

Capital and capital: the second most fundamental confusion

Edward Fullbrook [University of the West of England, UK]

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The meaning of “capital”

There is a centuries-old tradition in economics of using in the same work, often in the same paragraph and sometimes even in the same sentence, the symbol “capital” to signify two (and sometimes three) fundamentally different things. Inevitably, given the centrality of these things to the domain of inquiry, it has been and continues to be a source of elementary confusion. Piketty’s great book would be even greater if it had not been conceived, at least in part, within this tradition.

Given the historical persistence of this confusion, it is worth spelling out the general principle at stake. It is the elementary one of the distinction between *an object or family of objects* (material or not) and some *property* (quantifiable or not) of those objects, such as their sweetness, temperature, weight, linear dimensions, age, density, beauty or market-value. For example, to define “pear” as the fruit from a tree belonging to the genus *Pyrus*, and to define “pear” as the weight of fruits from trees belonging to *Pyrus*, and to define “pear” as the market value of fruits from trees belonging to *Pyrus* are three fundamentally different definitions.

Economics traditionally uses “capital” to signify both a set of objects (material and immaterial) and quantities of a *property* of those objects, market-value. Such double-loading of a symbol does not necessarily lead to confusion, but it certainly invites it, and in economics very often realizes it. Piketty’s book is a case in point.

Its first chapter includes a short section titled “What is Capital?”. It begins promisingly.

To simplify the text, I use the words “capital” and “wealth” interchangeably, as if they were perfectly synonymous. By some definitions, it would be better to reserve the word “capital” to describe forms of wealth accumulated by human beings (buildings, machinery, infrastructure, etc.) and therefore to exclude land and natural resources, with which humans have been endowed without having to accumulate them [p. 47].

In other words, Piketty is saying that in his book “capital” will signify a set of objects which he then goes on to specify more exactly. But before he has finished the paragraph “value” slips in, and on the following page after he has confirmed the meaning of “capital” as “both a store of value and a factor of production” he writes:

To summarize, I define “national wealth” or “national capital” as the total *market value* of everything owned by the residents and government of a given country at a given point in time, provided that it can be traded on some market [emphasis added, p. 48].

The meaning of “capital” is absolutely central to Piketty’s or anyone’s attempts to theorize about the meaning of the amazing body of empirical data that he and his associates have accumulated. So confusions between the two fundamentally different meanings (which one are we thinking about now?) that Piketty introduces at his book’s beginning doom the theoretical side of his project. Piketty leads us into a similar confusion with his use of the symbol “income”. Sometimes he uses “income” to signify a set of objects as when he writes “Income is ... the quantity of goods produced and distributed in a given period” (p. 50), but most times it signifies the market-value of those goods

Henceforth the paper you are reading will signify “capital” and “income” in the sense of a set of objects with “capital-1” and “income-1” and signify “capital” and “income” in the sense of the market value of those sets with “capital-2” and “income-2”. (Similarly with “wealth” which as we have seen Piketty defines as meaning for him exactly what capital means.) As in Piketty’s book, capital-2 and income-2, rather than capital-1 and capital-1, are this paper’s primary interest. When we eliminate the double-loading of “capital” and “income”, the focal point of both Piketty’s book and this paper is the capital-2 / income-2 ratio which he labels β .

A ridiculous question?

Capital’s chapter five, “The Capital/Income Ratio over the Long Run”, which is attracting the most theoretical attention, features what Piketty pretentiously dubs “the second fundamental law of capitalism”¹, $\beta = s/g$, where s = the saving rate and g = the growth rate. But despite the fact that his “law” is about capital-2 and income-2, the argumentation that he offers on its behalf (pp. 166-170) vacillates between using “capital” to signify capital-1 and using it to signify capital-2, and in some cases leaves this reader undecided as to which one, if either, Piketty thought he was referring. His key verb for explaining how the variables of his “law” change is “accumulate”. In the space of four pages he uses “accumulate”, “accumulated” and “accumulation” a total of eleven times, each with relation to “capital”. Can “capital” be accumulated?

Obviously it can in the case of capital-1. It is also obvious that individuals and groups can accumulate capital-2, George Soros and the Citigroup being famous recent cases in point. But Piketty’s argument depends on the possibility of closed economies or the global economy as wholes accumulating capital-2. *Is this kind of accumulation possible?* Is this a ridiculous question? Please read on.

Every quantitative order has a formal structure that can be described with abstract algebra. And not every quantitative order has the same structure. What is the formal or metrical structure of market-value?

To begin, how does the metrical structure of market-value (call it what you want: exchange-value, money-value, dollar-value, euro-value, etc.) compare with those of other quantitative orders? Consider some possibilities that we are all familiar with: length, weight, angle, temperature, probability. You will be immediately aware, whether you can describe them or not, that these quantitative orders have different formal properties. You will also be immediately aware that what one can legitimately do with their numbers differs radically between the orders. We can add and subtract weights and lengths but not temperatures. A

¹ Piketty’s “first fundamental law of capitalism” $\alpha = r \times \beta$ is purely definitional and thus not what in the context of science is called a “law”.

joke credited to Diderot illustrates the point: "How many snowballs would be required to heat an oven?" [Duhem, 1905, p.112] We can also add and subtract probabilities and angles but only in limited contexts. Might it not be a good idea if we as economists became cognizant of the structure of the quantitative order with which our discipline, including Piketty's book, is foremostly concerned?

A thought experiment

Physics' concepts of length measurement numbers and mass measurement numbers emerge from comparative concepts, pairs of empirically defined relations, one equivalence, the other precedence, which have been shown to hold between pairs of physical objects.² Can market-values also be identified as originating with or shown to be reducible to a concept of comparative market-value in the sense of a set of relations between a pair of economic objects? We can conduct a thought experiment to find out.

Here is a simple formulation of the principle of comparative market-values.

For pairs of commodities, there is the market-value of each commodity *relative to the other*, in the sense that quantities of the two commodities are said to be equal in market-value if they exchange for each other and to change in market-value if there is a change in the pair's market-clearing exchange ratio.

Although this statement appears to be logically coherent, the Twentieth Century taught us that the logical relations of statements are not always what they appear to be. So we are going to test the stated notion of comparative market-value against the general principle that, between any two magnitudes of the same empirical order, an equality relation either holds or does not. Consider two commodities **X** and **Y**, and whose units are **x** and **y**. Let **a**, **b**, and **σ** be rational positive numbers.

Assume that the initial market-clearing ratio of **ax:by** changes to **ax:σby**. Then, according to the concept of comparative market-value, the market-values of quantities of X relative to Y have changed. Any two quantities of the same order are either equal or not equal. Therefore, the market-value of **σby** relative to units of X at the new exchange ratio **is either equal or not equal** to the market-value of **by** at the old exchange ratio.

First assume that it is equal, i.e. **σby = by**. Then, because at the old ratio the market-values of **ax** and **by** were equal and at the new ratio the market-values of **ax** and **σby** are equal, it follows that the market-value of **ax** is unchanged. This contradicts the assumption that the market-values of quantities of X relative to Y have changed, and so one must conclude that this case cannot obtain.

Assume the other possibility: the market-value of **σby** at the new exchange ratio is not equal to the market-value of **by** at the old exchange ratio. If, relative to X, **by** and **σby** are not equal in market-value, then by the concept of comparative market-value they do not exchange for the same number of units of X. However, by assumption they do exchange for the same number of units of X. Therefore, this case also cannot hold. And this exhausts the logical possibilities.

² For a very accessible account of these fundamentals see Carnap, 1966, pp. 51-124.

The concept of comparative market-value generates paradoxes because it is circular. It defines a commodity's market-value in terms of the market-value of a second commodity whose market-value is defined in terms of the market-value of the first. In technical terms, this constitutes "vicious circularity" which renders the definition impredicative.

This simple but unexpected outcome of the test for logical coherence shows that, as a quantitative order, market-value has unexpected properties.

A false similarity

Confusions, like the one unearthed in the previous section, come easily when thinking about market-value because in two respects it bears a false similarity to familiar physical magnitudes.

First, the notion of market-value as a relation between two commodities exhibits a superficial resemblance to comparative concepts of mass and length. These physical concepts, however, are not predicated as relations between individual masses and lengths. *It is only their measurement numbers that are conceived in this way.* Instead, Newtonian physics predicates mass and extension as properties possessed by bodies independently of their relations to other bodies. This independence saves concepts of comparative length and mass from impredicateness [Carnap, 1966, pp. 51-61].

Second, and related to the first, although market-value numbers are expressed on a ratio scale like mass and length numbers, they are generated in a profoundly different manner. Physical measurement numbers refer to physical phenomena, called concrete quantities, which have been found to have a structure isomorphic to the system of units and numbers (abstract quantities) by which they are represented. A cardinal point is that these concrete physical quantities do not come into being as the result of humankind's invention of processes of numerically representing them. If a means of numerically representing the weight of your body had never been invented, you would experience its weight all the same. The existence of the properties of extension and mass are independent of the processes by which they are measured or compared. In contrast, the quantitative order of market-value does not exist independently of the process which assigns market-value numbers. Without market exchange there is no exchange or market-value. *Market exchange, in other words, is the process by which the market-value order, not just the numbers which describe it, comes into being.*

The fact that the process that determines concrete market-values also assigns numbers to represent them invites conflation of concrete market-values and market-value numbers. The latter, stripped of their units, belong to R , the set of positive reals which defines a Euclidean space. Thus the conflation of concrete and abstract market-values leads smoothly to the unsupported conclusion that a "price space" is a Euclidean space [Debreu, 1986, p. 1261].

It is on the basis of this presumed "fit of the mathematical form to the economic content" [Debreu, 1986, p. 1259] that the whole neoclassical edifice, not just general equilibrium theory, has been constructed. At every point it presumes – through the convenience of its conflation – that a system of exchange- or market-values has the same structural properties, i.e. Euclidean, as do the numbers that represent them. But this subconscious presumption, the most fundamental *hypothesis* of neoclassicism, is easily tested when the conflation between concrete and abstract quantities is avoided.

A purely empirical question

Diderot's jest quoted above, illustrates three verities of quantitative science:

1. profound structural differences exist between various quantitative orders;
2. their structures may diverge radically from that of everyday arithmetic; and, most important,
3. the structures of empirical quantitative orders are autonomous vis à vis human will and imagination.

In a more positive vein but to a similar purpose, Bertrand Russell identified the principle by which science applies mathematics to empirical phenomena.

"Whenever two sets of terms have mutual relations of the same type, the same form of deduction will apply to both." [Russell, 1937, p. 7]

Application of arithmetical addition to mass, length and time are familiar examples. Yet, in such cases, where one set of terms is logical or mathematical and the other set is not, the existence of a homomorphism between the two sets is, as Diderot's jest illustrates, *a purely empirical matter*. It presumes the discovery of a set of extra-mathematical relations which repeated testing, not a set of axioms, shows to be structurally analogous to the arithmetical ones of =, <, > and +.

Elsewhere, using abstract algebra but offering a full verbal explication as well, the metrical structure of market-value has been investigated at length and found to be, as would you if you were to investigate it, Boolean rather than Euclidean. [Fullbrook, 2002. This paper can be downloaded for free [here](#).]

Counter-intuitive

The Boolean conclusion is of course counter-intuitive, a way of thinking that we economists are even more adverse to than were physicists prior to the Twentieth Century. It is counter-intuitive because on the micro level of consumerism and business that we experience every day of our lives, market-values are Euclidean phenomena. But it is a characteristic of Boolean metrical structures that at a defined micro level, such as adding the probabilities of drawing individual cards from a given deck of cards, that they may include Euclidean characteristics.

To bring the metrical issues into focus it may help to very briefly compare two well-known quantitative orders, mass and probability. The property of mass is understood as a function of micromasses, whose existences are independent of the larger mass with which they are grouped. A body's mass is the totality of the masses of that body's parts, and its mass will increase if more parts are added to it. With quantitative properties of this type, each magnitude is *the aggregate of its parts*, the direction of determination running exclusively from the micro to the macro level.

But quantitative properties are not always of this type. Theoretical probability provides a relevant example. Certainty not only defines an upper bound for magnitudes of probability, but

also serves as a *whole* in relation to which the probabilities of events in the probability space are conceived as *parts*. In other words, certainty, or the certain event, provides a *unique* standard of measurement for probability, with all other probabilities in the space being defined as *parts of that “whole” probability*. Furthermore, because of its Boolean structure, to increase in a given space the probability of one event decreases the probability of one or more others and vice versa. Likewise for market-value. Every market-value exists only as a part of an integral and interdependent system of market-values.

Although our everyday metrical perceptions of market-value are dominated by phenomena consistent with Euclidean structure, there is one Boolean market-value phenomenon with which we are all familiar both professionally and otherwise – inflation. Increasing the number of standard weights used in weighing operations does not decrease the mass of those weights. But increasing the quantity of money exchanged, that is, the number of standards of market-value used in measuring the market-value of the component sets of the aggregate endowment, not only decreases the market-value of existing money tokens, it also decreases each one's value by the same proportion. This alone shows that as a quantitative order market-value has a metrical structure radically different from mass, length and arithmetical addition.

Mesoeconomics

Our thought experiment has shown us that the concept of market-value is impredicative when defined as a relative concept *in the sense of a set of relations between a pair of objects*. But on the other hand we are aware that unlike mass and extension – quantitative properties possessed by objects independently of their relations to other objects – that the market-values of objects exist only relative to the market-values of other objects. So we are, despite the negative result of our thought experiment, still committed to the belief that market-value is a relative phenomenon. But if not pairs of objects, *what are the ultimate terms of the market-value relation?* It is, strangely, the relation upon which Piketty's great book turns.

Generally it is only when considering market-values at meso and marco levels, as with inflation, and as Piketty does in considering distributions of wealth and income, that market-value's Boolean structure comes strategically into play.³ In Piketty's analysis it is almost visible, and it takes only a rearrangement of his simple equations to bring it into view.

We are working with the following symbols:

K' = capital-2 stated in currency units

Y' = income-2 stated in currency units

$\Gamma' = K' + Y'$

$K = K'/\Gamma'$

$Y = Y'/\Gamma'$ so that

$\Gamma = K + Y = 1$

$\beta = \text{capital-2}' / \text{income-2}' = K'/Y' = K/Y$

$\alpha = \text{capital-2}'\text{'s share of income-2}'$,

$r = \text{rate of return on capital-2}$

$s = \text{savings rate}$

$g = \text{growth rate (of income-2)}$

³ It is, however, the Boolean structure of market-value that makes all demand curves ultimately downward-sloping. See Fullbrook 2002.

Piketty's capital-2 / income-2 ratio is one way of comparing two quantities of market-value. But given that market-values only exist relative to other market-values, these two quantities, capital-2 and income-2, when considered together have a special metrical property that remains hidden when they are expressed as a ratio. Capital-2 + income-2, that is, Γ' and Γ on their different scales, comprise *all* the market-value that exists in the economy in a given year. Therefore, metrically Γ is the equivalent of certainty with respect to theoretical probability. As is the convention with probability's certain event, we can assign to Γ the value 1.

So that given $\beta = K/Y$ and $\Gamma = K + Y$, we can write

$$K = \beta / \beta + 1 \quad \text{and} \quad Y = \beta - (\beta - 1) / \beta + 1, \text{ so that}$$

$$K + Y = \Gamma = 1$$

For example, if $\beta = 8$, then $K + Y = 8/9 + 1/9 = 1$.

$K + Y = 1$ is the fundamental relation that underlies the market economy.⁴ It is the relation that intriguingly lies behind Piketty's data but which he, blinded by Euclidian preconceptions, fails to unveil. In the Piketty context, the most profound revelation of this unveiling is that *any increase in the market-value of either K or Y decreases by an equal amount the market-value of the other and visa versa*. That is why it is a profound error to speak, as does Piketty, of accumulating or of the macro accumulation of capital-2, i.e. of K or K' where $K + Y = 1$ or $K' + Y' = \Gamma'$. It is not an accumulation that takes place when capital-2 increases, but rather an *appropriation*. More about this in a minute. The theoretical implications of market-value's Boolean structure for understanding Piketty's data are profound, but here there is space only for very brief considerations.

Upper limits

Piketty speculates about relations between β , r , s and g and fancies that by writing $\beta = s/g$ he has discovered a fundamental law. There is in fact a law to be discovered here although it is not quite fundamental. The law is that *for any K there is a maximum value for r, the rate of return on capital-2, and vice versa*. Why? Because the return on capital-2 comes out of income-2, and the greater K the smaller Y and the greater r the less Y there is for labour. Where α = capital-2's share of income-2, this law may be written:

$$\alpha + r\alpha \leq 1$$

Consider a numerical example. Pretend that K is .9 and r is .12. Then $K + rK = .9 + .108 = 1.008$. But a K of 1.008 in the real world is no less impossible than it is for a body to travel faster than the speed of light.

In the real world the absolute outer limits of the *distributional variables* will never be reached, instead we can expect movement toward those limits to slow as approached and maybe reverse suddenly. These limits exist through all of history and so provide a universal basis for framing the economy's future.⁵

⁴ The Boolean discovery reveals that value and distribution are the same thing.

⁵ From the Boolean structure of market-value it follows that market economies as a whole have to be continuously changing since any change in the market-value or quantity of anything bought and sold changes the market-value of everything else. In short, barring a total price and quantity freeze by a totalitarian government, equilibrium is an impossible condition.

Two kinds of saving

In talking about the savings rate and the growth rate, Piketty is not comparing to like to like. His **s** refers to a *portion* of the *market-value* of a country's output. His **g** on the other hand refers to *two levels of real output* compared on the basis of what their market-values would be if the market-value of money had remained constant.

Assuming 2% growth and 12% saving, and that all of the 12% goes into investing in *existing* assets, then Piketty's reasoning is broadly correct, because there will be asset inflation. But if all of the 12% goes into investing in new real assets, then the story is quite different from the one Piketty describes. In that case, the effect of the 12% savings on capital-1 market-values depends on the elasticities of demand for various capital goods. With real investment (i.e. in new capital-1) of the 12%, a decrease in the market-value of capital-1 relative to the market-value of income-1, or in Piketty's terms, a decrease in the capital/income ratio, is highly plausible. And of course an increase in the **g** would also become a possibility.

g, **s** and **β** are interconnected but not in the way that Piketty's acute confusion regarding "capital" and "capital" has led him to believe. The missing relevant quantities are:

s_v = the percent of savings going into existing assets,
 s_r = the percent of savings going into new assets, where
 $s_v + s_r = s$.

It is s_v that inflates assets prices and leads to an increase in **β**, whereas s_r is likely to have the opposite effect.

Plutonomy economics

These days some, and maybe even the lion's share, of the most influential theorizing about the economy takes place in secret. And when you stop to think about it, it is difficult to image how it could it be otherwise. Aristotle's motivation for studying economies may have been purely intellectual, but historically the dominant motivation has been to learn how to make economies function better for us humans. But your palace is not my palace, and "therein lies the rub". It is nice to increase the size of the pie, but some people find it even nicer to increase the size of their slice. And just as economics can sometimes be used to increase capital-1 and income-1, economics can also be used – and it is happening with great effectiveness this very minute – to increase and maintain a group's portion of capital- 2 plus income-2.

In recent years there have been a few leakages of the applied economic theorizing carried on behind locked doors on behalf of the-one-percent, some of which, despite frantic efforts to have them suppressed, remain available.⁶ What is noteworthy, in the present context, is that, although the economists of the-one-percent are not so unworldly as to ponder algebraic structures, they appear in some degree to implicitly understand the Boolean structure of capital-2 plus income-2. Before looking at one of these one-percenter contributions which was

⁶ Three are currently available here: <http://delong.typepad.com/plutonomy-1.pdf>, <http://delong.typepad.com/plutonomy-2.pdf>, <http://delong.typepad.com/plutonomy-3.pdf>.

inspired by the appearance of Piketty's great book, we need to introduce both the reality and the idea of *meso inflation*.

Whereas the symbol "capital" is used sometimes to mean this and sometimes that and sometimes something else, all of them of course legitimate, but which without explicit clarification lead to acute theoretical confusion, the symbol "inflation" has, in the main been used to designate only a subset of price level increases. In recent years the term "asset inflation" has become quasi-common, but "inflation" by itself is still perceived by most humans as referring only to the inflation of income-2. Let us, at least momentarily, break with that tradition and *define "inflation" as including both income-2 inflation and capital-2 inflation*. Metrically and in terms of the measurement unit, say euros, they refer to the same phenomenon: an increase in the number of euros it takes to buy a given basket or briefcase of market exchangeables. Because traditionally economics has terminologically blanked capital-2 inflation, the economy's *overall inflation rate* and its relative *meso inflation rates* have with rare exceptions gone unobserved.⁷ But with our new definition we can speak of the inflation rate for the whole economy, that is including both asset markets and goods and services markets. We can also speak of the income-2 inflation rate *relative* to the capital-2 inflation rate. Once we have these simple ideas at our command we have a means of understanding and describing in part *the causality* behind shifts of the capital-2 / income-2 ratio that are less mystical than Piketty's semi-traditional one.

Changes in capital-1 and income-1 are not required to bring about large changes in the capital-2 / income-2 ratio. Instead all that is needed is to exploit the Boolean structure of market-value by changing the capital-2 inflation rate relative to the income-2 inflation rate. The leaked documents from the one-percent's economists show that they see the manipulation of this structure as the primary means by which their paymasters' fortunes can be maintained and increased. For carrying out this manipulation they identify two primary sets of tactics.

One, much discussed by Michael Hudson, Steve Keen, Dean Baker, Ann Pettifor, James Galbraith and others, is to channel huge amounts of credit for the buying of particular categories of existing capital-1, thereby causing capital-2 inflation and causing it in chosen segments of the capital-1 market. Given the Boolean structure of market-value, *creating the possibility* of redistributing capital-2 and income-2 in this way is not a matter of pondering $\beta = s / g$, but of manipulating political decision making. For the last forty years, the one-percent's informed manipulation of political systems, "democracies" and otherwise, has taken place and continues to take place at both administrative and legislative levels.

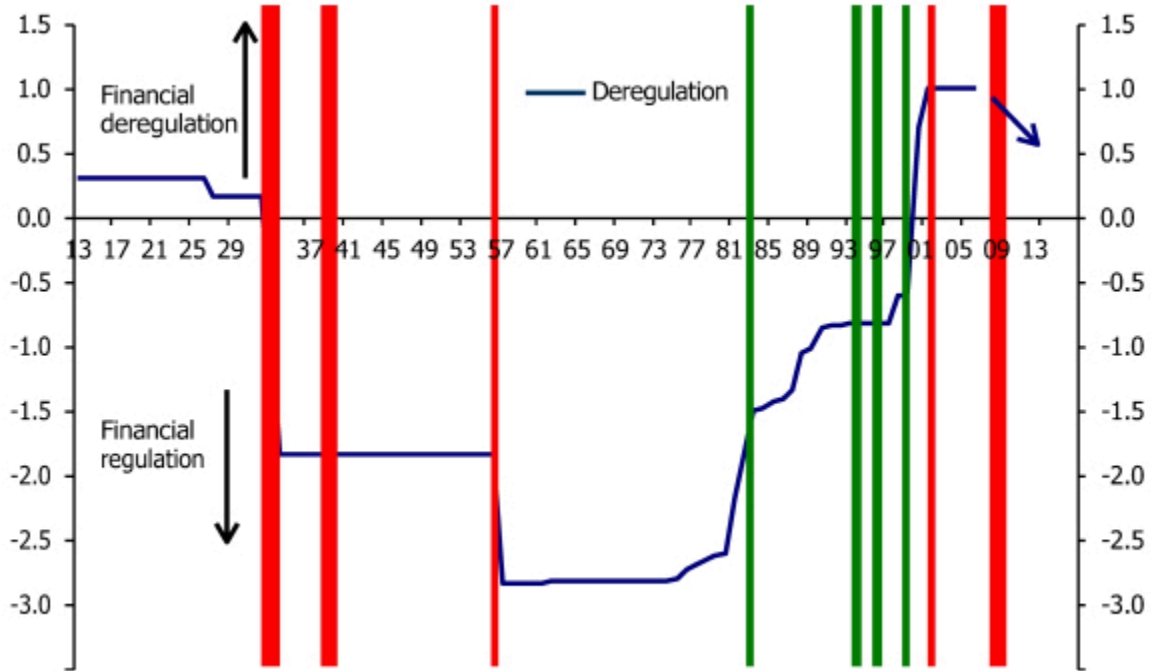
The aftermath of the Global Financial Collapse of 2007 is a good example of the former. In the United States and elsewhere historically unprecedented extensions of credit were almost exclusively directed toward the inflation of capital-2 rather than toward income-2 or toward increasing capital-1 or income-1. These decisions took place even in the face of the USA's decayed infrastructure.

But since 1980, the-one-percent has also excelled at bringing about changes in the law, some aimed at reducing labour's direct claim on income-2, others to enable the-one-percent to raise the capital / income ratio through engineered meso inflations. Recently there briefly leaked a new report by Bank of America-Merrill Lynch entitled "Piketty and Plutonomy: The Revenge of

⁷ For example, what was the overall inflation rate the US economy in 2010? Quite computable no doubt, but never or almost never stated.

Inequality”.⁸ When it comes to Picketty’s theoretical explanation, the plutonomists are laughing all the way to the bank. A chart and its introduction exhibit how they in private account for changes in the capital-2 / income-2 ratio.

Drawing on our earlier work, and the research of Thomas Philippon and Ariell Reshef we highlight *the importance of financial de-regulation in engendering plutonomy*. Figure 42 delineates the history of financial regulation in the USA [emphasis added].

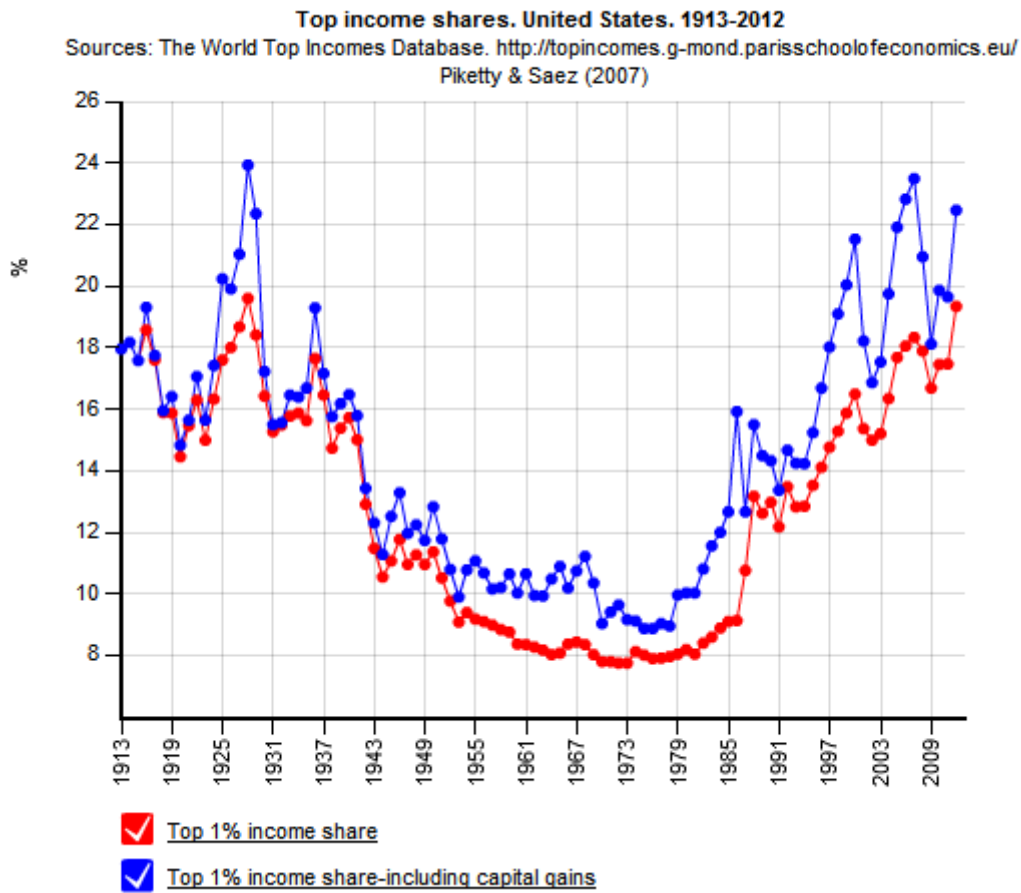


Regulatory legislation	Deregulatory legislation	Regulatory legislation
1933 Glass-Steagall Act	1982 Garn-St. Germain Depository Institutions Act	2002 Sarbanes-Oxley Act
1933 Securities Act	1994 Riegle-Neal Interstate Banking & Branching Efficiency Act (repeals parts of Bank Holding Co. Act)	2008 Economic Stimulus Act
1934 Securities Exchange Act	1996 Investment Advisers Act amended	2008 Housing and Economic Recovery Act
1939 Trust Indenture Act	1999 Graham-Leach-Steagall & parts of Bank Holding Co. Act	2009 American Recovery and Reinvestment Act
1940 Investment Advisers Act		2010 Dodd-Frank Wall Street Reform & Consumer Protection Act
1956 Banking Holding Company Act		

Source: BoFA Merrill Lynch Global Research,
 Philippon and Reshef (approximation) (http://pages.stern.nyu.edu/~tphilipp/papers/pr_rev15.pdf), WSJ

Note how well the legislation curve above fits the redistribution curve of income including capital gains for the one-percent shown below.

⁸ <http://www.businessinsider.com/bofa-merrill-lynch-backs-piketty-2014-5> This is one of many articles published a few months ago about the Bank of America report, but the report itself, as is often the case with one-percenter research, has now disappeared from the web.



For better or for worse

Today in many high-income countries and most English speaking ones, governments maintain two sets of interconnected policies: one designed to deflate labour's share of income-2, the other to inflate capital-2 and capital's share of income-2. The political feasibility of this dominant and general plutonomist policy of increasing and maintaining high capital-2 / income-2 ratios is greatly enhanced by the economics profession's almost exclusive use of models that exclude *the central Boolean dimension of market economies* and thereby hide not only from the economist's view but also, and more importantly, from the public's view the dominant economic dynamic of our age. As Michael Hudson notes, the traditional and prevailing models fail:

... to distinguish between creating money to spend on employment, production and consumption in the "real" economy (affecting consumer prices, commodity prices and wages) as compared to creating credit (or simply Treasury debt) to give to banks to buy or lend against assets in the hope that this will bolster prices for real estate, stocks and bonds. The latter policy inflates asset prices but deflates current spending.

The \$13 trillion increase in U.S. Treasury debt in the post-2008 financial meltdown was not spent in product markets or employment in the "real" economy. It was balance-sheet help. Likewise for the ECB in 2011 ... [where]

new money and debt creation has little interface with the “real” production-and-consumption economy, except to burden taxpayers [Hudson, 2011].

In writing *Capital in the Twenty-First Century*, Thomas Piketty has done humanity an enormous favour. He has achieved what many of us have tried and failed to achieve for years, in some cases decades: to place the huge upward redistributions of capital and wealth into public consciousness and to make it socially acceptable to talk about them.⁹ Achieving this was always to be the first and most difficult step in de-accelerating and eventually stopping the global predations of a tiny minority. It is now done.

But Piketty’s attempt to offer theoretical explanation of his empirical findings are rooted in the axiomatic mysticisms of economics’ past. Consequently there is the serious danger that his book’s ultimate effect will be to tighten the Euclidian blindfold that makes invisible the hands that engineer and maintain our plutonomy economies. It is only when the profession takes off that blindfold that it will have readily at hand the understanding that the world so desperately needs.

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Author contact: edward.fullbrook@btinternet.com

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Edward Fullbrook, “Capital and capital: the second most fundamental confusion”, *real-world economics review*, issue no. 69, 7 Oct 2014, pp. 149-160, <http://www.paecon.net/PAEReview/issue69/Fullbrook69.pdf>

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⁹ The conclusion of Fullbrook 2002 points to the paper’s usefulness:

. . . for understanding two significant current problems.

One is the need to bring ecological considerations into economic decision-making.

The second problem is the redistribution of income and wealth from the poor and middle-classes to the rich and super-rich now taking place both intra- and internationally at a rate and on a scale unprecedented in human history. No adequate theory exists to explain and thereby to enable us to curtail, stop or reverse this radical change in the human condition. Of course it has something to do with globalization. But why should globalization have this redistributive effect? And how can the process be managed so that humans will control the direction and magnitude of the redistribution? This paper provides a theoretical framework in which to think about the problem.