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On Property Theory

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Abstract: A theory of property needs to give an account of the whole lifecycle of a property right: How it is initiated, transferred, and terminated. Economics has focused on the transfers in the market and almost completely neglected the question of initiation and termination of property in normal production and consumption (not in some original state or in the transition from common to private property). The institutional mechanism for the normal initiation and termination of property is an invisible hand function of the market — the market mechanism of appropriation. Does this mechanism satisfy an appropriate normative principle? The standard normative juridical principle is to assign or impute legal responsibility according to de facto responsibility. It is given a historical tag of being "Lockean," but the basis is contemporary jurisprudence, not historical exegesis. Then, the fundamental theorem of the property mechanism is proven, which shows that if "Hume's conditions" (no transfers without consent and all contracts fulfilled) are satisfied, then the market automatically satisfies the Lockean responsibility principle — i.e., "Hume implies Locke." As a major application, the results in their contrapositive form, "Not Locke implies Not Hume," are applied to a market economy based on the employment contract. I show that the production based on the employment contract violates the Lockean principle (all who work in an employment enterprise are de facto responsible for the positive and negative results), and thus Hume's conditions must also be violated in the marketplace (de facto responsible human action cannot be transferred from one person to another — as is readily recognized when an employer and employee together commit a crime).[1]

Keywords: appropriation, employment relation, Hume, inalienability of responsible agency, invisible hand, Locke, responsibility principle, theory of property

JEL Classification Codes: B52, D23, D63, J54, K11

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[1] This paper is dedicated to the memory of Warren J. Samuels, a longtime editor of this journal, a major figure in American institutional economics, and a theorist of property.

From Adam Smith onward, economics has analyzed the idea of an invisible hand mechanism in the price system. But, underlying the price system, there is a more basic system of private property rights. When the system of property rights is analyzed in its own right, it turns out that there is also an invisible hand mechanism in the property system. It governs the initiation and termination of property rights in an ongoing market economy (as opposed to, say, some one-time initial appropriation in a "state of nature"). Property theory includes a description of that property mechanism, the underlying normative analysis, the fundamental theorem for the property system, and the application to the current private property market economy, all of which are the topics of this paper.

The Conventional Neglect of the Question of Appropriation

Property rights have a lifecycle (Figure 1). They are created, transferred, and eventually terminated. Market contracts transfer property rights, but what is the institution for the creation and termination of property rights? It turns out that the market also provides, under normal conditions, the mechanism for the initiation and termination of property rights. My first task is to explain this little-noted role of the market. In ordinary economic activity, property rights are being constantly created in production and they are constantly being terminated in consumption (consumption goods) as well as production activities (inputs consumed in production).[2]

It is a remarkable fact — which itself calls for explanation — that the literature on the economics of property rights does not even formulate the question about the mechanism for the initiation and termination of property rights in these normal activities. For example, the question is ignored in the "economics of property rights" (e.g., Furubotn and Pejovich 1974), in the "property rights approach" to the firm (e.g., Hart and Moore 1990), in Louis Putterman and Randall S. Kroszner's anthology (1996) of papers on the "economic" nature of the firm, in the "property rights" literature of the new institutional economics (e.g., Furubotn and Richter 1998), and in the law and economics literature (e.g., Cooter and Ulen 2004; Miceli 1999).

Before turning to an explanation, I could simplify the terminology about the eventual termination of property rights by referring to the legal termination of a property right as legal assignment or appropriation[3] of the liability for that property:

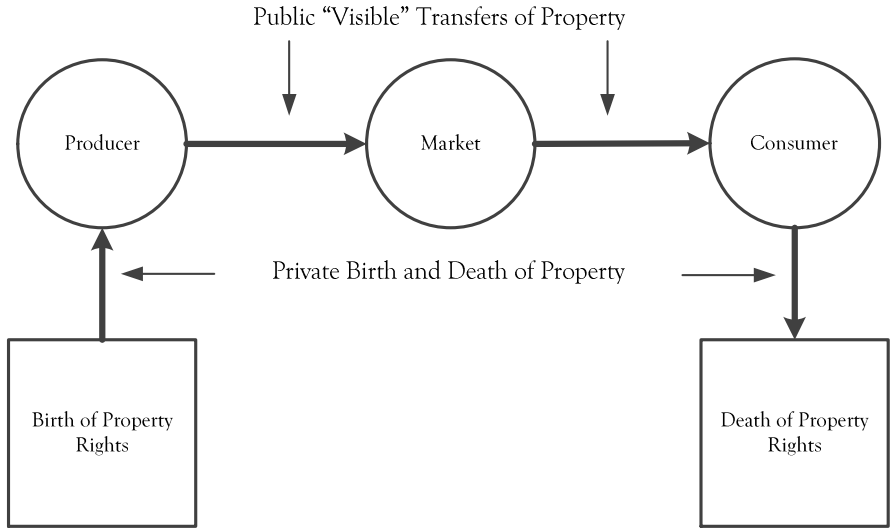
[2] My focus is on commodities, rivalrous and excludable private goods, which are produced and consumed as part of a deliberate human activity — even though in the distant past there may have been endowments of unproduced goods.

[3] The termination of rights was an original meaning of "expropriation." "This word [expropriation] primarily denotes a voluntary surrender of rights or claims; the act of divesting oneself of that which was previously claimed as one's own, or renouncing it. In this sense, it is the opposite of 'appropriation.' A meaning has been attached to the term, imported from foreign jurisprudence, which makes it synonymous with the exercise of the power of eminent domain" (Black 1968, 692, entry under "Expropriation"). Since "expropriation" now has this acquired meaning, I will treat the "expropriation (termination) of rights to the assets +X" as the "appropriation of the liabilities –X."

termination of an asset = appropriation of the liability (for the asset)

Algebraically, this is the familiar idea that "subtracting a plus quantity" is the same thing as "adding a minus quantity." Hence, the question before us is the mechanism for the appropriation of the assets *and liabilities* created in normal production and consumption activities.[4]

Figure 1. Lifecycle of a Property Right



One reason for this neglect is that discussions of property creation tend to be restricted in the philosophical literature to a rather mythical state of nature (e.g., Locke [1690] 1960) or original position, or, in the economics literature, to the "appropriation" of unclaimed or commonly owned natural goods (e.g., Cooter and Ulen 2004) rather than the everyday matters of production and consumption of commodities where property rights are created and terminated "on the fly." For instance, Harold Demsetz (1967) considers how private property in land with fur-bearing animals was established as a result of the fur trade growth. John Umbeck (1981) considers how rights to gold deposits were created during the 1848 California gold rush on land recently ceded from Mexico. Yoram Barzel (1989) considers how the common property rights to minerals under the North Sea were privatized, but

[4] The stocks and flows of value in normal production can be described using double-entry accounting. By formulating the double-entry system mathematically, the system can be extended to multidimensional vectors to describe the stocks and flows of property rights in production — including the vector of property rights flows (input liabilities and output assets) here called the "whole product" (Ellerman 1982; or, for a shorter version, Ellerman 1986a; or Ellerman 1995, chapter six).

ignores the assignment of initial rights in normal production (e.g., in his chapter five, "The Formation of Rights").

On the negative side, the law and economics literature looks extensively at the assignment of liabilities in the legal trials that may follow the destruction of property in torts or crimes. But there is no attention to the mechanism for assigning liabilities for the production inputs and consumption goods that are used up or consumed in normal production and consumption activities, where legal trials are clearly not the mechanism for liability assignment.

The Fundamental Myth That Product Rights Are Part of Capital Rights

In the case of the product of production, there is a reason — albeit a mistaken one — for not formulating the question of appropriation. It is rather commonly thought that the product rights are "attached to" or "part and parcel of" some preexisting property right, such as the ownership of a capital asset, a production set, or simply the firm. This idea in various forms is so ubiquitous that it might be termed the "fundamental myth" about the private property system.

To see the fallacy, one only has to consider the result of renting the capital employed in production. The party who hired in the capital, and paid for all the other used-up inputs, would have the legally defensible first claim on the produced output, not the owner of the capital asset to whom the rent was being paid as one of the input costs. The simplest version of this fundamental myth is the assumption that the bundle of rights that constitute ownership of a capital asset includes "a right of ownership-over-the-asset's-products, or *jus fruendi*" (Montias 1976, 116), the "right of usufruct [which] entitles the holder to the 'fruits' or 'produce' derived from an asset" (Furubotn and Richter 1998, 79), or simply "the right to the products of the asset" (Putterman 1996, 361).

The idea of an "asset's product," the "'produce' derived from an asset," or "the products of the asset," has a quaint nineteenth century flavor prior to the development of the reasoning associated with marginal productivity (MP) theory. With MP theory, it was generally understood that the services of many assets may be employed in the production of the product, and that imputation according to the argument "without my asset (e.g., A, B, or C), there is no product," does not pass the consistency test since there might be many necessary complementary assets. The product rights cannot consistently be attached to each of the necessary assets.

Yet another version of the fundamental myth is to take the "asset" as being a production opportunity as described by a production function or set. Entrepreneurs are "bidding for ownership of the firms" and become the "owners of the productive opportunity" (Hirshleifer 1970, 124-5). A proprietor may sell "the rights to the transformation function" or "his rights to the venture" (Fama and Jensen 1996, 341) to another proprietor. The entrepreneur is the "owner of a production function" (Haavelmo 1960, 210). Hence, the technological relationship between inputs and outputs is hypothecated as a form of property. In addition to buying or already owning all the inputs to production, the entrepreneur now has to also get "ownership" of the "production function."

Perhaps, the primary source of the fundamental myth is the confusion between owning a corporation and "owning" the productive opportunity that a corporation may or may not undertake depending on its contracts. The line of reasoning is as follows: A corporation is an owned asset (true), and a corporation owns its products (true), so there is no need for some mechanism to account for the ownership of the product — it is all part of the ownership of the corporation. It is only a tautology to say that a corporation owns "its products." The question is how the products produced in a certain productive opportunity became "its products." For instance, must the Studebaker Corporation own the cars rolling off the end of the assembly line in the factory owned by Studebaker? Since Studebaker at one point leased its factory building to another automaker, the answer is "no." Those cars were owned by the other company who was making the lease payments and paying for all the other inputs in car production, and who thus would have the defensible claim on the cars rolling off the end of the assembly line.

The simple fact is that the ownership of a corporation is the indirect ownership of the corporate assets (e.g., the Studebaker factory building). Whether or not the company owns the products produced using some of those assets depends on whether the company hires or leases out those assets to some other party (who would then appropriate the product), or the company hires in a complementary set of inputs to undertake the production opportunity itself. The legal party who ends up appropriating (i.e., having the defensible claim on) the produced assets is the party, often called the "residual claimant," who was the contractual nexus of hiring or already owning all the inputs used up in production (and thus who "swallowed" those liabilities). Since that party undertaking production — the residual claimant — is determined by who was the nexus of the hiring contracts (who hires or already owns what or whom), the rights to the product are not part of some prior bundle of rights to a capital asset or to a corporation. In other words, residual claimancy is contractually determined in a market economy. It is not legally determined by some "product rights" supposedly attached to some already owned asset.[5] The grip of the fundamental myth in one form or another seems to account for the failure to formulate the concept of a mechanism for the appropriation of the assets and liabilities that are created in normal production activities.[6]

[5] The formulas of capital theory ("capitalized value of a capital asset") and corporate finance theory ("capitalized value of a corporation") are all based on the fundamental myth by adding in the capitalized value of future net products as if there was a present property right to those future (whole) products (whose present value is sometimes called "goodwill"). But the appropriation of those future products depends on the contractually determined residual claimancy in the future, and there is no present property right that determines that the future contracts in a free market economy are made with the same residual claimant. When "goodwill" evaporates, because future suppliers and customers make different choices, that violates no present property rights of the owner of the capital asset or the corporation, even though conventional capital and finance theory (erroneously) capitalizes the net value of those future products into the "value of the capital asset" or the "value of the corporation" (Ellerman 1982, 1992).

[6] In my first publication on property theory (1972), the normative theory was essentially the same as presented here, but descriptively I was still in the grip of the fundamental myth. The legal rights to the management of production, and to the whole product, are the essential components in the bundle of legal

The Invisible Hand Mechanism of Property Appropriation

Since Adam Smith, economic theory has worked to elucidate the invisible hand mechanism embodied in the price system that guides property rights to an efficient allocation. The lifecycle of property rights includes not just transfers in the market, but the initiation and termination of the property rights. The market also embodies an invisible hand mechanism that governs the initiation and termination of property rights, but the very idea of this mechanism has been neglected due to the many forms of the fundamental myth that the product rights are already included in preexisting asset rights.

To "see" an invisible hand, it is helpful to look at the corresponding visible hand, and then to see what happens in the absence of the visible hand. There is a visible hand mechanism of appropriation used when the legal system intervenes into the market. The prime example is a trial to assign the legal liability for property that has been destroyed. Such a trial also illustrates the underlying juridical norm that I will use in the fundamental theorem about the invisible hand property mechanism. That norm is the *responsibility principle*: Assigning the de jure or legal responsibility to the person(s) who were actually de facto responsible for destroying the property.

The invisible hand mechanism for the legal assignment of initial and terminal rights comes into play when there is no explicit trial — when the visible hand of the legal authorities does not intervene, and when it thus renders the *laissez faire* judgment of "let it be." Using the Smithian metaphor, I might even conceptualize "non-action" on the part of the legal authorities as the ruling of the "invisible judge" who always rules "let it be."

In the tradition of Ronald Coase (1960), there has been an emphasis on a legal system defining clear property rights. Property rights are defined as much by the inaction of the legal system as by its actions. When sparks from a passing locomotive burn the crop growing in a farmer's field and the invisible judge rules "let it be" (i.e., the legal authorities, for whatever reason, allow no action), then at least the right to take that specific action is, in effect, established on the part of the railroad and the liabilities for the damaged crops are assigned to the farmer.

There are two types of contracts where the role of the invisible judge is particularly important: namely, the first and the last transfer contracts in the lifecycle of a commodity. When a newly produced commodity is first sold and the invisible judge lets it be, then the first property right is, in effect, assigned to the first seller. And when a purchased commodity is subsequently consumed, used up, or destroyed, and the invisible judge lets it be, then the liability is assigned to the last buyer. Thus, what follows is the *laissez faire* property assignments.

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rights called the "firm." In a corporation, the owners of the "firm" are the owners of the capital assets of the enterprise — the stockholders (Ellerman 1972, 52). Within a year, I realized that there was no "owner of the firm" in the sense of the whole product rights since residual claimancy was contractually determined, and only then did it become clear that there must be an invisible hand market mechanism for the imputation of input liabilities and assignment of output rights in normal production — i.e., for the appropriation of the whole product.

Market Invisible Hand Mechanism of Appropriation:

The property rights (or liabilities) to newly produced (respectively, finally used-up) commodities are assigned to the first seller (respectively, last buyer) of the commodities. The application to normal consumption is straightforward: When a commodity is consumed and the invisible judge lets it be, then the liability for the using up or consumption of the commodity is in effect imputed to the last buyer.

The most important and consequential application of the market mechanism of appropriation is to normal production activities. Abstractly considered, one legal party purchases (or already owns from past purchases or activities) all the "inputs" (e.g., raw materials, intermediate goods, and services) to be used up in the production process. When those inputs are used up, and new products or outputs are produced, then the last buyer of the inputs is in a legally defensible position to be the first seller of the outputs, unless the legal authorities would intervene to overturn both sets of contracts. Hence, when no such intervention takes places, as in normal production, then that one legal party legally appropriates a bundle of legal rights and liabilities — the input-liabilities and the output-assets — which might be called the "whole product."

Normative Theory of Appropriation and Transfers of Property

The Methodology of the Paretian Criterion

The fundamental theorem for the competitive price mechanism proves a correspondence between the descriptive or positive notion of a competitive equilibrium and the normative notion of Pareto efficiency. The fundamental theorem for the market mechanism of property appropriation has the same logical form of a correspondence between a descriptive situation and a normative principle of appropriation.

The normative principle of appropriation I use here is the ordinary juridical responsibility principle: assigning de jure (or legal) responsibility in accordance with de facto (or factual) responsibility. Since this principle is used in the interventions of the visible hand of the law, i.e., legal trials, it is natural to see under what conditions the invisible hand mechanism of the property system follows the same principle.[7]

However, there is another reason that might be of interest to economists: namely, that the responsibility principle follows, in its own way, the same methodology as the Paretian criterion. That methodology has two components: (1) the definition of a normative notion by identification with a certain special descriptive notion, and (2) the restriction of that definition to persons.

In the case of the Paretian criterion, a Pareto efficient state is one that is a vector maximum of individual welfares: No person's welfare can be increased without

[7] "[This] is itself a principle about natural responsibility, and so, as a guide for adjudication, unites adjudication and private morality and permits the claim that a decision in a hard case, assigning responsibility to some party, simply recognizes that party's moral responsibility" (Dworkin 1985, 288).

decreasing the welfare of another person. The normative notion of a person's welfare is defined by identifying it with that person's preferences.

> The matter can be put somewhat formally by saying that a person's welfare map is defined to be identical with his preference map — which indicates how he would choose between different situations, if he were given the opportunity for choice. To say that his welfare would be higher in A than in B is thus no more than to say that he would choose A rather than B, if he were allowed to make the choice. (Graff 1967, 5)

Also, this type of identification is restricted to persons even though one can define the (revealed) preference map of rats, insects, and other animals.

In the normative theory of appropriation of assets and liabilities, the task is to define the normative (de jure or legal) notion of responsibility for the imputation of the assets and liabilities. The first methodological principle would define that de jure responsibility in terms of de facto or factual responsibility. And by the second principle, the definition would be restricted to persons — as, in fact, the law does.

There is an old literary metaphor (a version of the pathetic fallacy) where natural forces are pictured as being "responsible" for certain consequences. Economists sometimes indulge these picturesque images as when an asset is imagined as producing a product (e.g., some versions of the fundamental myth), or when natural forces and human actions are coupled together as if both were de facto responsible. "Together, the man and shovel can dig my cellar" and "land and labor together produce the corn harvest" (Samuelson 1976, 536-537). However since the demise of primitive animism as a legal theory (e.g., after the trials of child-killing pigs and egg-laying roosters during the Middle Ages), the law has only recognized persons as capable of being responsible. The responsibility for the results of using tools or assets is imputed back through the things to the human users. For instance, a description without the pathetic fallacy would be that a man is responsible both for using up the services of a shovel and for digging a cellar (note the positive and negative side of responsibility), or that labor uses up the services of land in the production of corn harvest.[8]

The legally trained economist, Friedrich von Wieser, introduced a broader persons-and-things notion of imputation (*Zurechnung*) into the discourse of economics, but this was only an analogy with the juridical theory. Modern jurisprudence has always been clear that the responsibility principle applies only to persons (of normal capacity).

[8] Even MP theory is not well-formulated in conventional economics, since it "pictures" the marginal product of an input as being so many units of output. But there is no "immaculate production" of an output by the responsible "factor" — the human actions called "labor" — so the marginal product of labor should be a vector with both positive and negative components (e.g., using up the services of land to produce corn) (see Ellerman 1995, chapter five, for the vectorial reformulation of MP theory, which also separates the responsible from the non-responsible factors).

> The statement that an individual is *zurechnungfähig* ("responsible") means that a sanction can be inflicted upon him if he commits a delict. The statement that an individual is *unzurechnungsfähig* ("irresponsible") — because, for instance, he is a child or insane — means that a sanction cannot be inflicted upon him if he commits a delict ... The idea of imputation (*Zurechnung*) as the specific connection of the delict with the sanction is implied in the juristic judgment that an individual is, or is not, legally responsible (*zurechnungsfähig*) for his behavior. (Kelsen 1985, 364)

Regardless of their causal efficacy (e.g., marginal physical productivity), physical assets and animals are *a fortiori unzurechnungsfähig*, regardless of the crude analogical attempts in orthodox economics to interpret the juridical responsibility principle as "the ethical proposition that an individual deserves what is produced by the resources he owns" (Friedman 1962, 196).

There is certain ambivalence, if not incoherence, in conventional economics about the treatment of human preferences, on one hand, and the human actions that express those preferences, on the other. Human preferences are singled out over the revealed preferences of animals for special treatment in the normative definition of individual welfare. Yet, the standard practice in orthodox economics is to list the services of things and animals alongside responsible human actions in an undifferentiated list of "inputs" in a production function $y=f(x_1, x_2,..., x_n)$. Any prosecutor, who hauled the instruments of a crime into court along with the alleged perpetrator and charged them all with the crime, might be considered as having taken too many economics courses. In any case, the responsibility principle in jurisprudence singles out persons as being the sole source of responsibility, and that is the legal theory I model here.

After the Paretian criterion of efficiency, normative economics faces a fork in the road. One path is social welfare economics, and that is the path usually taken. For instance, one standard path beyond the Paretian criterion is to use the Kaldor-Hicks (KH) criterion (a potential Pareto improvement where the gainers could, but do not necessarily compensate the losers) to modernize the Marshall-Pigou tradition of welfare economics. A proposed social change satisfying the KH criterion is parsed into an increase in a monetized social pie ("social wealth"), and a redistribution of the pie. The welfare economist can supposedly recommend the increase in "social wealth" as an increase in "efficiency," while the redistributive part of the change is a separate question of "equity" outside of the bailiwick of the professional economist. This methodology is the basis for the standard economic treatment of the law (Chicago wealth-maximization school of law and economics) and for cost-benefit analysis.

However, I (Ellerman 2009, 2014) have shown elsewhere that this attempt to go beyond the Paretian criterion in the direction of welfare economics is based on a logical-methodological fallacy (numeraire illusion), and falls apart under a simple numeraire-reversing redescription of the proposed change. That redescription of exactly the same proposed change reverses the "efficiency" and "equity" parts of the Marshall-Pigou-Kaldor-Hicks analysis. So, any "professional" economic policy

recommendations, based solely on that faulty logic, would also be reversed (and thus would be incoherent).

The alternative and less traveled road beyond the Paretian criterion is a rights-based theory that takes seriously the incommensurability of individuals and eschews any notion of social welfare. The normative property theory I develop here uses the "Paretian" methodology — by basing the normatively relevant notion of legal responsibility on the de facto human responsibility just as the normatively-relevant notion of individual welfare is based on human preferences — to take the rights-based path.

Rights-Based Normative Economics

If the juridical responsibility principle governs the appropriation of assets and liabilities — the beginning and end points in the lifecycle of a property rights — then what is the principle that governs the transfers in between? The same methodology yields the obvious solution, the principle of consent. The legally permitted transfers in property rights of a person are to be those that have the subjective permission or consent of the owner. "Consent is the moral component that distinguishes valid from invalid transfers of alienable rights" (Barnett 1986, 270).

Property theory, as I model it here, is about the appropriation and transfers of property in production and consumption in an ongoing market economy. Theory is silent on any initial endowment of property rights. The Lockean idea that one should appropriate the fruits of one's labor applied to the commons is an application of the responsibility principle. But one's labor also had the negative fruits of using up some portion of the commons, and the same principle implies that one ought to hold that liability (which Locke tried to finesse by assuming that as much and as good is left for others). The question of endowment is about to whom that liability for using up the fruits of nature should be owed. Is it "society" as organized in the state? Is it some version of past, present, and future humanity? The normative theory I give here does not delve into the initial endowment. It simply assumes an endowment, so that we may model the appropriations and transfers in the normal production and consumption activities of a private property market economy.

By the consent principle, the normatively permitted transfers of property rights between parties[9] are the transfers voluntarily agreed to by the parties. Usually, this consent would take the form of reciprocal conditional consent or *contract*. "I consent to transfer X to you if you transfer Y to me," on one side, with the complementary conditional consent, "I consent to transfer Y to you if you transfer X to me," on the other. A legal system accepting this consent definition, of which transfers are to be made, would then try to have all and only those transfers — the legal contracts — made.

There are exactly two ways this might go wrong: (1) if a property transfer was made without any voluntary contract, which will be called a "property externality" (e.g., a theft or conversion), or (2) if a contract was not fulfilled by the

[9] A "party" is here a person, or a set of persons, who have joint ownership of a property right.

actual transfers — namely, a *breach*. For instance, a legal system would typically not accept that a contract has been made until one side delivered — e.g., X was delivered from one party to the other. If Y was not delivered in the opposite direction, then the condition on the conditional transfer of X was not fulfilled, so that transfer of X without consent constitutes the rights violation or breach of the contract by the non-delivery of Y.

In this simple model of the property system, the legal system has two normative tasks: (a) to implement the responsibility principle in the production and consumption internal activities of the parties, and (b) to implement the consent principle in mutually voluntary external transfers between parties. The responsibility principle concerns the internal activities of the parties, whereas the transfer contracts deal with the external relationships between parties. But, in a market system, the two tasks are related. The key result, the fundamental theorem, is that if the legal authorities just ensure that the contractual machinery works correctly in the external market relationships between parties — no property externalities and no breaches — then the market mechanism of appropriation will indeed satisfy the responsibility principle in the internal activities of the parties. By the fundamental theorem, the two tasks of a legal system become one. Hence, the legal authorities only need to intervene when the external property transfers between the parties go wrong, and do not need to monitor the internal activities of the parties — surely an important attribute of a well-functioning market system.

It is useful to put historical tags on the external condition about transfers and on the internal condition about appropriation. The conditions on transfers — no externalities and no breaches — will be called "Hume's conditions" because of his emphasis on "*transference by consent,* and *of the performance of promises*" (Hume [1739] 1978, book III, part II, section VI, 526). The responsibility principle concerning appropriation will be called "Locke's principle."[10] The fundamental theorem then takes the form: "Hume implies Locke."

The Fundamental Theorem for the Property Mechanism

Our task is to give the correctness theorem for the market mechanism of appropriation — to show that if the market contractual mechanism works correctly (no breaches or externalities), then the invisible hand mechanism of imputation operates correctly in terms of the responsibility principle. It is important to be explicit about certain underlying assumptions in standard economic models. Each party has a certain set of commodities (goods and services) within the party's possession and control, which we might call the party's *possessions*. In the one-period individual consumption problem of maximizing utility $U(x_1,...,x_n)$, subject to a budget constraint $p_1x_1+...+p_nx_n=B$, there are several (often implicit) assumptions that relate the x_is that occur in the utility function to those that occur in the budget constraint. If five

[10] These historical tags are not intended as an explication of Hume or Locke's thought. Indeed, I have argued elsewhere (1992) that Locke's theory was quite ambiguous, and that he might not be a "Lockean" in the sense of adhering to the responsibility principle.

pounds of meat are purchased, but then accidentally spoil, then the meat will appear in the budget constraint, but not in the utility function representing consumption. Or there might be vicarious consumption of commodities in some other party's possession that would not appear in the budget constraint. Both of these possibilities are ruled out in the efficiency theorem for the price mechanism (i.e., that a competitive equilibrium is Pareto efficient), and we must make similar (no-accident and no-vicarious consumption) assumptions about the property mechanism.

This motivates the set of assumptions that relates the party's de facto responsible actions to the internal changes[11] in a party's possessions. Just as it is conventionally assumed that consumer goods do not accidentally spoil or get destroyed, but are deliberately consumed, so we must rule out accidents (like spoilage or other unintended destruction) by assuming that the internal changes in a party's possessions are made by the party's de facto responsible actions. And the analogy of "no vicarious consumption" is the locality or no-action-at-a-distance principle that de facto responsible action can only operate on commodities in the party's possession or control (i.e., responsibility implies causality).[12] By these no-accident and locality assumptions, the positive and negative results of a party's de facto responsible actions are equal to the internal changes in the party's possessions. This could be abbreviated as follows:

de facto responsibility = internal changes in possessions

Now I turn to the legal system's task of enforcing the rules about the external changes, the changes due to transfers with other parties. In the consumption example, the purchased x_is that appear in the budget constraint might not be delivered (a breached purchase contract), and there might be some commodities "delivered" from another party, which were not purchased as in an externality (e.g., a theft or conversion). The enforcement of Hume's no-breach and no-externality conditions means that the external changes in each party's possessions are precisely those made by the legal contracts with other parties. When the same commodity is bought and sold by a party (and transferred in and out), then it nets out, so the external changes (always in net terms) in a party's possessions are those indicated by the first-sale and last-purchase contracts (netting out pure transfer contracts). One could abbreviate the enforcement of the no-breach and no-externality rules as follows:

external changes in possessions = first-sale and last-purchase contracts

As previously mentioned, in the market mechanism of appropriation, the invisible judge imputes legal responsibility according to the first-sale and last-purchase contracts. This mechanism could be abbreviated as follows:

[11] These "internal changes" are sometimes thought of as "trades with nature" as opposed to trades with other parties.

[12] This is why alibis are important in establishing who is not de facto responsible for a crime.

legal responsibility = first-sale and last-purchase contracts

To complete the theorem, it only remains to note the mathematical result that "internal changes in possessions = external changes in possessions." In graph theory, this is the "divergence principle" (Rockafellar 1984, 55) which is the discrete version of the fundamental theorem of calculus. For an intuitive picture, think of a fluid flowing into and out of a closed region in the plane. Fluid is also coming out of sources inside the region, with a sink counting as a negative source. The divergence principle is that the net amount flowing out across the boundary of the regions (external changes) equals the net amount flowing out of the sources within the region (internal changes):

external changes in possession = internal changes in possessions

One may put the assumptions, conditions, and mathematics together to have the:

Fundamental theorem for the property mechanism ("Hume implies Locke")

If there are no breaches and no externalities in the market contractual transfers, then the market mechanism of appropriation imputes legal responsibility in accordance with de facto responsibility, i.e., operates correctly in terms of the responsibility principle.

Informal proof:
Legal responsibility = (by the market mechanism of appropriation)
first-sale and last-purchase contracts = (by no-externality and no-breach assumptions)
external changes in possessions = (by divergence principle)
internal changes in possessions = (by no-accident and locality assumptions)
de facto responsibility.[13]

Enforce the contractual rules between the parties, and then the invisible judge will make the right imputations to the parties. In the contrapositive form (Not-Locke implies Not-Hume), the theorem states that, if there was a misimputation by the invisible judge, then it would have to show up publicly as a property externality or a breached contract. This is the property-theoretic refutation of Karl Marx's charge that there could be exploitation in the "hidden abode of production," while the sphere of exchange "is in fact a very Eden of the innate rights of man" (Marx [1867] 1967, 176). Marx's cleverness ran afoul of the cunning of the divergence principle that connects the "hidden abode of production" to the sphere of exchange.[14]

[13] The proof is easily formalized using vector flows on graphs.

[14] The late Warren Samuels has written on the relationship between this theory of property and previous writings. Samuels was a strong supporter of this treatment of property theory and, before his death, he sent me a draft paper (Samuels 2007) (never published to my knowledge) which raised the

Application to Production in the Employment System

The Facts of the Case

In view of the connection between transfers among parties (contracts) and the internal activities of the parties (e.g., production), I begin in the abode of production and then move to the sphere of exchange. Consider a productive opportunity represented by the production function $Q=f(K,L)$, where K represents all the non-labor inputs used up during the time period in the productive opportunity, and L represents all the intentional human actions performed by all who work in the enterprise (managerial and non-managerial workers). The basic argument is that, in performing the intentional actions L, the people working in the enterprise are de facto responsible for using up the inputs K and for producing the outputs Q. By the responsibility principle, they should jointly be the legal appropriators of the input-liabilities $-K$ and the produced assets $+Q$. These are the underlying facts about the de facto responsibility and about the application of the responsibility principle, regardless of the legal or institutional superstructure.

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question of precursors and particularly the relation to Marx's treatment of property. Here are a few excerpts from his second — and to my knowledge — last draft.

> This article is concerned with two interrelated issues: first, the relation of the ideas on the theory of property of David Ellerman to the relevant ideas of Karl Marx and, second, the nature of precursor status, specifically, whether, as it turns out, Marx, a foremost 19th century critic of property, was a precursor of Ellerman, arguably the foremost contemporary theoretician of property (p. 1).
>
> Thus we have two stories, one by Marx centering on the creation of surplus value and the other by Ellerman centering on the appropriation of final output by the hiring party to the employment contract. Literally, Marx's earlier story could be called the precursor and Ellerman's later story that which acknowledges Marx's to be a precursor. Ellerman's story of appropriation is not derived from Marx's story of surplus value; nor does Marx's account necessarily lead to Ellerman's. Both deal with labor and capital but do so in quite different ways. The precursor status arises not inevitably with Marx but with certain accounts and interpretations of Marx's story which seem to make them precursors of Ellerman's story (pp. 7-8).
>
> David Ellerman's theory of appropriation seems clearly to be the foremost and most tightly reasoned theory of the production, use, and disposition of final output. Whether or not one thinks that that is the case, the prior writings bearing thereon may be precursors of Ellerman's theory. But what "bears on" his theory? To some extent, identification of a precursor depends on what one expects of a precursor. None of the prior work seems to amount to Ellerman's appropriation theory. Some of the prior work seems to come close to Ellerman's theory but is not quite it. Marx's theory of the acquisition by capitalists of the surplus value produced by workers may or may not be considered a precursor. Djilas and other writers present what is necessary to have an appropriation theory albeit without distinguishing appropriation per se. Some writers, such as Parkin, identify the object of control and disposition as surplus value. Surely, Ellerman's theory is the only theory that examines in detail wherein the law of property is and is not specifically involved and that specifies explicitly the total output of the firm, rather than surplus value, as the object of control and disposition (p. 26).

In response to Samuels's first draft of the paper, I wrote a long e-mail about Marx that was then refined and published (Ellerman 2010a).

In vectorial terms, the people working in the enterprise, by performing the actions *L*, produce the positive and negative results *(Q,–K,0)* which might be called *Labor's product*. It is customary in conventional economics to conceptualize the performance of these human actions as the "producing" of the labor services *L*, which are then "used up" in production. Then the overall results of production would be represented as the *whole product (Q,–K,–L)*. This might be called the "production vector" or "input-output vector," but for historical reasons, I will use the "whole product" terminology.[15] Using that representation, Labor's product can be parsed into two parts:

Labor's product = (Q,–K,0) = (0,0,L) + (Q,–K,–L) = "labor commodity" + whole product.

Now I view the facts of the case under the institutional structure of production based on the employer-employee contract.[16] Under the employment system, Labor (the people working in an enterprise), as the first seller of *L*, is recognized as initially owning *(0,0,L)*. However, the employer (who may or may not be the owner of the assets yielding the capital services *K*) is in the contractual position of the last buyer of all the inputs (*K* as well as *L*), and thus as the defensible claimant on the product *Q*. Thus, the employer legally appropriates the whole product *(Q,–K,–L)*. This is summarized in Table 1:

Table 1. Responsibility Principle Violation Under the Employment System

Labor de facto responsible for	*(Q,–K,0)*	= labor's product
Labor legally appropriates	*(0,0,L)*	= labor commodity
Labor responsible for but does not appropriate	*(Q,–K,0)* *–(0,0,L)* *=(Q,–K,–L)*	= whole product[17]

As previously noted, the notion of "imputation" was metaphorically introduced into economics by the legally trained Austrian economist Friedrich von Wieser in his treatment of marginal productivity theory at the end of the nineteenth century.

[15] I have used the "whole product" phrase to recognize the tradition summarized by Carl Menger's jurisprudential brother Anton Menger (1899).

[16] Marx's label "capitalism" was a misnomer due to his mistaken belief (fundamental myth) that the key institution was the private ownership of capital rather than the employment relation. A better name would be "employment system," which is used here.

[17] This provides the modern reconstruction of the old slogan: "Labour's claim to the whole product" put forward by the "band" of classical laborists, such as Thomas Hodgskin and William Thompson. (For the history of that school, see Anton Menger 1899, and particularly the introduction by Foxwell 1899, as well as Lowenthal [1911] 1972 and Stark 1943). Although the classical laborists would not expect some other party to pay the costs of production in a cooperative or labor-managed enterprise, they were not always clear that the negative product *(0,–K,–L)* must always be included, along with the positive product *(Q,0,0)*, in making "Labour's claim to the whole product" *(Q,–K,–L)*.

Things, as well as human actions, are causally efficacious at the margin, so Wieser metaphorically used the notion of "imputation" according to marginal productivity, which he thought of as "economic responsibility." But he was well aware that this "economic" notion was not the same as the legal or moral notion of imputation, which could only apply to human actions.

> The judge ... who, in his narrowly-defined task, is only concerned with the legal imputation, confines himself to the discovery of the legally responsible factor, — that person, in fact, who is threatened with the legal punishment. On him will rightly be laid the whole burden of the consequences, although he could never by himself alone — without instruments and all the other conditions — have committed the crime. The imputation takes for granted physical causality ... The expression "this man has done it" does not mean "this man alone has done it," but "this man alone, among all the active causes and factors, is legally responsible for the deed." In the division of the return from production, we have to deal similarly ... with ... an imputation, — save that it is from the economic, not the judicial point of view. (Wieser 1889, 76-79)

The task of property theory is the opposite — to deal with an imputation, save that it is from the judicial, not the "economic" point of view. It is the original non-metaphorical judicial notions of imputation and responsibility that are used in normative property theory.

The property theoretic question is not about the price-theoretic notion of "distributive shares." It is about who appropriates the whole product. Since Labor is responsible for producing $(Q,-K,0)$, but only appropriates $(0,0,L)$ in the employment system, Labor is responsible for, but does not appropriate, the difference that is the whole product:

$$(Q,-K,0)-(0,0,L)=(Q,-K,-L)$$

The legal party, who has the contractual role of being the last buyer of all the inputs consumed in production, would "swallow" the input liabilities $-K$ and $-L$, and thus would have the legally defensible claim on the outputs Q. In this manner, the employer would legally appropriate the whole product $(Q,-K,-L)$ independently of owning the assets yielding K and independently of any de facto responsible actions — which would, in any case, be included in L. Since Labor was de facto responsible for the whole product, the responsibility principle was violated by the employer's appropriation of the whole product.

Analysis of the Employment Contract

Since "Not-Locke implies Not-Hume," the violation of the responsibility principle in production under the employment relation means that there must have

been some violation of the no-externality or no-breach conditions in the sphere of exchange. It is the no-breach condition that is violated by the employment contract. The basic fact that connects the contractual and the imputation mechanisms is that things can, in fact, be transferred from the factual possession and control of one party to another. Person A might rent a van (i.e., sell some of the van's services) to another person B. To fulfill the contract, the van would be factually transferred from A to B, so that B can then use the van (i.e., use up the van services) independently of A, and be solely de facto responsible for the results obtained by using up the services of the van. The contractual mechanism functions correctly when legal title to those services stays coordinated with the factual possession and use of the services. Then the legal imputation of the invisible judge to B for using up the van's services according to the last-buyer contract will be in accordance with de facto responsibility of B for the use of those services.

But this mechanism breaks down when person A (an "employee") tries to rent his or her self (i.e., sells his or her own services) to person B (the "employer"). There is no voluntary action to fulfill an employment contract, so that the employer can "employ" the employee, and be solely de facto responsible for the "employment" of those services. What actually happens to "fulfill" the employment contract is that the employee agrees to cooperate with the employer in a certain activity. But there is no voluntary transfer of de facto responsibility. Both the employee and the working employer are jointly de facto responsible for the fruits of their joint activity. The employee's responsible agency is inherently inalienable.

When the legal authorities accept (n.b., "accept" in the *laissez faire* sense of taking no action) the de facto responsible cooperation of the employee as "fulfilling" the labor contract for the sale of labor services from the employee to the employer, then the invisible judge mistakenly imputes all the legal responsibility to the employer for the using up of the "input" labor services, and for the other positive and negative fruits of their joint activity.

The legal authorities take no action to declare that the employees are "non-responsible," or to state that the employer is solely de facto responsible for the positive and negative product of the joint activity. And that is just the point. An invisible hand mechanism works by non-action. The mis-imputation of the invisible judge is based simply on the legal authorities not rejecting the employees' responsible cooperation as "fulfilling" the legal transfer, so that there *seems* to be no externality or breach to give grounds for intervention.

The underlying facts of workers' de facto responsibility are not controversial. This is easily seen by considering the rather different reaction of the legal authorities when the employer and employee, or "master and servant" in the old-speak of agency law, cooperate together in the commission of a crime. The invisible judge becomes a visible judge, and the servant in work becomes the partner in crime.

> All who participate in a crime with a guilty intent are liable to punishment. A master and servant who so participate in a crime are liable criminally, not because they are master and servant, but because they jointly carried out a criminal venture and are both criminous. (Batt 1967, 612)

When the venture being "jointly carried out" is non-criminous, the workers do not suddenly become non-persons or automatons being "employed" by the employer. The facts about de facto responsible cooperation remain the same. It is the reaction of the legal system that changes when no legal wrong is recognized. Then the invisible judge rules "let it be," and the contractual pattern imputes the whole product to the employer.

Of course, a contract involving a crime is null and void. But the worker is not de facto responsible for the crime because he or she made an illegal contract. The employee is de facto responsible because the employee, together with the employer, committed the crime (not because of the legal status of the contract).

The meaning of "immobility" depends on the "space" being considered. In trade theory, land and its services are immobile factors in geographical space. People and capital, in contrast, move about in geographical or physical space. But when it is said, for example, that a house was transferred into the possession of the buyer, then the house is transferred in — what one might call — "possession space," while it stays immobile in physical space. It is people who are the fixed coordinates in possession space. People and their services cannot be transferred in possession space.[18] When people move in physical space to occupy a house or a factory, then it is the house or factory that moves in possession space to the people using it. The fact that human action is never factually transferred between persons was rather dimly noted by Alfred Marshall as the "second peculiarity" that the seller of labor "must deliver it himself" (1961, 566), i.e., labor is immobile in possession space.

Instead of the factual transfer of labor services between parties, there is only de facto responsible cooperation. In terms of the contractual machinery, the employment contract is impossible to actually fulfill with the transfer of responsible actions from the seller (employee) to the buyer (employer). Thus, the employment contract systematically violates Hume's conditions by being inherently breached. In what might be taken as a fraud on an institutional scale, "an institutional robbery — a legally established violation of the principle on which property is supposed to rest" (Clark 1899, 9), the responsible cooperation of the "employees" is taken by the legal authorities as "fulfilling" (i.e., not breaching) the labor contract, which allows the employer to take the contractual position of the whole product appropriator. That is the basic trick in the employment system of renting human beings.

Since the contract for renting people is impossible to fulfill, it is invalid for the same reasons that a voluntary self-sale contract (to essentially take on the full-time role of a non-responsible instrument) is already recognized as being invalid.[19] Clearly, this analysis of the employment contract has *nothing* to do with the size of the wage payment (which was never mentioned), so it is totally independent of exploitation

[18] This applies only to the voluntary actions of people. A person can be physically coerced and thus not be de facto responsible for the results of that coercion, but our concern is with normal voluntary actions. Here again, Marx went down a completely different road by arguing that wage labor was "socially coerced."

[19] "Since slavery was abolished, human earning power is forbidden by law to be capitalized. A man is not even free to sell himself: he must *rent* himself at a wage" (Samuelson 1976, 52, italics original).

theories of the neo-classical variety (paying less than the value of the marginal productivity of labor) or the Marxian variety.

If the modest proposal were accepted that the contract for the renting of human beings be recognized as invalid and be abolished, then production could only be organized on the basis of the people working in production (jointly) hiring or already owning the capital and other inputs they use in production. Then, the invisible judge would correctly impute the legal responsibility to the de facto responsible party. The legal members of the firm as a legal party would be the people working in the firm.[20] Such a firm is a *democratic firm*, and the private property market economy of such a firm is an *economic democracy*.[21]

Summary and Conclusion

There were a number of small *gestalt* changes in framework or mini-paradigm shifts, away from the previous treatments of these issues in the neoclassical, Austrian, institutional, and Marxist literature, which were necessary before the property-theoretic ideas I developed here could fall together. In conclusion, I emphasize some of those differences:

1. *Fundamental myth*: The idea that the "rights to the product" are part of the rights to some existing asset is easily defeated by considering the case where the asset is rented out. Then, the product goes elsewhere, while the ownership of the asset remains in the same hands. This shows that "being a firm" (i.e., whole product appropriator = residual claimant) is a contractual role.

2. *Appropriation*: If the rights to the product are not part of some preexisting property rights, then the ground is cleared to raise the question of appropriation in normal production, not just in some mythical state of nature, or when common property is being privately appropriated.

3. *Vectorial treatment*: By "vectorial treatment," I mean not just thinking in multi-dimensional terms, but also in algebraically symmetrical terms about "positives" and "negatives" — i.e., assets and liabilities. This allows the symmetrical treatment of both ends of the lifecycle of a property right, initiation and termination, as being the appropriation of property assets and liabilities. Moreover, it shows that consumption is also a site for appropriation since property rights are terminated in consumption (and "waste products" are produced).

[20] I noted previously that, when employer and employees engage in a crime and the legal authorities intervene to explicitly make the imputation in accordance with the responsibility principle, then the "business" is in effect reconstituted as a "partnership" of all the people involved. Since the facts about de facto responsibility are unchanged, when the business is non-criminous, it might be said that the people working in an enterprise should always be "treated as criminals" by setting aside the employment contract and legally reconstituting the business as a partnership.

[21] See, for example, Robert Dahl (1985). The best examples today are probably the Mondragon industrial cooperatives in the Basque region of Spain (see Ellerman 1984; Lutz 1999; or Oakeshott 1978, 2000). Employee stock ownership plans (ESOPs) and codetermination arrangements are steps in the same direction.

4. *Whole product*: The conventional approach is dominated by the "distributive shares" metaphor, as if the suppliers of the inputs were producers and claimants on shares of the *positive product* (*Q*,0,0).

> When a workman leaves the mill, carrying his pay in his pocket, the civil law guarantees to him what he thus takes away; but before he leaves the mill he is the rightful owner of a part of the wealth that the day's industry has brought forth. Does the economic law which, in some way that he does not understand, determines what his pay shall be, make it to correspond with the amount of his portion of the day's product, or does it force him to leave some of his rightful share behind him? A plan of living that should force men to leave in their employer's hands anything that by right of creation is theirs, would be an institutional robbery — a legally established violation of the principle on which property is supposed to rest. (Clark 1899, 8-9)

There is also a dual metaphor about the demanders of outputs using up the inputs, and thus having shares in the *negative product* (0,–*K*,–*L*) as claims against them. The dual metaphor tells a "story" about marginal cost pricing of outputs just as the usual "story" leads to the marginal productivity costing of inputs. But these metaphors duel only with each other. There is, in fact, no legal imputation of the positive product to the input suppliers (i.e., input suppliers do not in fact sell outputs), and no imputation of the negative product to the output demanders (i.e., customers do not buy inputs). Moving beyond the "deep" metaphors of neo-classical theory to the "shallow" legal facts, the whole product (positive plus negative products) is, in fact, legally appropriated by one legal party — the party who stands between the input suppliers and output demanders, and who pays for all the inputs and sells all the outputs of production. This reconceptualization of production changes the focus of normative questions from the value-theoretic "distributive shares" questions to the basic property-theoretic question: "Who is to be the whole product appropriator?"

5. *Invisible judge*: All four of the previous points converge at the formulation of the market mechanism of appropriation. This idea could not arise without the mini-paradigm shifts of getting beyond the fundamental myth, raising the question of appropriation, seeing appropriation in a two-sided vectorial fashion, and moving beyond the metaphorical picture of imputation in the firm (from distributive shares to the whole product). Then, the idea quickly arises of a last-buyer/first-seller invisible hand mechanism of imputation by the "lowest court in the land" — the invisible judge.

6. *Responsibility*: One of the astonishing feats, or rather feints of conventional economics, is the learned ignorance of the fact that, while all the inputs are causally efficacious, only human action ("Labor") can be de facto responsible, and that the responsibility for using productive instruments is imputed back through the instruments to the human users. The basic reasons for the professional blindness are not hard to fathom. Today's unnatural system of property and contract based on the

renting of human beings, the "employment system," legally treats labor services *as if* they were "non-responsible" (outside of crimes) and transferable like the services of things.

7. *Responsibility principle*: One of the key connections to bring the pieces of the puzzle together was the realization that the "fruits of one's labor" principle from Lockean property theory was the positive application of the normal juridical principle of responsibility typically applied to the negative side of appropriation — the imputation of liabilities.[22]

8. *Possession space*: A focus on what happens when contracts for the purchase and sale of commodities are fulfilled, and on property externalities, quickly shows that the relevant transfers are not in physical space (although that may be involved), but transfers in possession. Similarly, the relevant "immobile" or "non-tradable" factors would be what cannot be voluntarily transferred out of the possession of a person — i.e., a person's de facto responsible agency.

9. *Fundamental theorem*: One part of the theorem was seeing that putting the juridical principle together with the idea of possession space pointed out that the de facto responsible party for consuming or producing a commodity would also be the last or first possessor of the commodity respectively. That, in turn, established the connections to the contracts fulfilled by transfers in possession. Hence, when all contracts are fulfilled, and there are no extra-contractual transfers, then the last-buyer/first-seller imputation of the invisible judge will be respectively to the last/first possessor, and thus correct in terms of the responsibility principle — i.e., the Hume-implies-Locke fundamental theorem.

10. *Analysis and critique of employment system*: With the above pieces in place, the analysis and critique of the current system based on the renting of human beings is straightforward. Labor produces Labor's product *(Q,–K,0)*, which is the sum of the de facto responsible actions conceived as a "commodity" *(0,0,L)*, plus the whole product *(Q,–K,–L)*. But Labor only appropriates (as first seller) the "labor commodity," while the employer appropriates the whole product.[23] The "trick" at the basis of the

[22] Independently of my work (Ellerman 1972, 1980, 1985, 1988, 1992), this connection has been noted by a legal scholar: "[T]he libertarian entitlement thesis, to the effect that persons are entitled to retain the fruits of their labor, and the libertarian thesis about outcome-responsibility, to the effect that persons are responsible for the harms that they cause, are two sides of the same coin. ... The basis of this unity is the idea that people 'own' the effects, both good and bad, that causally flow from their actions" (Perry 1997, 352). Actually, the connection was, in effect, made over a century ago in orthodox apologetics. John Bates Clark (1899) constructed an interpretation of marginal productivity theory using metaphorical Lockean language that became part of orthodoxy. For example, "[t]he basic postulate on which the argument rests is the ethical proposition that an individual deserves what is produced by the resources he owns" (Friedman 1962, 196). Friedrich von Wieser (1889) constructed a metaphorical interpretation of MP theory, using the language of imputation and the responsibility principle. Since both schemes build metaphorical interpretations of the same MP theory (where all inputs are treated as "responsible"), the connection between Lockean entitlement (Clark) and juridical imputation (Wieser) was there all along in orthodox apologetics.

[23] Here again, Marx eschewed developing the beginnings of the labor theory of property in Thomas Hodgskin, William Thompson, Pierre-Joseph Proudhon, and others, while focusing on the rather hopeless "labor theory of value."

employment system was for the legal authorities to not intervene in the employment relation when no crime was committed, so that the de facto responsible cooperation of the employees with the employer would "count" as fulfilling the contract for the transfer of labor, and the *laissez faire* mechanism of appropriation would do the rest. Thus, the employees are paid for their labor, and the employer appropriates the whole product even though Labor (inclusive of management) was de facto responsible for producing it. The flaw is not in the *laissez faire* mechanism of appropriation. The flaw is in the institutional fraud of the legal system validating the person-rental contract and accepting the inherently co-responsible (non-criminous) actions of the employees as "fulfilling" the contract.

The interesting implication is that, notwithstanding two centuries of economic theorizing and apologetics, the current system is *not* the "natural system of property and contract" any more than would be an even freer market private property system, where longer-term voluntary contracts in human capital (e.g., self-sale or voluntary slavery contracts) were legally valid. The natural system of private property and contract is the one, where the self-employed proprietorship and family farm generalize to democratic firms of any size, where people are jointly *still* working for themselves as the principals in the business. Moreover, the system of economic democracy finally resolves the long-standing conflict between being a citizen, bearing inalienable rights in the political sphere, and being a rented "employee" in the workplace.[24]

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[24] For an analysis of the employment contract from the viewpoint of inalienable rights, see Ellerman (1986b, 1988, 2005, 2010b).

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