationships only in so far as it is itself contemplated as a product of society, as a thing on which society has stamped its imprint. But for society, which exchanges nothing, the commodity is nothing more than a product of labor. Moreover, the members of society can only enter into economic relationships one with another according as they work one for another. This material relationship appears in its historic form as the exchange of commodities. The total product of labor presents itself as a total value, which in individual commodities manifests itself quantitatively as exchange value.[56]

Therefore, specific exchange values only gain significance when understood in a particular socio-historical context; labor imprints a concrete form of value that is appreciated by a particular social structure. Value itself can be understood as arising within a social process. The conclusion drawn so far is that labor itself has no value in isolation; labor considered within a social context (within set standards of value) has a particular value only because it fits the particular standards of value set by society (with particular relations of production working with specific productive forces). As Hilferding indicates, "the value-creating quality is not per se inherent in any labor. Solely in conjunction with a definite mode of social organization of the process of production

[56] Rudolph Hilferding, Bohm-Bawek's Criticism of Marx (New York: Sentry Press, 1966), 130-131.

does labor create value."[57] This means that value cannot be contemplated by labor in isolation, away from any social organization. "Skilled labor, therefore, if I am to regard it as value-creating, must not be contemplated in isolation, but as a part of social labor."[58] The issue at hand forces us to return to the contemplation of capital and its social composition. Isolated goods are valueless until they are appropriated or fall into the scope of the general form of capital. The good's possession of value presupposes a receptivity to social labor; particular capital acquires a price value within a social system, a structured economy, with particular forces of production.

In pointing to the resources provided by a Marxian economic analysis, a particular deficiency of marginalism becomes evident. The marginalist reliance on marginal utility of goods provides an explanation of a good's price within a given set circumstance of moderate resource scarcity. The marginal utility of a good tracks an individual's desire for the good coupled with the opportunity of acquiring that good from a limited resource pool. If the desire for the good is greater than the (cost) troubles generated by the limited quantity of that good in that society, then the individual will purchase the good. In other words, the marginalist approach presents a methodology of weighing the cost-benefit involved in an individual acquiring a good. Marginalism limits economic calculation to systems of exchange that operate under moderate scarcity: supply and demand work in the calculation of price value only when individual preferences are summed up and compared to a limited source of goods. In more general terms, an economy works as the sum of individual cost-benefit calculation for the acquisition of goods (this is how the marginalist proposes that a marketplace is structured). Although this method is quite accurate in depicting how an economic system works under the particular resource arrangement of moderate scarcity, it seems unlikely that that calculation would work as

[57] Ibid. 140.
[58] Ibid. 141.

effectively in an economy that has a different resource arrangement. In particular I point to the case of a sustainable economy. In this particular case, the condition of moderate scarcity is not present; instead, a sustainable economy (as I have proposed in Chapter I, section 5) presents the condition of resource surplus. The suggestion here is that cost-benefit analysis cannot be performed in a marginalist calculation precisely because the cost involved in the acquisition of goods is unlike that present in a state of moderate scarcity. And while there may be costs attached to the acquisition of goods in a system of economic sustainability, these costs are not rooted to the limited availability of goods.

The Marxian approach has a distinctly different advantage: it can discuss "economics" in situations that lack things non-Marxian economics require. In particular, the Marxian approach can explain the relations of production found in a society (the kind of exchange relationships in a society/economy) through the state of the productive forces (the particular resource pool present to that society). This approach provides a greater flexibility in positing possible outcomes in social structure (distribution of wealth) from different states of resource availability (the state of productive forces).

4. THE SOCIAL BASES OF PRODUCTIVITY IN CHANGING ECONOMIC SYSTEMS: IDEAL CAPITAL IN THE SHIFT TOWARDS A SYSTEM OF ECONOMIC SUSTAINABILITY

I have defended a Marxian economic analysis as a tool that provides additional resources for the study of economics. In particular, I have briefly mentioned the social bases of productivity. This social productivity is found at the core of an economic system, within the basic structure provided by the general form of capital. In the previous section, I explicitly focused on the range of Marxian economics in its evaluation of social production and the limitations of

marginalism, particularly through its weak distinction between value and price. My explanation of the Marxian methodology implies that it contains greater resources in its analysis of various economic arrangements. I will provide support for this claim by introducing a Marxian economic analysis of a system of economic sustainability, where the inclusion of surplus value is prevented by the inability to derive value from the accumulation of capital goods. That is, while in the capitalist system value is accrued through the accumulation of goods (given the situation of moderate scarcity), which in turn allows for surplus value to be included in the process of production, a system of economic sustainability operates under a circumstance of no resource scarcity and hence with no surplus value.

Surplus value was indicated to exist in an economic system in a circumstance of moderate scarcity. Limited productivity, derived from the limitations in productive resources and output, allows for value to be accrued through the accumulation of goods. Scarcity of resources, insofar as it translates into limitations in production output, allow for an increased level of labor-surplus. The presence of surplus-laborers then puts downward pressure on wages, as competition in the job market increases. But competition in the job market includes competition in the marketplace of capital goods, insofar as an economic system is fed through the circulation of capital and its self-expansion through the continuing process of production. Surplus value can then only exist in a productive system that grounds the forces of supply and demand in moderate scarcity. However, in a system of economic sustainability, surplus value is itself undermined by the presence of regenerative (renewable) resources which increases the productive potential for an economy and disqualifies the acquisition of value through the accumulation of capital goods.[59]

[59] Much controversy may be attributed to the idea that resource scarcity can be overcome in the first place (as it may be considered as a brute fact of our world). However, I only need to point at the leaps in technological advances in solar and wind energy, efficient (or smart) chipsets that use less and less raw materials for their production, and

In my explanation of the composition of a system of economic sustainability, I proposed the advancement of social productivity through a reliance on renewable resources (sources of production that allow for a consistent productivity that do not cause depletion in the long term). I pointed that such a system would have the virtue of increasing productivity output, given that the means of production are regenerative in composition, and that it would, along with increased production, relieve the necessity for an increased level of surplus laborers in society. In other words, more production means a greater need for labor (as opposed to limited work positions).[60] Alternately, the greater the rate at which production goods enter the marketplace, the faster the rate of devaluation of capital goods occur. This, in turn, means that goods are more quickly made available to the different socio-economic classes, eventually reaching a near equality in distribution of goods.

The issue that must be addressed at this point is whether the removal of surplus value leaves a void in the overall value of products that result from a sustainable production process. In other words, since surplus value is of vital importance for the value calculation of goods in a capitalistic system, its removal through the transition to a sustainable economy might cause some problems in the new kind of value calculation. My proposed view includes an additional value component that supplants surplus value and is consistent with a system of economic sustainability. I call this value component "ideal capital."

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chemical engineering that supplies more vitamins and minerals in agricultural products. These few examples show that there is an economic trend towards sustainable efficiency which, if it continues to proceed, will lessen more our heavy reliance on scarce resources and productive methods that cause depletion of resources. The combination of renewable resource usage and efficient productive methods can at least defy the state of moderate scarcity which we generally take to be a given fact about the world.

[60] Whether some social engineering is necessary in order to keep society from overpopulation I am not certain. Currently, the "greener" economies of the world (those that rely more on renewable resources and efficient productive methods) also show a social trend of "depopulation" (people are less likely to have children). This phenomenon might be an unexpected social ideology that accompanies economic sustainability.

Ideal capital is defined here as non-material capital goods. These goods may include, but are not restricted to, emotions and skill-sets. Here I agree with Cohen's proposition that "some full exchanges involve non-material goods not easily given monetary values."[61] By "full exchanges" is meant an exchange transaction between (at least) two individuals, where each provides something in return for something else. The fundamental assumption in this view is that value is not restricted to the realm of material goods; particular capital may take different forms which would still allow it to be within the dialectical relationship to the general form of capital. Along with Cohen,

> I do not believe there is a useful valid distinction between monetary exchange and non-monetary (e.g., emotional) exchange. Whatever distinction there is between such exchanges is simply dependent on the distinction between material and non-material (e.g., emotional) goods. That distinction is no more useful for a theory of exchange than is the distinction between exchanges involving dollars and exchanges involving euros or between exchanges of collectible baseball cards for cash and exchanges of ice cream for cash. The things exchanged are different, but exchange is not.[62]

In defining ideal capital as a good that fulfills the necessary requirements for an exchange relationship—in having the quality of possessing an exchange value—ideal capital fits the position of particular capital in general. This means that, in the wider frame of an economic system, ideal capital matches the economic structure of the general form of capital (exactly as all particular capital fits into a wider organization of values); ideal capital possesses a particular value that matches a defined social (economic) frame, defined by the general form of capital.

A clarification is required at this point as to the position that particular ideal capital has within the economic base of a society. As mentioned, ideal capital may include (but is not restricted to) skill sets. However, skill sets are regarded by Marx to constitute what is known as labor-power and it is taken to be a part of the productive forces. The productive forces do not

[61] Andrew Jason Cohen, *Hard-Headed Economics*, 1.
[62] Ibid. 2-3.

constitute a part of the economic base of a society.[63] It must be noted, however, that capital is taken to have dialectically opposite forms: general and particular. Particular capital is not, by itself, constitutive of the economic base (a good is not said to be intrinsically "economic"). It can, however, be attributed economic qualities (a particular value) insofar as it relates to the general form of capital (the social organization of values). And particular capital is only "capital" insofar as it relates to the general form of capital. Therefore, in a more metaphoric understanding, the general form of capital imbues particular capital with economic qualities, or rather, the general form of capital attributes a social value to what is then considered to be particular capital.

In the first chapter, I identified the general form of capital as having intrinsic economic properties—being a part of the economic base (constitutive of the relations of production). This allows me to conclude that although particular goods do not, by themselves, constitute a part of the economic base, they have economic qualities insofar as they are attributed some value by the economic base, which includes the general form of capital. Ideal capital, in this conception, then occupies the position of particular capital insofar as it acquires a value in accordance to the social (economic) structuring of values of that society.

Having described briefly the economic status of ideal capital, I must provide an explanation as to how ideal capital can supplant surplus value and, furthermore, how ideal capital can function as a value in a system of economic sustainability.

Surplus value is value that is incorporated in a capitalistic system, that is, in an economic system where value is derived from the accumulation of capital goods. In brief, surplus value works as a value tool in an economic system that operates under the condition of moderate

[63] As pointed previously in the first chapter, productive forces are not part of the economic base insofar as they are not "relations." This broadly means that labor-power, by itself, does not impel any economic movement. Marx then takes relations to be constitutive of what society and therefore an economy is made up of.

scarcity. In such a system, surplus value is used as a value addition that accounts for investment risk and product competition. It is a necessary addition of value that permits particular capital to grow in value. In a sustainable economy, however, the reproduction of the means of production relies on a regenerating resource pool. The kind of risk that is involved in the production process in a sustainable economy is different than that occurring in a capitalistic system. The risk in the latter system is increased by the fact that resources are inherently limited; investment in production is significant because of the appropriation of means of production that are scarce (because they are derived from a scarce resource pool). If the produced goods do not correspond to the determined social necessities (public need or demand), investment in the means of production becomes a loss for the owner(s). In a sustainable economic system, the investment corresponds to the usage of regenerating resources for the production of particular goods. If the produced goods do not correspond to the social necessities (demand), then what is lost is not the initial investment in the means of production (since these are derived from abundant resources; the more abundant the resource pool is, the less the costs involved in appropriating the means of production). The loss consists, instead, in the waste of time occurring throughout the production process. That is, the time and labor spent on the production of the useless goods could have been used more efficiently on the production of goods that have public demand or that are in need. Risk therefore consists, in a system of economic sustainability, in the usage of labor time.[64]

The losses incurred in useless production then include labor time. I will understand labor time here as "expended social labor." The conceptual distinction is necessary to better understand

[64] Economic sustainability, as I propose, does not require perfect efficiency; it requires the possibility for an ever increasing efficiency and productivity. In the transition to a system of economic sustainability, surplus-value may still be present in a weaker form (which I do not discuss). What is important to keep in mind is that because a sustainable economy has a surplus resource pool, accumulation of goods does not yield value (rendering surplus-value a useless value kind; people can accumulate goods, but they cannot derive profit from it). I propose in the latter part of this section that surplus-value is either "phased out" or swapped for another value kind which I call "ideal capital." Whether surplus-value is "phased out" or swapped out violently is not an issue that I am dealing with.

its connection to ideal capital.[65] The bridge between ideal capital and expended social labor relies on the sources of investment that an individual directs into any process of production (which is of significant interest within a framework of economic sustainability). In order to arrive at the understanding of ideal capital as the main investment involved in the production process in a sustainable economic system, I will begin with the noted "expended social labor."

Expended social labor denotes labor that is directed towards a particular object that is valued by society. Expended social labor is then labor, which occupies a particular time duration, that is valued within a particular social context. The social quality of the invested labor time finds significance in establishing a qualitative distinction between different kinds of labor that are imbued or objectified in particular goods. Therefore, the more the individual's labor is directed towards what is valued by the society, the more it will be taken to have greater value (which will be demonstrated in price of the good). This process has great similarities with the relationship generated by capitalistic systems in the division between skilled and unskilled labor (the first being more valued). The difference between the value division in capitalistic and in sustainable economic systems is that while in the first system the accumulation of surplus value forces a general move from skilled to unskilled labor, in the latter system the force is directed in the opposite direction.

In a capitalistic system, the owner of the means of production seeks to increase her accumulation of surplus value. This means that the rate of surplus value is increased so as to cover the necessary variable capital involved in the production process. The more skilled labor is broken into many individual components of unskilled labor, the more surplus value may be accumulated throughout the production process. That is, laborer skill is reduced, and less

[65] While "labor time" can be taken to be any activity directed towards an object for a period of time (whatever that object may be), "expended social labor" is confined specifically within a particular socio-historic context.

remuneration is provided for each unskilled laborer.[66] Further, in reducing a position requiring skilled labor to many that require unskilled labor, greater competition is created (as more individuals in the labor pool are qualified for positions of unskilled labor). Surplus value, insofar as it requires its expansion throughout the production process, requires the breakdown of skilled to unskilled labor.

In a system of economic sustainability, the opposite movement occurs. A sustainable economy works under the conditions of a surplus resource pool. This means that the reproduction of the means of production relies on a resource pool that is regenerative (renewable, or constantly increasing). The costs of producing the means of production then includes the labor time put into the production process itself. A single owner of a means of production is then irreconcilable with a productive system that requires virtually no expense in the appropriation of the means of production (unless the worker pool only includes that one person). Value is added to a good throughout the process of production—the addition of labor to an object. Value is then derived from the labor quality included in the good and not by the appropriation of the means of production. Therefore, within a sustainable system, the more skilled the labor is, the higher the value of the good that is produced.[67] The unskilled laborer is encouraged to develop herself so as to increase the quality of her laboring skills, i.e. achieving the practice of an ever higher skilled labor.

The expended social labor in each of the two economic systems presented varies insofar as each promotes economic forces that guide labor quality in opposing directions. In brief, each

[66] The added wages for unskilled laborers is less than the added wages of the equally productive but fewer skilled laborers.

[67] A sustainable economy would not have "capitalists"; cooperation for production is conducted in a voluntary manner, directed by the social bases of productivity (the socially expected productivity of individuals). Labor incentives are grounded in the social incentives for developing individual self-sufficiency and improving one's lifestyle through communal productive sustainability.

system ascribes value to different kinds of expended social labor. Capitalism, through the force of increasing surplus value, values unskilled labor as that which best conforms to the standard of necessary expended social labor; unskilled labor is more productive of profit (surplus-value accumulation) for the capitalist. The system of economic sustainability values skilled labor insofar as production relies solely on the qualitative value of labor to increase the produced good's value. Because value is not appropriated from a surplus value rate, allowed by the privileged position of the owner of the means of production,[68] skilled labor is more productive of profit (profit being understood in a sustainable economy as that which is reinvested in the production process and includes the advancement of quality of labor and individual skills) and corresponds to the increasing qualitative demands of expended social labor.

The sustainable economic system, insofar as it relies on the qualitative value of expended social labor, values what I have called ideal capital. What is included in the qualitatively superior labor is laboring skill, which itself includes all social relations that are necessary in the creation and improvement of skill sets. Social interrelationships play an important part of the formation of the individual and her acquired skill sets. Furthermore, her familiarity and/or knowledge of the society she lives in is necessary in order for her to develop the proper (necessary) labor skills that are demanded in consumed goods.

One may argue here, however, that the individual's possession of the proper skills do not depend necessarily on her knowledge and direct relationship with the society (and culture, more generally). This may be true insofar as the individual may coincidentally develop the proper skills that conform to the society's needs, but this coincidental situation is irrelevant in the

[68] Who is privileged precisely because she has invested a significant amount of capital for the appropriation of the means of production (that is, she has incurred in a significant capital risk in the appropriation of the means of production).

understanding of society as constitutive of economic (social) relations. In other words, although such circumstances as the individual in isolation developing the proper skills demanded by society are possible, it is not sufficient in the explanation of the social composition of production that Marx uses in his understanding of production and labor. For Marx, to say that a social individual engages in the economic life of a society is tautological; to be social is to be engaged in an economy. The social elements that constitute an individual are economic in nature. Therefore, the economic life of an individual is rooted in the social components of that individual's life. These social traits (including psycho-social attachments and relationships—namely emotions and learned skill sets) are what I mean by the term ideal capital. These elements include a fundamental portion of an individual's investment in the production process.

Because a sustainable economy has reduced the material costs for the appropriation of the means of production, the individual's investment (as far as ideal capital goes) becomes more significant in the quantification of the end product's value. In a product derived from a sustainable production process, what determines the value of the good is the value of the added expended social labor by each of the individuals engaged in the production of that particular good. Ideal capital has here supplanted surplus value in the quantification of a good's value. What is implied in this model is of similarity to what is promoted in the industrial cooperative model of production: the value of a good is partially owned by each one of the producers. In sustainable production, each laborer invests a variable portion of ideal capital, resulting in a relative ownership of the production process (that is, of the producing union of that company). I say "relative" insofar as some individuals may invest more or less into the production process; therefore "equal ownership over the means of production" is translated as the measure of expended social labor included throughout the production process. This means that an individual

has a determined return on her investment in the production process. Her return is directly determined by the quality and amount of labor that she invests in the production process. The qualitative aspect of labor is determined by the social bases of productivity (expended social labor), while the quantitative aspect is determined by labor-time invested. The individual's ownership over the means of production is then determined by her contribution to the expansion of capital's value.

5. GO WITH THE ECONOMIC FLOW: PRODUCE, BABY, PRODUCE!

I will move into a critique against John Bellamy Foster's understanding of a Marxist approach to the establishment of a sustainable economy. While he successfully provides an adequate grounding to a Marxist conception of economic sustainability,[69] he fails in reaching the progressive economic conclusion that I take to be of fundamental importance in Marx's works. In short, Foster believes that a sustainable economy that is grounded in the Marxian framework abides by the second criterion for economic sustainability without emphasizing the primacy of the first. That is, Foster takes a system of economic sustainability to require the non-exploitative usage of resources without emphasizing the more important criteria of increased productivity. To engage in my critique I will first state Foster's position more explicitly:

> Marx did not believe, though such views are commonly attributed to him, that the answer to problems of agricultural development was simply to increase the scale of production. Rather his analysis taught him the dangers of large-scale agriculture, while also teaching him that the main issue was metabolic interaction between human beings and the earth. Hence, agriculture could occur on a fairly large scale only where conditions of sustainability were maintained—something he believed was impossible under large-scale capitalist agriculture.[70]

While I take Foster to be correct with regard to the necessity of economic sustainability to overcome the resource and labor "exploitation" (a loaded word that merely denotes here

[69] This much is evident in my reliance of some of his ideas in the first chapter of this work.
[70] John Bellamy Foster, Marx's Ecology (New York: Monthly Review Press, 2000), 165.

increasing the value of capital through the process of extraction and accumulation), he misses the direction towards which Marx's dialectical materialism takes a post-capitalistic economic system. As proposed by Marx's primacy thesis, economic growth occurs by the relations of production matching the historically increasing productive forces. This means that economic growth (understood broadly as social advancement) is historically determined by the shift in productive relations in accordance to the growth of the forces of production. The superiority of a sustainable economic system is not one that can merely subsist into the indefinite future (does not deplete itself); it is superior to the capitalistic production process. Therefore, a sustainable economy (if it is to follow capitalism) must have the capacity to out-produce capitalism. The ability to increase production remains the first priority of any system that is to succeed capitalism. The virtue of a sustainable model is that, not only can it theoretically do so, but it improves the manner in which the production process is structured (increasing its historical lifespan). A sustainable economic arrangement shifts the capitalistic structure of the general form of capital so that value is derived from productivity and not from surplus accumulation of goods.

I say that the sustainability model "derives" value from productivity because value is not *extracted* from the production process; in a capitalistic model this is evinced by the capitalist's struggle to accumulate value by extracting as much surplus value that may be possible. A sustainable model requires each laborer to invest greater amounts of ideal capital in order for the good to increase value. The flip side of the sustainable scenario is that, through the laborer's investment in the production process, she is acquiring a relative ownership of the production industry. Not only does this remove the laborer from a possibly exploitative relationship to others (as in capitalistic productive relations), but it places her in a position of economic responsibility: production and productivity rely on the laborer's capacity to increase her laboring skills. And if I

am correct in assuming that skill sets are generally acquired (at a broad social level) through social interconnectedness, the general form of capital in a sustainable economy will make the individual more communally inclined (that is, through the formation of strong social relationships).

6. AN OBJECTION TO THE STATED PROPOSAL OF A SUSTAINABLE ECONOMIC SYSTEM

I have proposed that a system of economic sustainability supports increased (though not necessarily perfect) efficiency and productivity. Value is derived not through the accumulation of goods but through the improvement of labor quality (skilled labor), which is in turn determined by the social bases of productivity (socially expected labor quality). An objection to this proposal, however, still remains to be addressed.

Because there is a limitless resource pool, appropriation of the means of production and raw materials require little to no expense. The problem with this situation is that presumably, with little to no skill, the individual could make enough to survive. If the individual is content with mere survival, there would be virtually no incentive for her to further develop her labor skills. This would, in turn, make her less productive. On a societal level, if this attitude is taken, the proposed system of economic sustainability would simply be unproductive and inefficient. So what are the individual's incentives for producing and bettering her productive capacity as a skilled laborer?

Joseph Carens provides an answer to this dilemma, claiming that "there is sufficient evidence based on our empirical knowledge of the range of human cultural values to conclude that human nature is so flexible that, given the proper conditions of socialization, almost any

goals could be adopted on a widespread basis in a society."[71] He grounds this claim in Alfred Kuhn's work; Kuhn claims that

> important errors have been made in the past by psychologists and social scientists in assuming that there exists some clear, inborn, unchangeable, universal "human nature" which we can ignore only at our peril. The weight of current evidence, whether from psychology, comparative anthropology, or elsewhere is overwhelmingly to the contrary. Whatever may be the urges all men share by birth they are flexible in the extreme and can be accommodated to any social structure compatible with biological survival.[72]

My proposal of a system of economic sustainability that is grounded in a Marxian framework need only to state that cultural values are derived from social practices, which are grounded in productive relations and the general structure of capital of a society. And because productive relations and general capital include the economic properties of a society, particular economic activity provides the necessary socialization of values (including productive incentives) in a society. This means that different economic systems, so long as their productive relations fulfill the Marxian requirements of expanding the value of capital and matching the development of productive forces, provide the necessary incentives for productivity through socialization.

Carens implies that even the generally assumed premise of self-interest as a motivating factor of production can be explained as a socialized value. For this purpose, he uses Max Weber's analysis of the protestant work ethic: "Weber argued that it was precisely the fact that some Protestant capitalists were *not* motivated by the desire to acquire income for consumption but rather by the desire to acquire this-worldly proof of their eternal salvation that enabled the modern capitalist economic system to emerge."[73] That is, much of the counter-argument against the proposal of alternative economic systems, namely that self-interest is a natural and

[71] Joseph H. Carens, Equality, Moral Incentives, and the Market (Chicago: The University of Chicago Press, 1981), 104.
[72] From Alfred Kuhn's The study of Society: A Unified Approach, quoted from Carens, 104-105.
[73] Joseph H. Carens, Equality, Moral Incentives, and the Market (Chicago: The University of Chicago Press, 1981), 112.

unchanging fact of human beings, can be explained through the process of socialization. In other words, a capitalistic economic system can be explained through the technological breakthrough of the industrial revolution (which allowed for surplus value to function as a value that increases capital's value). In being a model that allows the growth of capital (it can survive as an economic model), moral incentives come about in particular forms which support economic productivity: capitalistic production generates benefit for the individual through the accumulation of wealth and goods.

A system of economic sustainability also generates benefit for the individual, the major difference being the form benefit takes. In contributing to the process of production, there is an incentive to further production in order to improve one's labor capacity and quality. The incentive does not only include the increase of self-fulfillment in doing work better and more efficiently, but in contributing more to the production process, more of the product's value belongs to the producer. In a system of economic sustainability that is grounded on the social bases of productivity, ownership is established by the labor-time investment of the laborer in the production of particular goods.[74]

Carens supports the plausibility of "realistic utopian models" by pointing out

> that it is theoretically possible to separate the productive functions of the market from the distribution of income without reducing efficiency. Moral incentives play the key role in maintaining the efficiency of the system, once production is separated from distribution. Given effective moral incentives, it would theoretically be possible to utilize any distributional principle that was regarded as ideal by people in the society, provided that there were ways of implementing the ideal without reestablishing the link between production and distribution in some form.[75]

[74] This is, again, because the appropriation of resources and means of production require little to no monetary investment; the only thing invested in such appropriations is labor-time. And through the investment of a particular amount and quality of labor-time, the individual gains partial (relative) ownership over what is produced.
[75] Joseph H. Carens, Equality, Moral Incentives, and the Market (Chicago: The University of Chicago Press, 1981), 183-184.

In providing ideal capital as the replacement of surplus value in a system of economic sustainability, I am shifting the incentive of accumulating privately owned goods to the incentive of increasing individual productivity and efficiency as that which tracks individual benefit. The productive function changes in a system of economic sustainability, but production incentives remain; the only difference in the productive incentives is in the swapping between surplus value and value derived from ideal capital.

What I am proposing is that incentives for production are socialized, and that socialization of particular values is a function of the mode of production (which establishes the goal of production; the capitalistic mode of production is accumulating wealth for the purpose of individual benefit). Because the relations of production (which produce particular modes of production) are explained by productive forces, the economic arrangement of a society will be dependent on the economic necessities which are related to the availability of resources. Each economic model then provides its own incentives for production. I further note that throughout the present work, I have not spoken of particular models of distribution; my concern has been in explaining the productive function derived from an economic system that presents particular variables (limitless resource pool), and how that can explain a particular labor arrangement (relative ownership dependent on the contribution to social productivity). In other words, I have isolated the production function of society from any particular distribution model, which permits a value function, ideal capital, to be explanative of the moral incentives needed for the sustenance of an economic model of sustainability.

7. CONCLUSION

In the second chapter, I have looked closer at the Marxian labor theory of value and explained how it fails. The failure of the labor theory of value is explained by Bohm-Bawerk,

who claims that labor, as a fundamental component that tracks value, is inconsistent to actual market functions (how, in particular, goods are priced). Although the labor theory of value presents inconsistencies and misunderstands how goods acquire a particular price, the Marxian method of economic analysis can still be preserved. By establishing a connection between productive forces and relations of production (the general form of capital included), the Marxian method provides the resources necessary to understand economic systems (social productive mechanisms and relations) that have variable productive forces.

I stated that in an economic system of sustainability surplus value cannot exist due to the unlimited resource pool. I suggested that in such a system surplus value is replaced by the function of ideal capital. A sustainable economy would then continue to work through the social bases of productivity, with the added function of value from non-material investment in economic exchanges. I ended with a critique of Foster's understanding of economic sustainability under a Marxian method of analysis. My critique clarified that productivity and efficiency must continue to be of primary importance for a sustainable system to survive; that is, its primary function is not to avoid exploitation of resources, even though its inclusion of such goals serves to its benefit.

I concluded my work with an objection to my proposal of an economic system of sustainability under a Marxian method of analysis. The objection questions the incentives that such a system would have in order to continue production. My response consisted in establishing that each economic system presents its own mechanism of incentives for production. In the proposal of an economic system of sustainability, the incentive consists in individual self-fulfillment that comes from the development of labor, along with relative ownership over the produced goods.

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