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**THE MARGINAL PRODUCTIVITY THEORY OF THE PRICE  
OF CAPITAL: AN HISTORICAL PERSPECTIVE ON THE  
ORIGINS OF THE CODSWALLOP**

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# **THE MARGINAL PRODUCTIVITY THEORY OF THE PRICE OF CAPITAL: AN HISTORICAL PERSPECTIVE ON THE ORIGINS OF THE CODSWALLOP**

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## **ABSTRACT**

Although it might have been expected that, by this point in time, the unacceptability of the marginal productivity theory of the return on capital would be universally agreed, that is evidently not the case. Popular textbooks still propound the dogma to the innocent. This note is presented in the hope that a succinct indication of the origins of the theory it will contribute to a more general appreciation of the unrealistic and illogical nature of this doctrine.

### **KEY WORDS:**

marginal revolution; marginal productivity theory of distribution; reswitching.

### **JEL Classification:**

B13, B51, D33.

## **Introduction**

In a recent paper,<sup>2</sup> Fred Moseley, drawing attention to some of the confused and confusing ideas encountered in the neoclassical treatment of “capital” and the return thereon, emphatically makes the point that the mainstream marginalist theory is unable to offer any coherent explanation of the rate or nature of profit as the return on capital. Moseley’s damning verdict<sup>3</sup> prompts the question – how did mainstream theory get into such a mess? In this note we propose a very simple (hardly original) answer to that question: our answer is that the mess has come about through the over-extended application of the marginalist analytical method - the method introduced by, and characteristic of, the neoclassical school of thought.

## **Marginalism**

We mean by the “marginalist method” the analytical procedure of framing issues as problems of choice, problems to which rational agents find the solution by a procedure of substitution at the margin, exchanging incremental units of “y” (representing a marginal cost) for incremental units of “x”

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<sup>1</sup> The author is indebted to Eric Rahim for incisive comment on a previous draft.

<sup>2</sup> Fred Moseley, “A Critique of the Marginal Productivity Theory of the Price of Capital”, *real-world economics review*, issue no. 59, 12 March 2012, pp.131-137, <<http://www.paecon.net/PAEReview/issue59/Moseley59.pdf>>

<sup>3</sup> Moseley’s verdict accords of course with understanding which is now widespread – though unfortunately not widespread enough – understanding which results from the original contributions of, in particular, Piero Sraffa and Joan Robinson.

(representing a marginal benefit). The neoclassical pioneers<sup>4</sup> introduced the concept of constrained optimisation via marginal substitution into economic analysis in the context of utility maximization by the consumer. While in that, its original context, the marginal analysis did contribute to new understanding, the neoclassics failed to recognize limits to the appropriate application of their exciting new methodology. What happened was that these unperceived limits were by-passed and, in order to facilitate the widespread application of the method, the subject matter of the analysis came to be shaped (distorted) into amenable form such as to allow issues be represented as problems of choice resolvable by marginal adjustments. In other words, a besetting sin of neoclassical economics has been to prioritise the method over the material: to adapt the subject matter of the inquiry to the analytical technique being employed, rather than the other way round.

Why did the methodology play so dominant a role in the neoclassical school's treatment of economic issues? To understand where the neoclassical theorists were coming from, we need to take a step back into the intellectual history of our discipline.

In the latter part of the nineteenth century the subject we now call "economics" was transformed in respect both of its concerns and its methodology: the "classical" *political economy* of Smith and Ricardo (of Marx also) was pushed into the background by the emergence, via the "marginal revolution" of "neoclassical" *economics*. As we have already suggested, the defining characteristic of neoclassical or marginalist theory is to pose issues in terms of constrained optimization. The introduction into economic analysis of this element of mathematical reasoning resulted from the deliberate intention of the neoclassical pioneers to replace the relatively informal and discursive *modus operandi* of the classics with procedures of a more rigorous and "scientific" character.

It is clear that this mathematisation<sup>5</sup> of economic analysis was consciously carried through as a means of enhancing the scientific character and status of the subject. Keynes<sup>6</sup> describes the climate of intellectual opinion prevailing at the time: he refers to "the hope, which sustained many investigators in the course of the nineteenth century, of gradually bringing the moral sciences under the sway of mathematical reasoning". There was a lively expectation that, in the social sciences, understanding would be more effectively advanced by adopting the methods of the evidently progressing "hard sciences" – through, that is to say, the introduction of "precise numerical methods".

Keynes's observation is confirmed by both Jevons's and Walras's accounts of their objectives. In introducing his *Principles*, Jevons<sup>7</sup> was quite explicit as to the line along which he believed economics ought to develop:

In this work I have attempted to treat economy as a calculus of pleasure and pain, and have sketched out, almost irrespective of previous opinions, the form which the science, as it seems to me, must ultimately take. I have long thought that as it deals throughout with quantities, it must be a mathematical science in matter if not in language. . . .The nature of

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<sup>4</sup> We are thinking here of scholars such as W S Jevons (England, 1835-1882), Leon Walras (France and Switzerland, 1834-1910), Carl Menger (Austria, 1840-1921), Alfred Marshall (England, 1842-1924) and J B Clark (USA, 1847-1938).

<sup>5</sup> Involving no more (at least initially) than simple calculus and algebra.

<sup>6</sup> J M Keynes (1921/1973), *A Treatise on Probability*. London and Basingstoke: Macmillan for the Royal Economic Society, p.349.

<sup>7</sup> W S Jevons (1871), *The Theory of Political Economy*. London: Macmillan, Preface p.3.

wealth and value is explained by the consideration of indefinitely small amounts of pleasure and pain, just as the theory of statics is made to rest upon the equality of indefinitely small amounts of energy.

Walras<sup>8</sup>, very much in tune with Jevons, and reflecting the revolutionary character of the marginalist project, looked forward to the recognition, on the basis of a more formal methodology, of economics as a “proper” science – to the day when, as he put it

. . . the establishment of economics as an exact science . . . need no longer concern us. It is already perfectly clear that economics, like astronomy and mechanics, is both an empirical science and rational science. [In time] mathematical economics will rank with the mathematical sciences of astronomy and mechanics; and on that day justice will be done to our work.

It may be noted therefore that the marginalist pioneers of the late nineteenth century had a very particular agenda, different from that of economists of earlier times. Their predecessors, in the earliest days and in the classical era, had a straightforward objective – of understanding how the world in which they lived functioned. The clerical intellectuals of the middle ages and the Reformation wanted to know the circumstances under which commercial decisions were made in the market place, in order to pass informed judgement on the ethical rightness or otherwise of the ways in which people behaved. The classics sought to understand the phenomenon of economic growth, what made for enhanced productivity and allowed a country’s escape from poverty, how the fruits of development were distributed and what role the government should, in the national interest, play. By contrast, the marginalist pioneers, it is evident, had another sort of objective in mind: they were setting out to replace the old “political economy” with a new science of “economics” – a discipline which would employ rigorous methods akin to those of the physical sciences and which would, for the world of economic affairs, play an explanatory role and enjoy a status matching that of physics or mechanics with respect to the natural world. Thus the motivation of the marginalist pioneers was a methodological challenge – the challenge to build up a comprehensive model of the economic system on the foundation of the chosen analytical apparatus. In other words, the agenda of the founding fathers of the neoclassical school was not simply, in a completely open-minded way, to understand the economic phenomena of the world about them, but rather to frame explanations which would fit within a pre-conceived general idea of how economics ought to be “done” and how economic activity should be modeled.<sup>9</sup> In these circumstances, it is not a matter of great surprise that concepts were formed and theories adopted according to their compatibility with the favoured theoretical framework rather than their consistency with conditions in the real world.

### **The marginalist analysis of value and distribution**

As mentioned, the characteristic neoclassical vision of constrained optimization through marginal adjustment was first demonstrated with reference to consumer behaviour. A simple consumption/exchange (no production) model economy was constructed; commodity demand functions

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<sup>8</sup> L Walras (1874/1977), *Elements of Pure Economics*. Fairfield: Augustus M Kelley, Publisher, pp.47-48.

<sup>9</sup> In fact there cannot be much doubt that considerations of an *ideological* nature also played a significant part in bringing about the changes which took place in the character of the discipline in the late nineteenth century; the desire to formalize and “mathematicise” the subject was not the *only* factor at work; changes were more than technical and methodological. See further comment below.

derived on the basis of diminishing marginal utility were postulated and a random collection of consumption goods was supposed to be available to the community. (Walras told a story of people shipwrecked on a desert island setting up markets on the beach for the exchange of goods washed ashore.) The analysis demonstrated that market forces would establish an equilibrium set of relative values of the several commodities, these values being of the nature of “indices of scarcity” reflecting the given conditions of demand and supply.

Neoclassical theorists, given their encouraging initial achievement, were of course not content to limit their analysis to the desert island scenario, and accordingly constructed progressively more elaborate models, into which production was introduced<sup>10</sup> – the production of industrial inputs being brought into the picture as well as that of final consumption goods, thus permitting the possibility of investment and the accumulation of a growing stock of capital goods. What these theorists set out to show was that, even in the case of the most complex and realistic model, the lessons drawn from the desert island case still applied – that, given demand and supply functions derived from the optimizing behaviour of individual agents, market forces would establish a set of equilibrium relative values – of *all* goods and services, including the services of “factors of production” – relative values which could still be interpreted as “indices of scarcity”. These values were understood reflect the objective conditions of demand and supply as they currently existed. In other words, all relative prices, including the prices paid for the services of labour and of capital, were said to be determined in exactly the same way by the impersonal forces of the market: suppliers of productive services should therefore accept that they are rewarded according to the (marginal) contribution they have made.

Accordingly, as regards capital theory and the return on capital – which are the matters at issue here – the neoclassical story is that the return to the owners of capital (the price paid for the services of capital) corresponds to the marginal productivity of capital, depending on the quantity of capital in use. The background understanding is that the capital stock is built up over time as, period by period, investors employ the capital<sup>11</sup> provided by savers, the amount of new investment each period being such as to equalize the return offered by investors with the reward sought by savers. As the quantity of capital installed increases time, then (*ceteris paribus*) diminishing returns are expected to cause yield on investment to fall. In other words, just as would be the case in the consumption/exchange model should a cargo of apples be washed ashore on the desert island, increasing supply relative to demand and causing the price of apples to fall, so in the more realistic model, according to the neoclassical theory, as investment adds to the stock of capital employed in production, the price falls (that is, the price the investor is prepared to pay for the services of the capital supplied by the saver) falls. With more capital in use, the return to capital diminishes. It is again all a matter of scarcity – of quantities demanded against quantities supplied.

Before we go any further we should clarify the terminology. In neoclassical economics the “return to capital” (or the “price of capital”) is typically identified with the rate of interest, which in ordinary terms is the price of loanable funds, paid by the borrower and received by the lender or *rentier*.<sup>12</sup> The rate of

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<sup>10</sup> For instance, see specifically Walras’s sequence of increasingly complex general equilibrium models.

<sup>11</sup> There is some ambiguity here: “capital” might sometimes denote real producers’ goods, at other times, a quantity of loanable funds.

<sup>12</sup> The “price of capital” in this sense must be distinguished from the prices of individual capital goods as determined by conditions of demand and supply in their particular markets.

profit, in other words the return over costs accruing to the actual *industrialist*, disappears completely from much of the neoclassical analysis.<sup>13</sup> It is not always clear what the entrepreneur/industrialist who runs a business is supposed to get out of it: in fact in some models, apparently nothing. The substitution of “interest” for “profit” matches the neoclassical tendency to confuse “capital” meaning a collection of real producers’ goods with “capital” meaning a sum of finance. This is indicative of a mistaken presumption that a “quantity of capital” can unproblematically be conceived of or measured in real or monetary terms as may be preferred.

Although the new approach proved advantageous in yielding a gain in understanding in the context in which it was first applied, when extended beyond that very limited area of applicability it brought misrepresentation and confusion. As we have already suggested, the trouble stemmed essentially from an unfortunate propensity of the marginalist theorists to adapt the *subject matter* of their analyses to the *method of analysis* they were employing.

The evidence is there for all to see. Consider, for instance, how the familiar analysis of consumer demand – commonly demonstrated using a utility function in a two commodity model – was extended to the context of production, with a production function replacing the utility function and factor inputs instead of consumption goods. It may appear elegant that an equivalent analytical apparatus is utilized both in the theory of consumption and in the theory of production. But how appropriate actually is the model for the analysis of production?

On inspection this model comes to look more and more like a device introduced to allow application of the marginalist theory of rational choice than a realistic model of production conditions. In the context of consumption, the concept of “marginal utility” is easy enough to grasp. But what, referring to the neoclassical analysis of production, is the real world meaning of the “marginal product of the variable factor” (all other inputs being held constant)? Recall D H Robertson asking what might be the marginal product of labour if a tenth man comes along to join nine men, each with a spade, who are digging a trench?<sup>14</sup> Can collective contributions to output always be “unscrambled” to identify individual marginal products?<sup>15</sup> Again, the isoquants of the textbook production function are usually drawn – analogous to the indifference curves of the utility function – in such a way as to imply that the appropriate production technique has to be chosen from a whole range of alternative techniques available for producing each possible level of output; surely – as revealed by modern work on choice of technology – this is nothing more than an entirely unrealistic translation of the notion of multiple alternative opportunities from the context of consumption to that of production. We may query also the validity of assumptions commonly made regarding the form of the production function. For instance, neoclassical theorists demonstrate conditions of constant, increasing or decreasing returns to scale using the standard model: but if we try to translate these scenarios into real industrial conditions, we are likely to conclude they are nothing but

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<sup>13</sup> Marshall does in a rather loose way allow for the industrialist receiving an element of “normal profit” over the interest which he pays for loanable funds, but this is essentially treated as a sort of risk premium added to the pure interest rate; its inclusion doesn’t imply any doubt on Marshall’s part as to the validity of the standard “productivity and thrift” theory of interest.

<sup>14</sup> D H Robertson (1931), “Wage Grumbles” in Robertson, *Economic Fragments*. London: P H King.

<sup>15</sup> It was Joan Robinson who pointed out that Marshall, in expounding his theory that the worth of a marginal worker to his employer was equal to the value of the marginal increment of output for which he was responsible, dodged the problem of “unscrambling” and identifying specific factor contributions by utilising the ingenious examples of the marginal shepherd (and the extra railway guard), who can be employed without (significant) complementary resources being required. See A Marshall (1920/1956), *Principles of Economics*. London: Macmillan, VI, I, 7.

“empty economic boxes”.<sup>16</sup> Again, linear homogeneity is often supposed: not so much, one suspects, because that assumption corresponds to technological reality, rather to avoid a difficulty (the “adding-up problem”) in the neoclassical theory of the determination of factor incomes.

As regards the conventional analysis of production, what is probably the most important fudge or distortion concerns the treatment of “capital”. Suppose we have (as typically) in the production function diagram, quantities of “capital” on one axis and quantities of labour on the other, together with isoquants of the usual shape: what do we understand “capital” to mean? The model presumes that, if we hold the labour input fixed, and vary the quantity of “capital” employed, we should expect to get progressively diminishing quantities of output for each additional increment of “capital” applied in production. Remember (the story is supposed to be about technological possibilities) that the inputs of labour and capital are meant to represent real (not financial) quantities – hours of labour or capital measured in appropriate real units (supposing, of course, such units can be found).<sup>17</sup> Note further: the model implies that we can conceive of production being carried on with different quantities of the same homogeneous “stuff” (“capital”) per unit of labour. So what *is* the nature of this “stuff” we are calling “capital”?

While the measurement of different quantities of a specific consumer good along an axis of the *utility* function diagram makes perfectly good sense, the representation of different quantities of “capital” in the *production* function diagram is problematical. Although neoclassical authors usually ignore the difficulty, some have introduced the terms “putty”, “jelly” or “butter” to denote a homogeneous physical “stuff” which can play the role of “capital” in this model. But where does that get us? In reality, while we can of course point to techniques of production which involve differing degrees of what we may call “capital intensity” (involving different capital/labour ratios) the items of capital equipment associated with these different techniques are qualitatively different things, with quite different technological characteristics – they are not simply different quantities of the same physical “stuff”. It must be accepted that the standard model of the neoclassical textbooks makes no sense whatever – it has no recognizable real-world equivalent. But what it did do – apparently to the satisfaction of its neoclassical authors – was provide a parade ground upon which the favoured marginal analysis of rational choice could be exercised, in this instance with regard to the determination of input prices rather than the determination of the prices of final consumption goods. Phenomena relating to production are represented – or rather misrepresented – as corresponding to phenomena relating to consumption, thus (apparently) making possible the direct transfer of the utility maximisation analysis to the context of production.

Even if we cannot meaningfully quantify the existing stock of heterogeneous real capital goods in terms of any real measure (such as tons or horse-power), and we cannot sensibly dodge the issue by supposing that the capital stock consists simply of homogeneous “stuff”, can we get over the difficulty by measuring the capital stock in terms of *value*? This is the alternative commonly favoured in the neoclassical literature. Consider the long-established “productivity and thrift” theory of interest, or, in other

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<sup>16</sup> See Sir John Clapham (1922), “Of Empty Economic Boxes”, *The Economic Journal*, Vol.32, No.127, pp.305-314.

<sup>17</sup> “. . . the production function has been a powerful instrument of miseducation. The student of economic theory is taught to write  $O = f(L, C)$  where L is a quantity of labour, C a quantity of capital and O a rate of output of commodities. He is instructed to assume all workers alike, and to measure L in man-hours of labour: he is told something about the index-number problem involved in choosing a unit of output; and then he is hurried on to the next question, in the hope that he will forget to ask in what units C is measured. Before he ever does ask, he has become a professor, and so sloppy habits of thought are handed on from one generation to the next.” (Joan Robinson (1953-54), “The Production Function and the Theory of Capital”, *The Review of Economic Studies*, Vol.21, No.2, pp.81-106.

(neoclassical) words, theory of the return on capital. As mentioned above, the picture is that loanable funds (capital in liquid form) are offered on the market in the form of savings, and demanded from the market by industrialists to finance investment. Both quantities of supply and of demand for loanable funds are represented as functions of the rate of interest – the supply curve being upward-sloping<sup>18</sup> on the basis of utility-maximising behaviour respecting the time-pattern of consumption; the demand schedule is downward-sloping reflecting the assumption that the more new capital is added to the existing stock, the lower will be the return at the margin. It is evident that, when it is established, the market-clearing price – the equilibrium rate of interest – in equating the quantity demanded and the quantity supplied of capital (capital quantified in terms of value), constitutes, in standard neoclassical fashion, an ‘index of scarcity’.

Thus, the neoclassical theory interprets the price of capital<sup>19</sup> as exactly equivalent to the price of, say, shoes, which happen to have been picked up on the shore of the Walrasian desert island – with both prices reflecting the existing conditions of demand and supply and both prices adjusting to a value which equates quantity demanded and quantity supplied. But while the story makes sense with regard to the price of shoes, it is unacceptable as an explanation of the price of capital. Why so? The point is that the neoclassical theory is fundamentally mistaken in presuming that, in the case of the economy in question, quantities demanded and supplied of capital can be specified in value terms, *independently of the rate of interest*, and that the equilibrium rate of interest can then be interpreted as the price equating these two quantities. The neoclassical theory of value makes logical sense with reference to the economy of the desert island but is not capable of direct extension to a world in which inputs such as capital goods are produced and in which saving and investment are possible.

The problem for the neoclassical theory arises from the fact that as saving and investment can take place only in a surplus-producing economy – an economy capable of producing more output than is required to replace all inputs (this is, inputs excluding the support of the working population) used up in the current process of production, leaving a “surplus” of output available for distribution as incomes, and thus usable for consumption, investment or other purposes. This “surplus” corresponds to net national income and may be divided in different proportions between competing claimants: the more that goes to profits, the less is left for wages. The implication of this for the theory of capital is that the equilibrium prices of goods produced in such a system, with prices necessarily covering production costs including payments to labour and capital at the going rates, depend on how net output is divided between labour and capital. Different divisions of the surplus, *ceteris paribus*, would imply different costs of production and differing relative prices. *In other words, the structure of relative values is not independent of the distribution of the surplus.*

As all the real capital goods which constitute the economy’s stock of capital are in fact products of the system (and certainly not, as one well-regarded neoclassical textbook<sup>20</sup> described them, “mannas” from heaven), the prices of these goods, relative to each other and to all other goods and services, depend upon how net income is distributed. Different distributions associated with different rates of return on capital (different rates of profit) imply different equilibrium values of each good and consequently different total values for any particular collection or set of produced commodities. The point is that it is not possible to

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<sup>18</sup> That is, the supply of “capital” is represented as a positive function of the “return to capital” (and the demand for capital as negatively related to the rate of interest).

<sup>19</sup> We refer of course to the *relative* price of capital – one price amongst a whole set of other prices.

<sup>20</sup> C E Ferguson (1969), *Microeconomic Theory*. Homewood, Ill: R D Irwin.

specify the value of the set of produced commodities which comprises the economy's stock of capital, before knowing what the rate of return on capital is, according to how the surplus is divided between wages and profits. The neoclassical explanation of the return on capital as corresponding to the rate of interest which equates the quantity of capital demanded (measured in terms of value) with the quantity of capital (as value) supplied fails on account of its circularity: to determine quantities of capital in value terms we need to specify first the rate of return on capital. We need to know the answer to the question before we can apply the neoclassical method of finding that answer.

It must be evident by now that the neoclassical interpretation of the return on capital as the price which equates the quantity demanded with the quantity supplied is untenable. It is *logically* impossible to explain the rate of interest by reference to the quantity of capital measured as a sum of values (e.g. as the marginal product of that amount of capital). It is *empirically* meaningless to explain the return on capital by reference to capital measured in real units as such measurement could be possible only if capital goods are all composed of the same homogeneous "stuff" (porridge anyone?). There is no way out of the marginalist impasse – the return on capital must be explained in other than neoclassical terms.

What this situation implies is that, for neoclassical theory to provide an explanation in marginalist terms, the real world *must* be misrepresented to meet the requirement of the theory. To explain the price of *anything* neoclassical theory requires that total quantities and marginal amounts of whatever "thing" is the focus of attention must first be identifiable. Therefore, as a matter of theoretical necessity, in attempting to apply the marginalist approach to explain the return on capital, neoclassical analysis (mis)represents any given set of real producers' goods (machines, buildings, etc) as being what it is not – as constituting a specific quantity of something called "capital", which under all conditions can be measured unambiguously as the same amount of "capital".<sup>21</sup>

To summarise briefly. The marginalist theory of value and distribution can be applied satisfactorily only to the fairy-tale desert island consumption/exchange system. When an economy capable of production, especially surplus production, is considered, comprehensive application of the marginalist theory of value becomes suspect, but it was no doubt tempting for the neoclassical theorists to push on regardless with their programme of transforming the subject. Their analysis of production moves away from reality in presenting decision makers with opportunities of choice of technique more akin to the choices to be made by the consumer than representative of actual industrial conditions. The misrepresentation of capital (real producers' goods) as homogeneous "stuff" looks like a rather desperate attempt to pretend that heterogeneous goods can be lumped together as one commodity with respect to which marginal increments can be identified. When saving and investment come into the picture the problem with "capital" becomes acute: if the rate of interest is to be explained as corresponding to the marginal product of a certain quantity of capital, then, even if that quantity is measured in value terms, it has no meaning

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<sup>21</sup> It is sometimes suggested that, because in the Walrasian model the existence of heterogeneous capital goods is recognized, Walras's analysis must be free of the error of employing the concept of quantities of "capital in general"; but that is not so. In Walras's theory, the rate of interest is determined as the price which equates the quantity demanded and the quantity supplied of "commodity E". Commodity E represents the value of a certain set of producers' goods; ownership of commodity E is a title to the return on these items. Saving (demand for E), a function of the rate of interest, is represented as the *purchase by rentiers* of a quantity of commodity E (entitlement to the return on real assets of corresponding value); commodity E is *issued by firms* (supply of E) wishing to raise funds for the purchase of capital goods to the value of E issued; the quantity of E issued is also a function of the rate of interest. This is merely another version of the neoclassical productivity and thrift theory of interest.

independent of the rate of return; the argument is circular. It would be possible to place a unique value, independent of the distribution of output and the rate of interest, on a collection of commodities only when no surplus output is produced and incomes received by members of the community are uniquely determined as rentals on given endowments. There is no possibility of meaningfully envisaging “capital” (meaning a set of producers goods as may exist in the real world) and the return (profit) to those who employ these goods in production in the terms proposed by the neoclassical theory.

The neoclassical theorists, having approached the analysis of economic phenomena by way of utility maximization in consumption, actually ended up with a supposedly general conception incapable of adequate comprehension of the realities of production with a surplus: in effect, the marginalists remained stranded on Walras’s desert island.

### **The puzzle of the neoclassical theory’s continuing appeal**

It is understandable that the neoclassical pioneers, in their enthusiasm to advance their new and apparently promising approach to economic analysis, might initially have overestimated its potential and left some muddles and confusion for their successors to sort out. But why have subsequent neoclassical theorists been so keen to stick with this highly unsatisfactory treatment of capital and interest? Sometimes they have argued (unsuccessfully) about the issues (as in the great “Two Cambridges” debate of forty years ago); at other times - and this would seem to be the situation in recent years – they have apparently decided to turn a blind eye to the increasing volume of criticism coming from various quarters, and keep right on along the orthodox lines. Given that it is impossible to mount a coherent and logically sound defence of the theory, its longevity cannot be put down to any positive case advanced by its adherents. There must be some other factors at work.

Moseley<sup>22</sup> draws attention to certain *ideological considerations* which may tend to make theorists of a right-wing outlook sympathetic to the conventional neoclassical treatment of these matters. The theoretical contention that all members of the community are rewarded in proportion to their (marginal) contributions, together with the thesis that the market economy is a system of harmonious cooperation, rather than one of fundamental conflict over shares of the cake, may be regarded by some as a comfortable justification of the socio-economic status quo.

If one likes the implications of a theory, one may feel hostility to the arguments of its critics and be receptive of favourable rationalisations. On the other hand, if the implications are uncongenial, an alternative theory may be favoured and its weakness too readily overlooked. While that is not the behaviour of the true scientist, it is possible that, in the latter years of the nineteenth century, economists did behave in just such a way. Avoidance of the embarrassing implications of the old classical theory with respect to social conflict and issues of equity may very well have played a key part in diverting the profession on to – and keeping it on - a new path along which social harmony and justice were viewed as the natural products of the market system. While the new methodology undoubtedly facilitated a professional focus on the *subjective* matter of utility maximization rather than on the *objective facts* of production and social relationships in a capitalist economy, we reckon it was not only the appeal of the mathematical method *per se* that was responsible for the “marginal revolution”.

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<sup>22</sup> Moseley, *op. cit.*, p.136.

Misunderstanding may produce a false sense of *complacency*. An attempted defence of the neoclassical treatment of capital, which seems to have gained some currency, is that the case against the orthodox dogma is nothing more than esoteric nonsense – on the ground that the notion of “reswitching”<sup>23</sup> is unsupported by empirical evidence. But that is to misunderstand what is at issue: given that in any economy the question of distribution has been answered according to whatever *fundamental* circumstances prevail, relative values will correspond to that distribution, and changes in relative values on account of changes in distribution are not to be expected. This is not an empirical issue – it is one of *logic*: while, with a given set of relative prices, the total value of any specified collection of producers’ goods can be calculated, such a calculation can be done only when a rate of return is already determined, and a rate of return cannot be determined by pre-supposing that such a collection of producers’ goods constitutes a certain “quantity of capital” measured in terms of value.

Another factor may be that *an element of arrogance, leading to ignorance*, exists in mainstream neoclassical thinking. If it is supposed that respectable and scientific economic analysis dates from no earlier than the marginal revolution of the late nineteenth century, people are unlikely to devote much effort to understanding the contributions of earlier writers – such as Smith, or Ricardo, or Marx. They are not then likely to be aware of just how limited in scope and method the standard body of neoclassical doctrine actually is; nor are they going to appreciate the intensity of the struggles of earlier theorists with issues of capital theory and how naïve by comparison the marginalist analysis may be reckoned. In short, they do not have in mind an alternative conceptual and theoretical framework against which marginalist models and theories could be compared and judged.

## Conclusion

What is the alternative? There is no alternative but to return to the approach associated with the older classical tradition<sup>24</sup> which, referring to a recognizable real-world surplus-producing economic system, with capitalist institutions, explains income shares in terms of the economic power of the competing parties concerned. The income shares received by competing claimants depend not on unidentifiable marginal contributions, but upon the relative abilities of rival parties, in the circumstances in which they find themselves, to command a portion of the available output. We need to look to the realities of economic power.

Adam Smith put it thus:<sup>25</sup>

What are the common wages of labour, depends everywhere upon the contract usually made between these two parties, whose interests are by no means the same. The workmen desire to

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<sup>23</sup> “Reswitching”: the term refers to peculiar implications, *incompatible with the neoclassical analysis of technology choice*, which emerge from “thought experiments” as to possible effects on relative values of the (notional) existence of different distributions of the surplus.

<sup>24</sup> Moseley (*op.cit.*, pp.136-137) identifies Marx’s theory as the main alternative theory of profit. We prefer to speak of the *classical* theory as offering the appropriate alternative, intending the adjective “classical” to comprehend in a general way the contributions of Marx as well as those of Smith, Ricardo and others. What is important here are not differences that may exist between the Smithian and Marxist approaches (primarily with respect to the labour theory of value), but what is common to both: a commitment to objective analysis of the working of a surplus-producing, capitalist industrial economy. That is what distinguishes classical political economy (in the sense in which we define it) from the fundamentally flawed apologetics of the neoclassical school.

<sup>25</sup> Adam Smith (1776), *An Inquiry into the Nature and Causes of the Wealth Of Nations*, Book I, Chapter VIII.

get as much, the masters to give as little, as possible. The former are disposed to combine in order to raise, the latter in order to lower, the wages of labour.

It is not, however, difficult to foresee which of the two parties must, upon all ordinary occasions, have the advantage in the dispute, and force the other into a compliance with their terms. The masters, being fewer in number, can combine much more easily . . . In all such disputes the masters can hold out much longer. A landlord, a farmer, a master manufacturer, or merchant, though they did not employ a single workman, could generally live a year or two upon the stocks which they have already acquired. Many workmen could not subsist a week, few could subsist a month, and scarce any a year without employment. In the long-run the workman may be as necessary to his master as his master is to him; but the necessity is not so immediate.

That looks to be a more promising way of tackling the question.

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