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"Binary Economics and the Case for Broader Ownership" *

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Abstract

Binary economics simultaneously offers a unique paradigm for understanding economic efficiency, growth, and justice that is foundationally distinct from classical, neoclassical, Keynesian, socialist and Austrian economics. Focusing on the persistence of unutilized productive capacity binary economics specifically offers both a distinct explanation and a market-based policy alternative that promises a means to produce much greater and broadly shared abundance. First proposed by Louis Kelso, binary economics also offers a prescription for establishing a more inclusive, competitive and democratic private property system, one that universalizes the right to acquire capital with the earnings of capital.

Binary economics holds that broadening individual participation in capital acquisition with the earnings of capital has a potent (but presently untapped) *distributive relationship* to growth that is not caused by productivity gains and governmental strategies to redistribute or regulate demand. Binary economics uniquely (1) reveals important market connection between unutilized productive capacity and wealth concentration, and (2) offers new strategies to achieve the goals of broadly shared growth and prosperity, enhanced efficiency, and economic justice by way of widespread, and eventually universal, individual, participation in capital acquisition and ownership. When judged by the criteria of (1) reasonable assumptions, (2) internal consistency, and (3) plausible descriptions, predictions and prescriptions, and when compared to the other economic approaches that are routinely taught, impartial analysis reveals that the binary approach is more consistent with scientific principles.

Based on widely accepted principles underlying the philosophy of science, professional ethics, secular morality, and spiritual values, educational institutions and foundations have a responsibility to teach binary economics in most contexts in which issues of economic growth, efficiency and justice are taught or considered. The contexts include course segments, courses, certificate programs, majors and degree programs in economics, political science, sociology, business administration, philosophy, history, theology and law. The people have a right to know.

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I. INTRODUCTION

Binary economics simultaneously offers a paradigm for understanding economic efficiency, growth, and justice that is foundationally distinct from classical, neoclassical, Keynesian, and socialist economics. It also offers a prescription for establishing a more inclusive, competitive and democratic private property system, one that universalizes the right to acquire capital with the earnings of capital.[1] Focusing on a great anomaly left unexplained or poorly explained classical, neoclassical, and Keynesian economics (i.e., the persistence of unutilized productive capacity in a context in which markets are supposedly becoming more efficient) and left unremedied by any approach yet applied, binary economics specifically offers both a distinct explanation and a market-based policy alternative that promises a means to produce much greater and broadly shared abundance. Because demand for capital investment is dependent on demand for consumption in a future period, binary economists reason that the promise of broader ownership

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[1] Binary Economics was first advanced by corporate finance attorney, investment banker, and philosopher, Louis Kelso. See, L.O. Kelso and M.J. Adler, *The Capitalist Manifesto* (1958); L.O. Kelso and M.J. Adler, *The New Capitalists*; (1961) L.O. Kelso and P. Hetter, *Two-Factor Theory: The Economics of Reality* (1967); L.O. Kelso and P.H. Kelso, *Democracy and Economic Power: Extending the ESOP Revolution through Binary Economics* (1986, 1991). The authoritative and most complete source of writings by Louis Kelso (the originator of binary economics) can be found on the web site of The Kelso Institute: << http://www.kelsoinstitute.org >>.

For the author's presentation of binary economics as a distinct paradigm, see generally, *Binary Economics: the New Paradigm,* (1999) with Rodney Shakespeare; "Louis Kelso's Binary Economy," Volume 25 *Journal of Socio-Economics*, pp. 1-53 (1996) (available online at westlaw.com in its jjsocecon data base); "A New Market Paradigm for Sustainable Growth: Financing Broader Capital Ownership with Louis Kelso's Binary Economics," Volume XIV, *Praxis, The Fletcher Journal of Development Studies*, pp. 25-59 (1998). "The Binary Economics Louis Kelso: The Promise of Universal Capitalism," 22 *Rutgers Law Journal* 3 (1990). "The Binary Economics of Louis Kelso: A Democratic Private Property System for Growth and Justice," Chapter 6 in *Curing World Poverty: The New Role of Property*, (1994), John H. Miller, C.S.C., S.T.D., editor. See also "Binary Economics, Fiduciary Duties and Corporate Social Responsibility: Comprehending Corporate Wealth Maximization for Stockholders, Stakeholders, and Society," 76 *Tulane Law Review* 1531 (2002)

in the future will provide incentives for more investment in the present. The binary approach leads to the conclusion that universalizing the "market right" to acquire capital with the earnings of capital offer (so that all people can acquire capital with the earnings of capital) will provide market incentive to employ more fully existing productive capacity and invest profitably in additional productive capacity.

As an economic theory, binary economics holds that broadening individual participation in capital acquisition with the earnings of capital capital acquisition on market principles has a potent (but presently untapped) *distributive* relationship to growth that is not caused by productivity gains and governmental strategies to redistribute or regulate demand. (This proposition is known as *the principle of binary growth*). In other words, the distribution of capital ownership is positively related to the employment of unutilized productive capacity and growth in important ways not comprehended by conventional economic theory. Like no other economic paradigm, binary economics (1) reveals important market connection between unutilized productive capacity and wealth concentration, and (2) offers new strategies to achieve the goals of efficiency, broadly shared growth, and economic justice by way of widespread, and eventually universal, individual, capital ownership.

When judged by the principles underlying scientific understanding, the persistence of unutilized capacity along side of unmet needs and wants constitutes a major anomaly in classical and neoclassical theory and a major unresolved controversy in economics as a whole that has divided that discipline into right-wing, left-wing and mixed centrist approaches, none of which has coherently addressed and remedied the situation. According to classical and neo-classical economics, if markets were truly free and efficient (as those theories assume), unutilized productive capacity is an anomaly that should not persist for long; but it has. In classical and neoclassical theory, unutilized productive assets should be sold, even at salvage if necessary. Even before they become partially or totally unutilized, assets not earning competitive returns for their owners should be sold to those whose rate of return can be enhanced by the acquisition. But contrary to the theory, the unutilized productive capacity persists.

In response to the Great Depression (when the existence of vast unutilized productive capacity became a politically undeniable fact), Keynesian economics was introduced as a major element of government economic policy in the U.S.A. and other Western-style capitalist economies precisely to deal with the persistence of unutilized productive capacity. As a consequence, in practical effect, present economic policy in those economies is a mixed compromise of classical, neoclassical, and Keynesian theory and practice; but none of those theories (alone or in combination) has satisfactorily explained the anomaly of unutilized capacity; nor have they provided an effective strategy or institutional environment to employ the unutilized capacity profitably to promote the full growth potential.

Although they differ in many respects, conventional theories (including classical, neoclassical, Keynesian) share a common, generally unstated assumption: namely that the distribution of capital ownership (as distinguished from the distribution and redistribution of income) has no positive relationship to the employment of unutilized capacity and economic growth. Binary economics challenges that assumption by assuming that labor and capital are *"independently productive"* and reasoning therefore that the distribution of capital ownership has

a potent, positive relationship to the employment of unutilized capacity and growth. Thus, unutilized productive capacity and suboptimal growth (notwithstanding unmet needs and wants) and concentrated ownership are not unrelated phenomena, but rather correlative symptoms of an exclusionary system of corporate finance in which (1) almost all capital is owned by a small percentage of the population, and (2) almost all capital is acquired with the earnings of capital. To remedy this situation, binary economic analysis provides an inclusive, voluntary means by which people previously excluded from efficient capital acquisition are enabled to acquire capital competitively with the earnings of capital using the same institutional techniques and advantages that presently enable well-capitalized people to acquire capital with the earnings of capital.

Accordingly, by relaxing one unproven (and generally unstated) assumption of conventional economics (the assumption that the distribution of capital ownership has no substantial positive relationship to the employment of unutilized capacity and growth that cannot be comprehended by productivity or the *re*distribution of income and capital), the anomaly disappears: As a first-order approximation, unutilized productive capacity and suboptimal growth are simply the flip side of concentrated ownership. Unutilized productive capacity, suboptimal growth, and wealth concentration are correlative manifestations of the fact that capital

(1) is *"independently"* productive
(2) contributes far more to growth than results from its substitution for labor,
(3) routinely returns its investment (or "buys itself") primarily for a relatively small group of existing owners while excluding the vast majority of people from the capital acquisition process and
(4) is thereby prevented from distributing the consumer income that would provide market incentives to employ its unutilized productive capacity and promote growth.

A number of remarkable implications flow from the principle of binary growth. One practical implication is that much of the capital presently owned by America's three thousand or so largest companies, that historically have returned their inflation adjusted value every five to seven years primarily for existing owners, could do so even more profitably if all people were allowed entry into the capital acquisition process by way of competitive capital acquisition rights. A second implication is that with modest reform of the existing markets for capital acquisition, in an under-capacity producing economy, substantial growth and more broadly shared wealth can be achieved without the involuntary redistribution of income or capital.

When judged by the applicable scientific standards (of workable assumptions, internal consistency and replicable description, prediction and prescription), impartial analysis reveals that, compared to other economic approaches, binary economics provides (1) a superior theoretical explanation for the persistence of poverty and economic deprivation and degradation notwithstanding the unutilized capacity to reduce and eliminate them and (2) a more promising means to employ unutilized capacity and promote growth profitably for the material benefit of all people. The binary approach (1) rests on reasonable assumptions, (2) has internal consistency, and (3) provides plausible descriptions, predictions and prescriptions.

Accordingly, based on widely accepted principles underlying the philosophy of science, professional ethics, secular morality, and spiritual values, institutions of higher education have a special responsibility to teach binary economics in most contexts where issues of economic efficiency, growth, and justice are taught or considered. Professional ethics governing fiduciaries, advisors and consultants also call for the inclusion of binary economic principles in the positive or normative analysis of those subjects

II THE ANOMALY OF UNUTILIZED PRODUCTIVE CAPACITY

Binary economics provides a new understanding and suggests new strategies regarding the persistence of vast (and many would say growing) unutilized productive capacity in markets that are supposedly becoming more competitive and efficient. Particularly noteworthy as a matter of public policy is the unutilized productive capacity of the assets owned by major prime-credit-worthy corporations. In the USA, for example the three thousand largest corporations own over ninety percent of its "investable" capital assets. As a matter of policy, this is where an enlightened approach to corporate economic policy can have its greatest impact on industry, shareholder wealth, working people, and the well-being of every individual.

There are, of course, different definitions of unutilized productive capacity depending upon the purpose of economic inquiry; and fiduciaries must carefully consider which definition or definitions will enable them to fulfill their fiduciary responsibilities..

Mainstream economic analysis generally employs a narrow and frequently documented "static" approach to unutilized productive capacity that focuses primarily on existing assets and available labor at a given wage. The presently unemployed portion of each existing or available factor is the "static unutilized productive capacity" for that factor.

In considering the question of unutilized productive capacity, however, a corporate fiduciary cannot think merely in terms of existing capital and available labor. A definition of unutilized capacity which looks only to existing assets and available labor is a limited conception that ignores the competitive and wealth-enhancing implications of advancing technology, major capital investment, changes in skills, preferences, and environmental factors and a broader pattern of capital acquisition over time. This broader time frame—in which technology, major capital investment, skills, preferences, environmental factors and ownership distribution are variable—is an essential foundation for much of the corporate planning required of corporate fiduciaries.[2] Such a time frame is certainly not the exclusive domain of neoclassical economic analysis, which generally holds technology, skills, preferences, environmental factors, and major capital investment constant and ignores the distribution of ownership.

Thus, from the perspective of corporations and corporate fiduciaries, a central question is: What business strategy should be pursued to most profitably acquire, employ, and dispose of corporate assets over time? With respect to those assets, if any substantial amount of unutilized

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[2] Paramount Commc'ns, Inc. v. Time, Inc., 571 A.2d 1140 (Del. 1989).

productive capacity exists and could be profitably employed, corporate profits and shareholder wealth would increase accordingly.

The question of unutilized capacity is also a central issue for people concerned about the welfare of economically disadvantaged people and for government policymakers vested with a responsibility in matters of economic welfare. When there is unutilized productive capacity of an economy's major corporations, there is a capacity to provide more basic necessities, such as food, clothing, shelter, transportation, and healthcare, and simple comforts and conveniences by way of greener and more socially responsible industrial processes and practices. The ever-present threat of plant closings, downsizing, and layoffs can be understood as a reflection of unutilized productive capacity. Many economic assaults on the environment resulting from destructive production technologies (that continue despite the know-how to ameliorate or replace them with greener technologies that people cannot afford), can be understood as reflections of unutilized productive capacity.

As in the case of corporate fiduciaries acting in the corporate interest, it is in the interest of to economically disadvantaged people, and the duty of their advocates, focus on the question of unutilized productive capacity in the broader, what could be called "holistic," sense that reflects the real potential to produce and distribute goods and services on a sustainable basis over time. Thus, in the remainder of this article, unless otherwise specifically noted, "unutilized productive capacity" includes static unutilized productive capacity and also the broader holistic, fiduciary understanding of unutilized productive capacity

Taking the assumed perfect efficiency or approximate perfect efficiency of markets as the best starting point for economic analysis, some people believe that a major economy like that of the USA and major, prime credit-worthy companies within the economy have little or no unutilized productive capacity. "If there were an appreciable amount of unutilized productive capacity," they argue "it would surely be employed. This is what rational people acting with a profit motive do, and if people refuse to act rationally in this way they will be driven out of business by others who do." But in my experience, many more people do not believe that markets are that efficient and instead believe that there is substantial and growing unutilized productive capacity.

On this point, a simple thought experiment might be illuminating. Suppose you were king or queen of the world and could ordain any economic policy as the law of the world, and your goal were to feed, clothe, and shelter the world, and provide people with the resources to develop themselves to their highest good. Although you might fall short of your desired goal, would it be easier to approach your goal now than one hundred, two hundred, or three hundred years ago? And, to change the hypothetical, if you were still the king or queen of the world and (just as the Pharaohs loved pyramids) you love unutilized productive capacity. It is not enough for you to have two closed manufacturing plants in a particular locale (with the lost jobs gone to manufacturers overseas where wages do not internalize such factors health and retirement benefits, safety and environmental standards, military costs, and infrastructural benefits of the USA); instead, you prefer to have seven more such plants. Would it be easier to build seven such unutilized plants today than one, two or three hundred years ago?

Thus, if asked to determine the facts with due diligence, I predict that the general counsel of most prime credit-worthy companies would, after consulting with all appropriate experts, conclude that their companies, even as they determine the need to effect major downsizings, plant closings, and lay-offs, owned the productive capacity with available capital assets and labor to profitably increase output by perhaps 10–20%, or more, at lower unit costs if there were only the customers with money to buy what could be readily produced. This would apply not only to consumer goods but also to producer goods, so that within existing unutilized productive capacity, there is the capacity to create even more unutilized productive capacity.

Of course, not everyone would agree with my prediction, which is based on experience and anecdotal evidence but no scientific validation. Nevertheless, a lesson from economic history and the history of economic thought may be instructive. In the Great Depression of the 1930s, society was faced with a major anomaly that politically could not be ignored: the anomaly of vast unutilized productive capacity, even in the limited static sense, alongside widespread need and want among willing and able, but unemployed people. It was a time when passenger trains rolled by with few passengers able to pay the fares, and freight trains rolled by empty of freight, but carrying people who were traveling the country looking for work. The persistence of unutilized productive capacity at that time, and the failure of classical and neoclassical theory to provide government and society with a satisfactory theoretical explanation or practical solution for the anomaly provided the political foundation for the recognition of Keynesian economics as a mainstream school of thought.[3] Unlike the 1930s, presently unutilized productive capacity is not explicitly a major focus of mainstream economic and political analysis. Generally, people do not get funding, prizes, or much recognition for addressing the question of unutilized productive capacity. As a policy issue, unutilized productive capacity rarely enters the mainstream discussion. Yet in ways important to corporate profitability, more unutilized productive capacity seems to exist now than in the 1930s. In my experience, most people believe that the western-style capitalist economies could more nearly feed, clothe and shelter all the world's people today than in 1935, despite substantial population growth since then. Although today's percentages of static unutilized productive capacity may be far smaller than the percentages that prevailed in 1935, most people I know believe that in the fuller, holistic sense of the term, the unutilized productive capacity of major corporations today is far greater than it was during the Great Depression of the 1930s. Despite neoclassical assumptions of rising costs and diminishing returns, much of the unused productive capacity is generally marked by diminishing unit costs and increasing economies of production made unprofitable only by insufficient consumer demand even at discount prices.

Again learning from history, comparing the political climate during the 1930s to the political climate today, it seems most reasonable to conclude that when the existence of substantial unutilized productive capacity is undeniable, the interests of the economically disadvantaged become matters of much greater concern to the government, private foundations, major economic players in the economy, and the electorate.

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[3] See Bill Gerrard, Keynes, The Keynesian and the Classics: A Suggested Interpretation, 105 ECON. J. 445, 449 (1995) (characterizing the central theoretical task of Keynesian economics as explaining the outcome of persistent underemployment).

Unfortunately, mainstream economics has no coherent position on unutilized productive capacity in the holistic sense. Rather than consensus, it provides controversy. It is not even clear that mainstream economics has a non-controversial way of measuring holistic unutilized productive capacity. Thus, on the authority of economic theory, there is no sound basis to dismiss the controversy regarding unutilized productive capacity merely by arguing that reformers have the burden of proving the existence of unutilized productive in the holistic sense of the term.

Mainstream economics divides into different schools on the existence, extent, and significance of unutilized productive capacity and what to do about it. These schools offer different guidance to private corporations and public policy makers. Neoclassical economics assumes perfect competition and efficiency as the starting point of analysis.[4] As previously noted, in the world of perfect neoclassical efficiency, unutilized capacity (beyond need for peaks in market demand and an insurance for emergencies beyond the predictable) is an anomaly that should not persist for long. Unproductive assets should be sold, even at salvage if necessary. Even before they become partially or totally unutilized, assets not earning competitive returns for their owners should be sold to those whose rate of return can be enhanced by the acquisition. For those who believe that this logic describes the ongoing reality experienced in a national economy, there is little or no sustained unutilized capacity beyond the amount that is efficient to maintain. Plant closings, downsizings, lay-offs are signs of greater, not less, efficiency. For those who believe markets are efficient or nearly efficient, there is little or no unutilized productive capacity (including little or no involuntary labor unemployment) that exists by reason of the market's failure to distribute sufficient demand for goods and service.

But to most observers, these conclusions are belied by experience. From many people, I have heard claims that today there is a growing technological capacity to feed, clothe, and shelter the world if there were only sufficient income to buy what can be readily produced. However close to the truth such a claim is in the year 2005, it was less true in 1905, and still less true in 1805.

Based on a conception that confuses a neoclassical theory of marginal efficiency with an unnamed, theory of growth, so-called free market reforms have been initiated on the national and international level supposedly to make markets more efficient. Nevertheless, as markets have globalized and allegedly become more efficient, unutilized productive capacity of the world's major corporations has, in the eyes of many people, paradoxically increased rather than decreased. The neoclassical, generic solution of simply "deregulating" markets, without regard for the remaining regulated, protected, institutional advantages of private property that enrich some while excluding others, is, therefore, suspect in this context.

According to Keynesian analysis, there is indeed persistent unutilized productive capacity that belies the neoclassical assumptions of near-perfect efficiency. Untapped growth potential and underemployment of labor and capital persist despite classical and neoclassical economic theory to

[4] See Charles R.P. Pouncy, Contemporary Financial Innovation: Orthodoxy and Alternatives, 51 SMU L. REV. 505, 540–41 (1998) (describing the perfect competition model of neoclassical economics). See generally Joan Robinson, What is Perfect Competition?, 49 Q. J. ECON. 104 (1934).

the contrary.[5] Markets are far from perfectly competitive, and their operation results in a persistent shortfall in "effective demand."[6] "The result is an endemic underutilization of people and resources that can, at least, be partially corrected by government action."

But, in addressing unutilized productive capacity, the Keynesian analysis attaches no special significance to the distribution of capital ownership. Indeed, Keynes specifically says that in understanding his approach:

> "It is preferable to regard labour, including of course, the personal services of the entrepreneur and his assistants, as the sole factor of production, operating in given environment of technique, natural resources, capital equipment and effective demand. This is why we have been able to take labour as the sole physical unit which we require in our economic system, apart from units of money and of time,"[7]

Accordingly, Keynesian analysis attaches no fundamental significance to the distribution of capital ownership because in Keynes' model, capital earns no independent income and has no value apart from labor. (Consequently, Keynesian analysis attaches no fundamental importance to extending to all people the competitive right to acquire capital with the earnings of capital.)

Further, Keynesian the analysis makes no fundamental distinction between the distribution and redistribution of income and capital. In light of the law of private property, however, fiduciaries should be skeptical of an analysis that makes no distinction between the distribution and redistribution of capital and income.[8]

Moreover, although Keynesian strategies remain a central element in the workings of every major economy (witness, for example the vast public expenditures in the USA), many if not most people would say that unutilized productive capacity persists and is apparently growing in the USA and most industrial economies. Thus, although Keynesian economics is intended to address and

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[5] 10 See Paul Davidson, Post Keynesian Macroeconomic Theory: a Foundation for Successful Economic Policies for the Twenty-first Century 6–8 (1994) (observing that Keynes argued that neoclassical economic theories could not account for the persistent unemployment rates of the Great Depression).

[6] 11 See generally KEYNES, supra note 8, 23–34 (defining "effective demand").

[7] Keynes, *General Theory of Employment, Interest and Money*, Harcourt, Brace & World, Inc. (1936) pp. 213-214.

[8] Note that the Keynesian approach is not in harmony with the law of private property, which sees capital and labor as independent earners, and which necessarily distinguishes between the distribution and redistribution of income and capital. See Ashford, Binary Economics, Fiduciary Duties and Corporate Social Responsibility, supra note 2, at 1541.

remedy the problem of unutilized productive capacity, there is reason to doubt its efficacy with regard to holistic unutilized productive capacity.

For those who recognize its existence, unutilized productive capacity is an important economic phenomenon that mainstream economic theory has failed to adequately explain or remedy. Theoretically, the persistence of unutilized capacity challenges the foundation of mainstream economics. A major aspect of the political, social, and moral debate in Western societies regarding economic policy is related to the employment of productive capacity, both utilized and unutilized. The economic and political prospects for greater and more broadly shared prosperity for poor and working people are limited by mainstream understanding of policies related to utilized and unutilized productive capacity. It would serve the interest of economically disadvantaged people, if they and their counsel could discover and advance an approach to unutilized productive capacity that better serves their interests.

When accepted mainstream theories fail to adequately explain or remedy an important phenomenon, one scientific and lawyerly way to discover better theories is to identify and suspend one or more of the assumptions that those theories share in common and then to explore the counter assumptions and their implications. Although they differ in many respects, all mainstream approaches to unutilized productive capacity share two basic assumptions: (1) the primary role of capital is to make labor more productive and (2) there is no substantial, fundamental, positive relationship between the distribution of capital acquisition and the employment of unutilized capacity and growth. By suspending these mainstream economic assumptions, one is led to two basic premise of binary economics.

III. THE BINARY HYPOTHESIS REGARDING UNUTILIZED PRODUCTIVE CAPACITY

By relaxing the unproven assumption that capital has no potent distributive relationship to growth, the contrary binary assumption (that capital has a potent distributive relationship to growth) provides an alternative explanation for unutilized productive capacity. The binary hypothesis is that unutilized productive capacity and concentrated ownership are the direct market consequences of faulty market institutions and practices that:

(1) concentrate capital ownership, by effectively excluding market participation by non-owners in the process of acquiring capital with the earnings of capital, and

(2) thereby monopolize and suppress the true productive capacity of capital, by preventing capital from
   - (a) being acquired more broadly and rapidly, and
   - (b) thereafter distributing to consumers the income to purchase what can increasingly be produced by capital.

According to binary theory, if markets were structured to diffuse ownership voluntarily (by enabling all people to acquire capital with the earnings of capital), then within the time frame of capital investment projections of major U.S. corporations (usually approximately five years) increasing consumer demand (more widely distributed through the acquisition of productive capital) will profitably employ unutilized productive capacity and produce growth.

Demand for capital investment is derivative of demand for consumer goods. It arises in anticipation of future consumer demand.[9] The anticipated future consumer demand, however, must be sufficient to enable the capital to earn a competitive return ("acquire itself" in at a competitive rate). From a binary perspective, in an economy with unutilized productive capacity, because capital is independently productive, its rate of capital cost recovery will increase as it is acquired more broadly by people with more unsatisfied needs and wants. Expressed in other words, in an economy operating at less than full capacity, a voluntary pattern of steadily broadening ownership promises more production based consumer demand in future years and therefore more demand for capital goods in earlier years.

For example, within a period of perhaps five to fourteen years, if members of the poor and middle classes are enabled to compete with existing owners for the acquisition of corporate shares representing the capital requirements of companies worthy of prime credit, these poor and middle-class people would bring to the corporate finance bargaining table a chip not possessed by existing owners: a pent up appetite for more of the necessities and simple luxuries of life that richer people enjoy. After the capital has paid for itself (repaid its acquisition debt obligations) the earnings of capital acquired by members of the poor and middle class, if paid to them, will distribute more consumer demand than if that capital had been acquired by the wealthy. Had that capital been acquired by existing owners, its income would have been courted for additional investment, but in the context of less consumer demand. In an economy operating at less than full capacity, compared to the investment opportunities that would have existed without the availability of ownership-broadening market mechanisms, the broader market distribution of capital and income generated in a binary economy will create greater investment opportunities for existing owners as well as for the new binary owners.

IV. BINARY ECONOMICS AS A DISTINCT PARADIGM

A. On Paradigms

A paradigm is a way of understanding. Major new paradigms change the way people understand reality.[10] Sometimes they dispel illusions and establish the foundation for major new discoveries. Every day, billions of people see the sun rise and the sun set, but what they see is a grand illusion built on a faulty paradigm resting on the false assumption that the sun and planets travel around the earth. Some principles that were difficult to understand by almost everyone in one era can be taught to grade school children in the next. When the earth-centered paradigm was replaced with the sun-centered paradigm, the foundation was laid for the discovery of Newton's laws (which make no sense in an earth-centered solar system) and all of modern science.[11]

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[9] H.G. Moulton, *The Formation of Capital* (1975, 1935) (Originally published in 1935 as Publication Number 59 of the Institute of Economics of the Brookings Institution).

[10] People first adopt paradigms, and then perform their theoretical and empirical analysis. Thomas Kuhn, *The Structure of Scientific Revolutions* (2nd ed. 1970).

[11] Aristarchus of Samos, in a remarkable insight, first proposed the sun-centred solar system in the third century AD. For Aristarchus? work, see T.L. Heath, *Aristarchus of Samos, the Ancient*

It is important to note, moreover, that alternate paradigms need not be mutually consistent to be useful. Sometimes paradigms complement and supplement understanding, as exemplified by the distinct conceptual contributions to physics made for example by Newton, Planck, Heisenberg, and Einstein. Sometimes paradigms conflict and are yet informative of different aspects of the "same" reality, as in wave theory and particle theory, which are both used to describe the properties of electrons. Indeed, much economic theory and practice make use of conflicting neoclassical, Keynesian, behavioral, institutional and other models often to explain the same behavior. Binary economics should not therefore be excluded from the array of conceptual tools used to understand economic behavior merely because its premises conflict with conventional theory or because it explains supposedly the same economic behavior in a fundamentally different way. Whatever one thinks of the neoclassical and Keynesian paradigms, binary economics will provide important insights regarding the persistence of unutilized productive capacity and how it might be profitably employed to reduce economic deprivation while benefitting everyone.

B. The Binary Economic Fundamentals

As an economic theory, three related principles can be used to establish binary economics as a paradigm distinct from conventional economic theory:

(1) labor and capital are *independently* productive;
(2) technology makes capital much more productive than labor, and
(3) capital has a potent distributive relationship to growth such that the more broadly capital is acquired the more profitably it can be employed to increase output.

Thus, binary economics derives its name from the premise that capital and labor are independent (or "binary") factors of production. Although they cooperate together (just as two people cooperate when working together), each factor does its own work, has its own productive capacity, and demonstrates its own "independent productiveness."

By conceiving of capital as "independently productive," binary economics provides a different paradigm for understanding the relation of capital and labor to increased production and greater abundance? In comprehending this relation, the central concept of conventional economic theory (that capital makes labor more productive) can be illustrated by the example of sawing ten boards in one hour with a hand saw as compared with sawing one hundred boards in an hour with an electric saw. The conventional approach views the human factor as the most fundamental factor of production, and capital as a dependent factor that can be employed to make labor more productive. After all it takes the person to operate the saw, whether manual or mechanical.

However, from a binary perspective, human labor is much more dependent on the non-human factor than the other way around. The sun shines and rain falls without human effort. With help from the sun, rain, and earth (and countless worms and other organisms) vegetation produces oxygen, food, and medicines; animals produce food and medicines, do other work, and

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Copernicus (1913).

provide other benefits. Physical structures and materials support and protect us. Humans make contributions to the process, but their capacity is limited and mostly made by learning to unleash and guide the far greater, independently productive powers of the non-human contributions that are available by discovering and employing the natural laws of creation.

A good example of the independent productiveness of capital (and a better illustration of the relationship between capital, labor and increased production) are revealed by the work of human transportation. Walking can be good exercise and fun; but when it is done for reasons other than its intrinsic worth (as work), it is generally more productive in many contexts, to employ a horse or automobile to do most of the work in transporting people. The horse is capital and is definitely independently productive. It does its own work, even though it must be guided by a person. The same is true of an automobile.[12] Another example is seen in the work of hauling logs: a person can haul one small log one mile in one hour and is exhausted; (1) with a horse, five logs can be hauled twice as far in half the time (yielding a ten-fold increase in output) and (2) with a truck five hundred logs can be hauled forty times as far (yielding a twenty thousand-fold increase in output).

In terms of "productiveness" (which retrospectively means "work done" and prospectively means "productive capacity"), the horse, automobile, and truck do much more than increase the productivity of the human who rides, leads, and drives them; the horse, automobile, and truck are doing most of the extra work. Looking at how production and productive capacity has changed since 1776, in countless aspects of work, binary economists maintain that *increased production (growth) is primarily the result of increasing capital productiveness rather than increasing labor productivity*. According to the conventional perspective, the most important function of technology is to make labor more productive. However, from a binary perspective, it is much more important to recognize that technology makes capital much more productive than labor. As would be measured by their value in truly efficient markets, a basic strategy in capital investment is to produce more, at lower cost, with more productive capital and less labor. The primary role of capital therefore is both to replace and vastly supplement labor productiveness with increasing capital productiveness rather than to increase labor productivity. Furthermore, capital works on both sides of the economic equation with vastly increased

(1) productive capacity and production, and
(2) capacity to distribute income and leisure.

In a private property, market economy, it is the capacity of capital both to do much more work and to distribute much more income and leisure that explains how the distribution of its

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[12] Note the choice of the word "automobile" (i.e., self-moving") to express in words the *independent* productiveness of the then marvelous "horseless carriage." In the context of the prevailing economic theory, objections to the binary concept of independent capital productiveness have sometimes been expressed by observations like "capital is not an independent producer because it takes the person to operate the capital." However, even though motor cars then did not generally drive themselves without a driver, people thought of them as "self-moving" and therefore independently productive, no less than the horse whose work it replaced and vastly supplemented with work of its own.

ownership has a positive impact on the employment of unutilized capacity, capital accumulation, and growth.

C. Six Powers of Capital

Once it is recognized that capital is independently productive, then its independent powers can be understood and employed consistent with their full economic potential. In reality, capital does far more than make labor more productive, facilitate labor specialization, and enable the profitable employment of more workers. Increasingly, capital is doing proportionately ever more of the work.

Based on careful observation, capital reveals six independent powers. Specifically, capital can

(1) replace labor (doing what was formerly done by labor);
(2) vastly supplement the work of labor by employing capital to do much more of the kind of work that humans can do (such as the greatly increased hauling that can be done employing horses or trucks);
(3) do work that labor can never do (e.g., elevators lift tons thousands of feet in the air; airplanes fly; scientific instruments unleash forces that create computer chips that cannot be made by hand; fruit trees make fruit while all farmers can do is assist in the process);
(4) work without labor (as in the case of washing machines, automated machines, robots, and wild fruit-bearing trees);
(5) pay for itself out of its future earnings (the basic rule of business investment); and
(6) distribute the income necessary to purchase its output (the logic of double-entry book-keeping and an expression of Say's Law of Markets).

The first four powers concern what might be considered the "real economy" powers of capital; the latter two are powers that are most clearly revealed in a private property, market economy with a stable credit system protected by a reliable legal system. Each of these ways of contributing to growth (including mere labor replacement, which produces the same output as before, plus leisure), is significant, but only the first directly involves the substitution of capital for labor (marginal or otherwise). Thus, although some economists and policy advocates use marginal efficiency theory as the foundation for a general theory of growth; in fact the capital/labor substitution process is only one component of growth (operating *after* the creation of greatly increased productive capacity) and its wealth-enhancing contribution to efficient pricing and resource allocation is limited for reasons discussed below.

D. Binary and Conventional Growth Theories Compared: The Importance of Ownership

The binary assumption that economic growth is primarily a function of increasing capital productiveness and its distribution stands in conflict with Adam Smith's basic paradigm for growth which is grounded in the notion that capital makes labor more productive and enables the profitable employment of more workers. This productivity principle is central to neoclassical economics, except that neoclassical theory technically speaks only to efficiency

(the efficient employment of people and resources to produce desired goods and services) and not explicitly to economic growth. (Conscientious economists acknowledge that the theory of neoclassical efficiency is not a theory of growth. Everyone could be slowly starving to death on a doomed planet orbiting a dying sun, and yet every transaction might be neoclassically efficient. Nevertheless, frequently the principles of neoclassical efficiency are falsely advanced as a de facto theory growth and distribution in the realms of political economy and politics, and in the policies of major economic and financial institutions that facilitate capital acquisition primarily for existing owners.) Likewise, in advancing his *General Theory* in which, apart from time and money, the unit of labor is the sole physical unit, Keynes explicitly characterized his approach to full employment as founded on a "productivity theory" of capital, which he builds on the productivity theory of wages advanced by Alfred Marshall.[13] In all these conventional approaches to growth, the distribution of ownership is irrelevant unless it affects labor productivity.

E. The Supply of Capital and The Principle of Binary (Ownership-Distribution-Based) Growth

To repeat for emphasis, the principle of binary growth holds that capital has a potent distributive relationship to growth such that the more broadly capital is acquired the more profitably it can be employed to increase output. This principle follows from the premises that capital is independently and has (relative to labor) a vastly greater capacity to do work and distribute income.

Although resting on a normative conception of private property (to be discussed later), the principle of binary growth is a factual proposition rather than an assertion of value. The principle is generally true, false, or not subject to being verified or falsified, whether or not it is good, just, or holy for more or all people to be able to acquire capital with the earnings of capital.

The principle of binary growth departs from the market analysis of Adam Smith and all who followed him. Smith understood the value and price of capital to be a function of labor productivity and the supply of capital; for Smith, the distribution of capital ownership was of no particular significance regarding it price or value unless it affected labor productivity. His analysis reveals no recognition that the market distribution of capital ownership (from very narrow to very broad) could also affect its value and price. The principle of binary growth also conflicts with Keynes's understanding of growth and full employment. As noted, Keynes attached no fundamental significance to the distribution of capital as a determinant of employment, growth, prices, or value. Like Smith, Keynes did not consider that the distribution of capital ownership could directly affect its rate of accumulation or value. Indeed, Keynes explicitly excluded the productive and distributive effects of capital from his analysis:

> "For the only reason why an asset offers a prospect of yielding during its life services having a value greater than its initial supply price is because it is *scarce*; and it is kept scarce because of the rate of interest on money. If capital becomes

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[13] Keynes, *General Theory of Employment Interest and Money*, pp. 131-141, 217.

> less scarce, the unutilized yield will diminish, without its having become less productive – at least in the physical sense."[14]

Thus, Keynes contended that capital is valuable because it is scarce and scarce because it must compete with the interest rate on money, and not because it has real productive and distributive capacity of its own. For Keynes, the real productive capacity of capital is not represented as a fundamental, *independent* variable in his model, which is a fancy way of saying it is fundamentally irrelevant.

But binary economists contend that (1) capital is independently productive and (2) the real productive and distributive power of capital is the most fundamental determinant of its full-potential contribution to its growth (accumulation), earning capacity, and value. The realization of the full potential of capital productiveness is significantly dependent on the market structure that determines the distribution of its ownership. Capital is kept scarce by hoarding and suppressing its true productive capacity, thereby making it more expensive to acquire. From a binary perspective, Keynes got it backwards: *the liquidity premium of money is a result (rather than the primary cause) of the scarcity of capital* (note that for individuals, the percent of cash to total wealth generally *decreases* as total wealth increases), which is in turn the result of institutional barriers and monopolistic preferences that exclude most poor and working people from acquiring capital with the earnings of capital to finance the fuller employment of people and resources necessary to satisfy more fully their unmet needs and wants.

Because demand for capital is derivative of demand for consumer goods, broader ownership (in an under-capacity producing economy) will produce increasing demand for both consumer and capital goods, thereby increasing capital investment and accelerating rather than decreasing its rate of return despite its increasing supply (or as Keynes might say, despite its "decreasing scarcity"). Thus, rather than assuming an irrelevant status as in Keynesian, neoclassical and classical analysis, the distribution of capital acquisition is central to the rate of capital acquisition and growth according to binary analysis.

F. "Free Market" Theories of Price and Value.

Also central to understanding whether and how broader ownership increases the rate of growth (and capital cost recovery) is the theory of value and competitive pricing used to analyze the dynamics of a market economy. As to the question of pricing and value, and its relation to efficiency and full employment, the binary perspective is distinct from conventional analysis. Adam Smith believed that human labor was not only the fundamental source of production, but also the only fundamental source of value and determinant of price. Smith conceived of all value and prices of all production as ultimately a function of (1) the cost of labor and capital to produce it, and (2) the cost of labor commanded in exchange for it. All of these costs (including the cost of capital) are functions of the individual decision of whether to work or remain idle

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[14] Keynes, *General Theory of Employment Interest and Money*, pp. 213.

at an offered wage (which is itself a function of the individual's productivity).[15] In short, the work to acquire anything is an expression of the value to the worker of the thing to be acquired. Conversely, things are worth some function of the work people are willing do to acquire them. This is the foundational theory of pricing in the conventional approach to competitive market economics. Keynes's approach is consistent with the approach of Smith. He spends hundreds of pages to advance an economic system in which, "apart from money and time...the unit of labor ...[is] the sole physical unit..."[16] In such a framework, the distribution of capital as a productive agent of ownership is as irrelevant to prices and values as it is to the supply of capital and growth.

However, once one assumes that capital is independently productive, then the idea that labor is the only source of value and the unit measure of price can be seriously called into question.[17] In a binary economy, the value of goods and services is not only a function of what work people are willing to do to pay for them, but also a function of what work they (as owners) are willing to let their capital do. The person who has no capital and wants logs hauled, will either have to do the work herself or do the work necessary to pay someone (or something) else to do the hauling. In rationalizing a market system of free exchange, this logic is the essence of the labor theory of value; unfortunately, it obscures and denies the vital importance (to the expression of value and the determination of price) of institutions that protect for all people competitive property rights regarding capital. The person who owns capital and wants logs hauled can do work and express value as an owner by letting her horse do the hauling. If capital

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[15] A. Smith, *Wealth of Nations,* (1776, Random House ed. 1937), pp. 30-37, 50.

[16] Keynes, *General Theory of Employment Interest and Money*, Harcourt, Brace & World, Inc. (1936) pp. 213-214

[17] Of the classical economists, only Jean Baptiste Say identified Smith's erroneous assumption that capital was not independently productive. Specifically, Say, took issue with Smith analysis as follows:

> "To the labour of man alone he [Smith] ascribes the power of producing values. This is an error. A more exact analysis demonstrates ... that all values are derived from the operation of labour, or rather from the industry of man, combined with the operation of those agents which nature and capital furnish him. Dr. Smith did not, therefore, obtain a thorough knowledge of the most important phenomenon in production; this has led him into some erroneous conclusions, such, for instance, as attributing a gigantic influence to the division of labor, or rather to the separation of employments. This influence, however, is by no means inappreciable or even inconsiderable; but the greatest wonders of this description are not so much owing to any peculiar property in human labor, as to the use we make of the powers of nature. His ignorance of this principle precluded him from establishing the true theory of machinery in relation to the production of wealth." Say, J., A Treatise on Political Economy, 1830, 6th American Edition, p. xl-xli. This was not Say's only objection to Smith's approach (see Say, 1830, pp.xli-xliii); but if binary theory is right in holding that capital has both a potent productive *and* distributive relationship to growth independent of productivity, then Say's objection to Smith's human productivity analysis, may come to be recognized as his most important critique of Smith's work.

ownership is limited to a few, markets cannot be efficient in their pricing of labor, capital and the goods and services produced by them.

To build on this example, assume an economy without animals or tools, comprised of individuals with an appetite for twenty log-haulings per person per day, but an average individual physical capacity to complete only ten log-haulings per day. In such an economy, most people will have substantial unmet needs and wants no matter how hard they work. If people continue to haul logs beyond a certain point they will be too tired and have no time to enjoy the fruits of their labor. Nevertheless in a grim sense, given a normal utility function, there will be only as much hauling as "worth while." The price of hauling is the work and is an expression of the worker's (suppressed) appetite and value; and utility is maximized. Supposedly, Pareto could not be more satisfied. This is also true theoretically in the more complicated economies envisioned by Smith and Keynes. But with the introduction of horses (requiring one person four hours per day to maintain and fully employ) that can haul one hundred logs per day, as a first approximation the amount of hauling will be proportional to the ownership distribution of horses. Increased production and value will not be expressed by way of increased labor but rather by way of increased and more broadly distributed capital ownership. As a first approximation, the amount of log hauling is likely to double if ten rather than five percent of people are able to acquire horses, and ten times as great if fifty percent can acquire horses. If ownership of the horses is open to all, everyone's appetite for log-hauling may be satisfied. On the other hand, if ownership is monopolized by a few, there will be great unutilized capacity along with great need and want, although people are working as productively as they can. Even if many people are languishing and prematurely dying, human log hauling will continue until hauling is no longer "efficient" (worth while to those without horses). People will theoretically maximize their utility functions, but only some of those utility functions will have a viable, independent variable that represents the productive capacity of capital.

Of course, with a monopoly of horses having plenty of unutilized productive capacity and with the leisure to think things through, the owners of the horses (recognizing human desires - values - beyond log-hauling) might find it useful to employ their capital (and some workers) to haul more logs than necessary for their personal needs to sell them in exchange for the labor of non owners because there are many forms of work (pleasing to the owners and others) that people might prefer to the heavy work of hauling logs. Whole new labor markets can arise in which most people will be "free" to express their preferences and values by working (or not working) but not by owning; and in each of these new markets, there is capital ownership to be monopolized so that only a few will be able to do work and express value by owning. In all of these situations, however, non-owners will be "free" to do work for wages and thereby free to express values by laboring, while being excluded as a practical matter from the freedom to do work and express values by way of capital ownership.

Competitive market pricing requires (1) no barriers to entry, (2) voluntary (rather than coerced) exchange, and (3) no monopolization of the means of production. Once it is recognized that labor and capital are independent factors of production and that capital is increasingly the more productive factor, then it becomes clear that broad, essentially universal,

individual access to capital acquisition is necessary before the presumed theoretical, allocational benefits of efficient pricing can be fully realized.

From a binary perspective, (1) the technical relationship used in the theory of marginal productivity that governs conventional understanding of the relative employment of capital and labor in production and (2) the factor income shares derived from production are significantly dependent on the distribution of access to capital ownership. In other words, the willingness of a laborer to work at given wage depends on his competitive opportunity to acquire capital with its earnings and then receive its full net return. (But without access to the same government-supported infrastructure available to the well-capitalized, the opportunity to acquire capital with the earnings of capital and thereby through ownership to produce goods and express value is not open to most people as a practical matter.) From a conventional economic perspective, in terms of its impact on pricing, capital/labor substitution and employment, and factor income shares, the distribution of access to capital ownership is either irrelevant or of only minor consequence.

V. APPLYING BINARY PRINCIPLES TO THE USA ECONOMY

The logic underlying the principle of binary growth can be understood and implemented by considering the three thousand largest companies in the USA, and then focusing on a subset comprised of prime-credit-worthy companies. Most of these companies exhibit the frustrating essence of unutilized productive capacity. At diminishing unit costs, they can produce much more of the goods and services people dearly need and want; but there is lacking the consumer spending power to render more production profitable even at greatly diminishing unit costs.

Presently through these corporations, almost all new capital is acquired with the earnings of capital, and much of it is acquired with borrowed money.[18] At the same time, the ownership of this corporate wealth is highly concentrated so that approximately 1% of the people own 50% of the wealth and 10% own 90% of the wealth, leaving 90% people owning little or none. Thus, capital returns its value at a rate reflective of its long-term (suppressed) earning capacity as it buys itself for a small minority of the population.[19]

If the techniques presently used to enable existing owners to acquire capital with the earnings of capital were opened competitively to all people then, in an economy with underutilized productive capacity, the demand for capital investment would increase as its income is increasingly distributed to would-be consumers with unsatisfied needs and wants.

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[18] In the case of major prime credit-worthy companies in the U.S.A., the sources of funds for capital acquisition, in approximate terms, are as follows: 70% with retained earnings, 23% with debt and 7% with direct issuance of shares of stock. See R. Brealey & S. Myers, *Principles of Corporate Finance* (2nd edition, 1984); Lynn A. Stout, *The Unimportance of Being Efficient: an Economic analysis of Stock Market Pricing and Securities Regulation*, (87 *Mich. L. Rev.*, 613 at 648, 1988).

[19] Edward N. Wolff, *Top Heavy: A Study of Increasing Inequality in America* (New York, Twentieth Century Fund, 1995) and Edward N. Wolff, "How the Pie is Sliced: America's Growing Concentration of Wealth," *The American Prospect*, No. 22, (Summer 1995), pp. 58-64 .

The binary growth potential in this situation can be understood as a manifestation of the law of supply and demand within a "binary time frame"--the time expected for well-managed capital to pay for its acquisition costs (a period usually no longer than five to seven years) and then to begin earning a net income for its owners. In conventional terminology, this is a time period in which capital investment is variable rather than fixed. Demand for capital goods is derivative of anticipated demand for consumer goods in a future period. The broader pattern of capital acquisition in a binary economy will structure more production-based consumer demand in the future period, and therefore provide market incentive for more capital investment in the earlier period. Admittedly there would be a gestation period (a period somewhat shorter than the capital cost recovery period, and determined by the horizon for capital investment planning) before the distributional growth effects would become noticeable; but as will be explained, their cumulative effect over time may be remarkably significant.

To acquire capital with the earnings of capital, well capitalized people use (1) the pre-tax earnings of capital, (2) collateral, (3) credit, (4) market and insurance mechanisms to diversify and reduce risk, and (5) a monetary policy intended to protect private property. The same institutions and practices that work profitably for well-capitalized people can also work profitably for all people. Moreover, in an economy operating at less than full capacity, if capital can competitively pay for its acquisition costs out of its future earnings primarily for existing owners, it can do so even more profitably if all people are included in the acquisition process.

Accordingly, to enable all people and major, prime-credit-worthy corporations to capitalize on the potent distributive relationship between voluntary ownership-broadening capital acquisition and growth, a binary economy requires only modest reforms to open the market infrastructure governing corporate finance so that all people (not merely a minority of the people) are vested with competitive capital acquisition rights to acquire capital with the earnings of capital.

Combining the salient principles of (1) the Homestead Acts (intended to broaden land ownership), (2) the employee stock ownership plan (ESOP) technique of corporate finance, which uses tax exempt, limited liability trusts (as fiduciary agents for employees) to acquire shares of employer stock with non-recourse credit, (3) a market for capital credit insurance (such as that profitably provided by the Federal Housing Administration), and (4) a return of the Federal Reserve to its original Congressional mandate under Section 13 of the Federal Reserve Act to allow for the discounting of eligible productive private credit, [20] binary economic strategies offer an entirely voluntary means that enable major prime-credit-worthy companies to meet any portion of its capital requirements while simultaneously enabling their employees, customers, neighbors and others to acquire (with non-recourse credit) full-dividend shares of

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[20] Louis O. Kelso and Patricia Hetter Kelso, *Democracy and Economic Power: Extending The ESOP Revolution Through Binary Economics (1991).* For a consideration of binary economics and monetary policy see Kelso and Adler, *The New Capitalists: A Proposal to Free Economic Growth From the Slavery of Savings* (1961). See also Norman G. Kurland, "The Federal Discount Window," *Journal of Employee Ownership Law and Finance* 131 (1998) and Norman G. Kurland, "A New Look at Prices and Money: The Kelsonian Model for Achieving Rapid Growth Without Inflation," 30 *Journal of Socio-Economics* 495 (2001).

the participating companies which would pay their full return (net of reserves for depreciation research and development to maintain the competitive productive capacity of the capital) first to retire the acquisition loans and then to provide a capital source of income to supplement wages and welfare benefits.

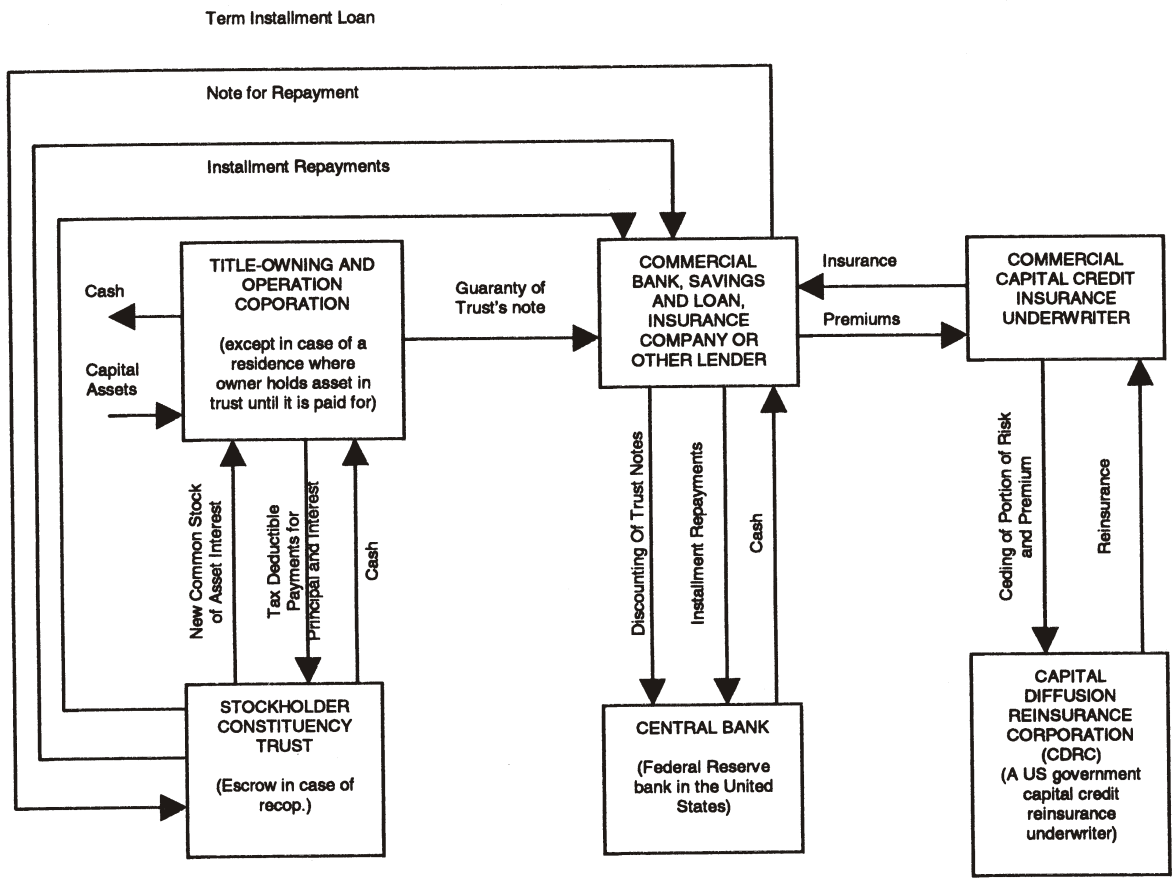
A. A Model of a Binary Economy.

The dynamic operation of a binary economy can be modeled with six basic institutions: (1) Prime Credit-worthy Corporations, (2) Capital Ownership-Broadening Trusts, (3) Banks, (4) Private Capital Credit Insurers, (5) the Capital Diffusion Reinsurance Corporation (the only new entity, modeled after the Federal Housing Administration), and (6) the Federal Reserve. Figure 1 (page 18) shows an ownership-broadening "binary financing" transaction consummated with the voluntary participation of each of these entities. Figure 1 may be seen as a single binary financing transaction or the aggregate representation of all such transactions. In a binary economy, in addition to their usual means of acquiring capital assets (borrowing, retained earnings and sale of shares), prime-credit-worthy corporations could raise the funds to acquire capital assets by selling special full-dividend common shares to a Capital Ownership-Broadening Trust (for the benefit of employees, customers, neighbors and others), paid for with a bank loan to the Trust, insured by a capital credit insurer and reinsurer, and discounted (at a rate of 99.75%) by the Federal Reserve. Once the capital acquisition loan repayment obligations are met, the full net capital earnings (net of reserves for depreciation, research and development) would be paid to the binary owners to help enable them to meet their needs and wants and to provide the basis for increased investment and production.[21]

[21] The full payout of capital earnings (net of reserves for depreciation, research and development) is essential to enable poor and working people to acquire capital with the earnings. If the capital earnings of poor and working people are taxed or retained by the corporation, the capital will not be able to repay its acquisition cost at a competitive rate and will not distribute needed income to provide for their needs and support sustained growth.

Figure 1

General Theory Diagram



Source: Kelso & Kelso (1989). Reproduced with permission

B. The Cost of Financing to Participating Corporations and the Binary Owners

Based on the profitable capital credit experience of the FHA, the customary bankers spread, and the estimated administrative costs of Federal Reserve discounting, the combined cost fof binary financing to the corporation and the beneficiaries will not under most economic circumstances exceed the following:

1.	Capital credit insurance	2%
2.	Customary banker spread	1-2%
3.	Federal Reserve Discount	0.25 %
	Total	3.25 - 4.25 %

The reason underlying the low interest rate is that monetized credit does not use existing financial savings as the source of the loan and thus does not require earning a competitive compensation rate for their use. The estimated cost of capital credit insurance might be questioned, but it could even be doubled and still provide a competitive interest rate in many instances.

C. Binary Growth in a Binary Time Frame

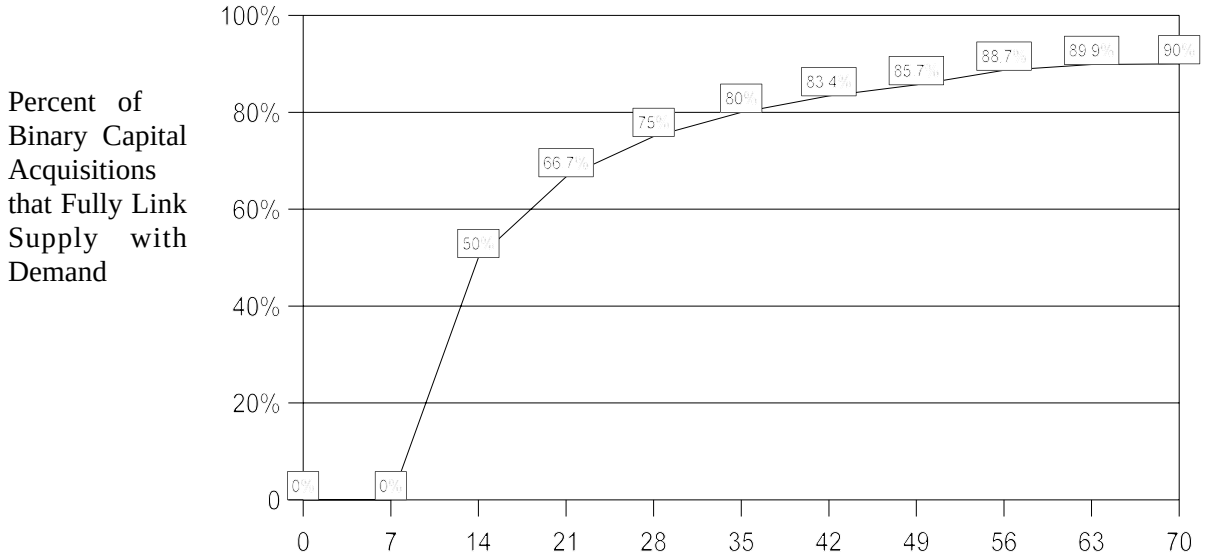
Figure 2 (page 20) illustrates the distributive, growth-sustaining feature of an ownership-broadening binary economy. For simplicity, Figure 2 assumes a seven-year cost recovery period for capital investment, and it shows the number of years of annual acquisitions that will have paid for themselves over time. The figure assumes that in every year after the implementation of the binary economy, some number, N, of an economy's largest prime credit-worthy companies have profitably utilized binary financing to acquire in the aggregate some percentage, X, of their capital investments. Assume also that the capital credit insurance is properly priced to pay for those financings that fail to repay the acquisition loans so that N and X are net of those failures. Assume also for simplicity, as a first iteration, that N, X, and the rate of return on capital remains constant throughout the period.

Although beginning slowly, the broadening distribution of capital ownership and income will increase steadily and thereby provide the basis for binary growth. Each year after the initial cost recovery period of the most productive capital, more binary capital will have paid for itself and will begin distributing capital income to members of the poor and middle class. Consistent with the conservative assumption of a seven-year capital cost recovery period, Figure 2 shows the steady growth in annual capital acquisitions. In the eighth year, the first annual acquisition of capital will have paid for itself and will begin paying its full return to the new binary owners. In the ninth year, the second annual capital acquisition will be fully paid for and will therefore begin paying its full return to the new binary owners. In fourteen years, 50% of the annual capital acquisitions will have paid for themselves, and will have begun paying heir full annual return to the new binary owners. In the 28th year, 75% of the acquisitions will have paid for themselves; and so on. In the long run, the linkage between supply (in the form of the incremental productive power of capital) and demand (resulting from the widespread market distribution of capital income to consumers) approaches 100%. The more binary financing that is undertaken, the greater the distributional growth effects.

In an economy operating at less than full capacity, to maintain market share in the projected growing economy, producers will have to increase production and productive capacity (more fully utilize existing capacity and create more capacity). Because demand for capital goods is derivative

and anticipatory of demand for consumer goods, the broader distribution of capital income should be reflected in increased capital spending within the time frame required to acquire and employ the added capital necessary to increase production to satisfy the additional anticipated consumer demand. Thus, for example, with a capital cost recovery period of seven years, and a capital planning investment horizon of five years, increased incentives for increased capital spending might materialize in the third year.

Figure 2



Indeed, the process might start even earlier. First, to the extent that the return on the equity represented by the binary shares exceeds the debt-servicing requirements, income will be available for payment to the binary beneficiaries before completion of the capital recovery. Second, to the extent that consumers feel wealthier by reason of their capital ownership, their marginal savings and consumption rates will shift towards more consumption even before they begin to receive binary income. Furthermore, the terms of the loan agreements may provide for increasing partial dividend payments directly to the beneficial owners as specified percentages of the loans - and shares - become fully paid.

D. Why is the binary infrastructure necessary to manifest binary growth?

Some people may question why, if there is such untapped growth potential in existing capitalist economies, is the binary infrastructure needed. Some have asked "why does not savings made available for lending to others not work to employ and ultimately eliminate the unutilized productive capacity?" Earnings not spent on consumption can be lent to those who will spend it thereby employing the unutilized capacity. People and institutions are indeed free to borrow; yet the unutilized capacity persists. Neoclassical economics has no answer for this except to concede that the markets must not be efficient (at least to the extent of unutilized productive capacity). But this analysis provides no remedy. Keynesian economics seeks to remedy the situation by redistributing demand. This approach seems to help for a while but massive unutilized productive capacity still persists. The failure of both approaches is the

failure to focus on ownership distribution and its systemic impact on the demand for both consumer and producer goods.

From a binary perspective savings available for relending does not buy up the unutilized capacity because

(1) demand for the employment of capital and labor to produce capital goods is derivative of anticipated demand for consumer goods in a future period; and

(2) concentrated wealth does not promise to distribute sufficient consumer demand on market principles in the relevant future period to make additional investment sufficiently profitable in the relevant earlier period.

The USA economy offers (1) consumer credit (which entices people to acquire what they cannot afford while indirectly financing capital acquisition for existing owners) and (2) capital credit for existing owners; and yet the unutilized productive capacity persists. If binary analysis is correct, those forms of credit merely increase the long-run shortfall in consumer income by adding to the price of consumer goods while concentrating ownership by excluding non-owners and minimal owners from competitive participation in the capital acquisition process. The unutilized productive capacity will persist (and the incentive to create still more capacity will remain sub-optimal) as long as capital credit and earnings are as a practical matter needlessly restricted to well-capitalized people. Binary analysis indicates that to be competitive with substantial owners, non-owners and minimal owners need access to (1) the full pre-tax earnings of capital, (2) capital credit insurance, and (3) the prospect of monetized credit which requires no interest payment for the use of existing savings. Once the markets for capital acquisition are opened in this way, participants will be able to capitalize on the prospects of binary growth in a way that is not practical in the present capital markets. Thus, binary economics explains (1) why the freedom to save, lend and borrow do not work to employ the unutilized capacity, and (2) how the markets for capital credit can be reformed to make lending an effective means of employing unutilized capacity and promoting growth by way of voluntary ownership-broadening market transactions.

VI. POSITIVE AND NORMATIVE ASPECTS OF BINARY ECONOMICS

To understand the binary approach, it is instructive to focus on its positive and normative dimensions. The proposition that capital has a potent distributive relationship to growth has both positive and normative content. The positive aspect is the prediction of measurable incremental growth that will result if the markets are restructured to broaden capital acquisition according to binary principles. However, as explained more fully below, the prediction of growth is based on a specific understanding of the normative content of private property.

The most important or compelling normative aspect of binary economics might be perceived of as, “it is good and just for everyone to have competitive capital acquisition rights so that they can acquire capital with the earnings of capital and thereby enjoy a higher standard of living and a life of greater opportunity.” However, the belief that broader ownership is good

or just is by no means unique to binary economics; and there are other approaches to broader ownership (such as the micro-credit approach) that are not based on binary principles. Nevertheless, there are several other important normative aspects of the binary approach that are unique to binary economics, that are true, and that have positive effect on distribution and growth even if one were to believe that capital ownership might be bad for most people and therefore better kept concentrated. These are discussed briefly below.

A. Greater Growth Without Redistribution:

One normative aspect of the binary approach is that it is voluntary in nature. The institution of a binary economy, as described above, does not require ownership-broadening transactions; it merely opens the financial infrastructure so that ownership-broadening financing generically is more nearly competitive with ownership-concentrating financing. All transactions faithful to binary principles are voluntary. None are required.

Accordingly, binary growth is not redistributionary. If a credit-worthy company determines (with requisite shareholder approval) to utilize ownership-broadening binary financing to finance some or all its capital investment requirements and therefore sells shares at fair value to a constituency trust for the benefit of new shareholders for good corporate purpose, it would not be correct to say that the shares were redistributed from the company's existing shareholders. In other words, existing ownership does not include the absolute right to acquire additional ownership, but only the right to acquire it in voluntary exchanges. Real redistributions do occur when a corporation sells shares to finance growth in contravention of pre-emptive rights or other specific claims, or for less than fair value, but not in the general case.[22] Opening the system corporate finance to ownership-broadening financing merely renders more equal and competitive the opportunities and benefits of capital acquisition (that are well supported and promoted by government-protected infra-structure) but presently open as a practical matter to only a relative few.

Thus, the promised benefits of binary growth and capital ownership for poor and working people are not achieved by taking anything away from others. All shares acquired by the constituency trusts for the beneficiaries are fully paid for by the earnings of the capital acquired. Dividends earned by the binary shares (used either to repay the loan or to provide capital income to the stakeholders) will not be paid unless all antecedent costs and prior claims are paid. The earnings received by the binary owners are earnings of *their* shares, they are not the redistributed earnings of others.

In summary, binary economists maintain that
(1) the broader pattern of capital acquisition facilitated in a binary economy,
(2) the consequent broader distribution of capital ownership,

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[22] "Binary Economics, Fiduciary Duties and Corporate Social Responsibility: Comprehending Corporate Wealth Maximization for Stockholders, Stakeholders, and S*ociety,"* 76 *Tulane Law Review* 1531 (2002).

(3) the market based incentives for additional investment, employment, and consumption, and (4) the consequent growth

are not redistributionary because
(1) all related transactions are voluntary and
(2) no capital income is distributed to its new owners unless and until all financial obligations of capital acquisition, maintenance, and operation required to produce that capital income have been paid.

B. The Normative Conditions for Binary Growth

The prediction of a positive distributive relationship between capital ownership and growth assumes a normative content to private property that rests on three principles with deep roots in Anglo-American common law:

(1) Universal participation,
(2) Distribution according to production and voluntary exchange, and
(3) Such limitation as necessary to protect the rights of others and society in general.[23]

These are the principles that are reflected in the model of a binary economy and its system of corporate finance as described above. A moments reflection also reveals that these principles are also essential theoretical conditions in classical, neoclassical and Keynesian economics for free and competitive markets: (1) no barriers to entry; (2) voluntary exchange and (3) limitations on ownership as necessary to prevent monopolization.

Despite high-sounding rhetoric, however, in present-day capitalism, based on mainstream economic theory, these principles are honored primarily in the breach because conventional economics denies that capital is independently productive and denies that the distribution of its ownership has a crucial bearing on the expression of value, prices, production, distribution, consumption, market efficiency, the employment of unutilized productive capacity, and growth. Conventional economic theory recognizes no imperative (1) to include all people in the process whereby capital is acquired with the earnings of capital; (2) to protect the institutions of voluntary exchange from the distortions in pricing transactions in markets in which most participants live in economic duress while others wield monopolized wealth, and (3) to end the monopoly of concentrated ownership by institutional reforms to enable all people to acquire capital competitively with the earnings of capital. In present-day capitalism, the economic participation offered to most people is by way of jobs, welfare, and private charity; ownership is practically available only to the well-capitalized and is not offered as a practical matter to most people.

Of all the mainstream schools of conventional economics, only Keynesian recognizes that concentrated distribution adversely affects the full employment of existing capacity and growth; but Keynesian economics focuses primarily on the distribution and redistribution of

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[23] The Second Treatise on Civil Government, John Locke. See Robert Ashford and Rodney Shakespeare *Binary Economics: the New Paradigm*, (1999), pp. 336-346.

income, rather than on the distribution of rights to capital acquisition (thereby violating the first principle of private property). Furthermore, Keynesian economics (1) makes no distinction between the distribution and redistribution of income and capital (2) does not insist on universal participation in capital acquisition and (3) imposes no institutional limits on capital acquisition other than forms of taxation of capital and capital income, which render it essentially impossible for people without capital to acquire capital competitively with the earnings of capital (thereby violating all three principles of private property).[24]

Of the various economic approaches under consideration, only binary economics honors the three normative principles of private property. It honors full and open economic participation by opening to all people the system by which capital is acquired with the earnings of capital. It honors the principle of voluntary exchange by rejecting the involuntary redistribution as means to broaden participation in capital ownership. It honors the principle of limitation not by imposing limitations on existing owners regarding what they can do with their property, and not by taxing or redistributing their income or capital, but rather by opening to all people the government supported process of acquiring capital with the earnings of capital.

VII. CHOOSING AMONG PARADIGMS ON SCIENTIFIC PRINCIPLES: ADDRESSING UNUTILIZED PRODUCTIVE CAPACITY

A. The Choice of Paradigms

This article has discussed the major economic paradigms that presently dominate mainstream thinking and has advanced the binary economic paradigm as one more consistent with scientific principles. To address the question of unutilized productive capacity in ways that best serve people, those in positions of responsibility should consider the fundamental assumptions and principles underlying these approaches:

1. The classical and neoclassical paradigms (that assume that [a] unutilized capacity and suboptimal growth are anomalies that will eventually disappear with the progressive deregulation of the free market's "invisible hand" and [b] the concentration of ownership is not an obstacle to the profitable employment of unutilized productive capacity and to greater growth);

2. The Keynesian paradigm (that [a] recognizes the existence of unutilized productive capacity and the market's failure to distribute effective demand, but [b] assumes [that the concentration of ownership is not as fundamental to solving the problem as the distribution and/or redistribution of income, and [c] offers solutions that make no fundamental distinction between distribution and redistribution of income and capital in its policies offered to achieve a fuller employment of resources and greater growth); and

[24] Although taxation can be used to redistribute income and capital from those who do not spend to those who will, taxation of capital earnings also precludes most people from acquiring capital with the earnings of capital, while protecting and preserving the effective monopoly on capital acquisitions for the exclusive benefit of well-capitalized people and a very few others.

3. The binary paradigm (that [a] assumes that capital and labor are independently productive, [b] reasons from that assumption that the distribution of capital ownership is positively related to the profitable employment of unutilized capacity and to economic growth and therefore [c] sees concentrated ownership as a main cause of persistent unutilized capacity and a major barrier to the profitable employment of unutilized productive capacity and to greater economic growth, [d] insists (as the law of private property insists) on making a critical distinction between the distribution and redistribution of income and capital, and [e] provides voluntary ownership-broadening solutions (not dependent on redistribution) to distribute more broadly the market demand needed to employ more unutilized capacity profitably and promote greater economic growth).

For many years, although policies based on the classical, neoclassical, and Keynesian economic approaches (and on a mix of the three) have been repeatedly tried by governments, recommended by consultants, and taught by teachers, the underlying anomaly of unutilized productive capacity amidst great unsatisfied needs and wants remains. In contrast, the binary alternative has never been tried, is almost never advanced, considered or recommended by those in an effective, responsible position to implement it or draw constructive attention to it, and is only rarely taught to students.

Mainstream economic theory and practice (which consist primarily of a mixture of classical, neoclassical and Keynesian principles) are premised on (1) an assumption of scarcity, (2) a homocentric conception of production that ignores or trivializes the independent, growth-enhancing work of the non-human contributions to production, and (3) an analysis that (a) accepts as inconsequential a highly concentrated pattern of ownership that excludes most people from viable capital ownership no matter how hard they work and (b) denies that enabling all people to acquire capital with the earnings of capital will help to employ unutilized productive capacity and produce growth. Binary economics rests on (1) an assumption of relative abundance that results from (2) the independent productiveness of capital and labor, and (3) the voluntary inclusion of all people in the process of capital acquisition with the earnings of capital.

Impartial analysis based on the scientific principles (that require of any theory [1] workable assumptions, [2] internal consistency and [3] replicable description, prediction, and prescription) indicates that binary economics fares better than any mainstream economic theory in addressing the persistence of unutilized productive capacity alongside of unmet needs and wants in markets that are supposedly becoming more competitive. Starting with assumptions that recognize six independent productive and distributive powers of capital, binary economics with internal consistency [1] describes how unutilized productive capacity and suboptimal growth persist in markets that are supposedly becoming more efficient, [2] predicts their persistence until the markets are opened to broaden capital ownership voluntarily, and [3] prescribes concrete steps that can be taken to broaden ownership voluntarily in ways the will help to employ unutilized productive capacity and promote growth. When compared to the scientific foundation underlying conventional economics, as a matter of scientific principles, the theoretical and empirical foundation for the binary paradigm (along with the correlative obligation to learn and teach it) is already well established. It simply needs to be recognized.

Because it is more consistent with scientific understanding, binary economics can greatly enhance practical economic understanding especially regarding (1) corporate finance, (2)

corporate social responsibility, (3) government responsibility, and (4) the teaching of economics. These are discussed briefly below.

B. Duties of Corporate Fiduciaries, Advisors, and Government Officials

If one wants to have a major impact on economic policy, it is well to consider the opportunities available to major prime-credit worthy corporations and government policy regarding them. Such corporations own most of the capital in virtually every economy and are in a good position to exercise some substantial measure of corporate social responsibility regarding the opportunities available to them.

The principle of binary growth suggests that these corporations can increase the profitability and value of their assets if they begin to take practical steps to broaden the ownership of their common shares to include their employees, consumers, neighbors, and others. The fact that, with modest reforms of the system of corporate finance, a corporation can meet its capital requirements at several points or more below prime interest rates, while simultaneously broadening its ownership base, is inherently of special interest to the corporation. As a legal matter, the availability of such financing presents a responsibility to corporate directors, officers, and other fiduciaries including lawyers.

Anglo-American law makes clear that corporate fiduciaries owe their primary wealth-maximizing duties first and foremost to the corporation and only secondarily to the shareholders. From the corporation's perspective, the purpose of corporate finance is to enable a corporation to acquire capital *before* earning the money to pay for it. From the corporate perspective, the opportunity to acquire needed capital at its lowest cost and the opportunity to increase corporate wealth by broadening ownership are corporate opportunities that cannot be disregarded by fiduciaries consistent with their fiduciary duties. Generally fiduciaries are legally required to disclose such information to officers and directors who (if they believe that including employees, customers and others in prospective capital acquisition planning is in the best interest of the corporation) would be legally required to recommend it to the shareholders for their consideration. Similar ethical obligations of disclosure also apply to financial and economic advisors. If binary financing might benefit both the corporation and the shareholders, then they should certainly be informed of that fact. Similar obligations of disclosure and positive action also apply to government officials charged with the responsibility to improve the economy.[25]

C. Responsibilities of Teachers - The People Have a Right to Know.

Just as it is the professional responsibility of corporate directors, institutional fiduciaries, financial advisors, and government officials to inform their shareholders, clients, and constituencies of *all* of their wealth-maximizing opportunities, so too it is the responsibility of teachers - especially

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[25] "The Socio-Economic Foundation of Corporate Law and Corporate Social Responsibility," 76 *Tulane Law Review* 1187 (2002).

tenured teachers - to teach with full disclosure that reveals *all* the relevant analysis, insights, opportunities, and concerns. Presently there is no single conventional school of economics that provides non-controversial explanations and effective solutions for persistent unutilized productive capacity. Nevertheless, economists and other academicians routinely teach classical, neoclassical, and Keynesian economic principles about which they are either skeptical or in disagreement in theory or in practice. To be fair to their students and other citizens, responsible teachers teach the theories and doctrine and explain their skepticism or disagreement. The people have a right to know.

To be included in the curriculum, theories require sufficient theoretical and empirical foundation. In addressing the well-documented anomaly of persistent unutilized productive capacity, both theoretically and empirically, binary economics rests on a foundation more consistent with observable facts than classical and neoclassical economics (which so profoundly shape conventional economic theory and political economy, but which have no explanation or solution for the persistence of unutilized productive capacity). Binary economics provides an explanation for persistent unutilized productive capacity that is different from Keynesian economics (one that assumes that capital is independently productive and has a potent distributive relationship to growth) and a different systemic solution (one that relies on private property and voluntary transactions in more open markets rather than the governmental redistribution of demand). Unlike Keynesian economics, binary economics makes a fundamental distinction between the distribution and redistribution of income and capital, which renders it more consistent with human behavior, private property principles, and the voluntary exchange principle of free markets. On what principled basis are classical, neoclassical, and Keynesian economics taught and binary economics excluded? Certainly not on grounds of a lack of theoretical and empirical foundation. If teachers are either skeptical or in disagreement with binary economics in theory or in practice, they should teach the binary principles (just as they teach classical, neoclassical, and Keynesian principles) and explain their skepticism or disagreement. The students have a right to know. Students deserve full disclosure regarding the relevance of binary economics to course, program and degree offerings.

VIII. CONCLUSION

Binary Economics offers (1) important new insights regarding the persistence of widespread unmet needs and desires of billions of people along side of the unutilized productive capacity to fulfill those needs and desires, and (2) reveals opportunities for achieving enhanced growth and more broadly shared economic prosperity by way of voluntary, ownership-broadening market transactions. Compared to the classical, neoclassical, and Keynesian economic approaches with respect to the criteria of (1) reasonable assumptions, (2) internal consistency, and (3) plausible descriptions, predictions and prescriptions, impartial analysis reveals that the binary approach is more consistent with scientific principles.

Based on widely accepted principles underlying the philosophy of science, spiritual values, professional ethics, and secular morality, institutions of higher education have a special responsibility to teach binary economics in most contexts in which issues of economic growth,

efficiency and justice are taught or considered. The people have a right to know. The contexts include course segments, courses, certificate programs, majors and degree programs in economics, political science, sociology, business administration, philosophy, history, theology and law. In law schools for example, rigorous exposure to binary economics is necessary to enable lawyers to help people to identify and secure their essential rights and responsibilities. Professional ethics governing other professional occupations and academic disciplines also call for the inclusion of binary economic principles in contexts where the positive and normative analysis of issues would otherwise be significantly influenced by one or more conventional approaches to economics.