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Confused Confusers. How to Stop Thinking Like an Economist and Start Thinking Like a Scientist

Egmont Kakarot-Handtke*

Abstract

The present paper takes it as an indisputable fact that subjective-behavioral thinking leads, for deeper methodological reasons, with inner necessity to inconclusive filibustering about the agents' economic conduct and therefore has to be replaced by something fundamentally different. The key argument runs as follows: (a) the subjective-behavioral approach can not, as a matter of principle, afford a correct profit theory, (b) without a correct profit theory it is impossible to comprehend how the monetary economy works, (c) without this knowledge economic policy proposals are unjustifiable, (d) thinking like an economist may be hazardous to the economy.

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It is a touchstone of accepted economics that all explanations must run in terms of the actions and reactions of individuals. Our behavior in judging economic research, in peer review of papers and research, and in promotions, includes the criterion that in principle the behavior we explain and the policies we propose are explicable in terms of individuals, not of other social categories. (Arrow, 1994, p. 1)

This is probably the best answer to the question of why theoretical economics has achieved comparatively little with so much effort and the most advanced tools. Stiglitz provides more details about what it means to think like an accepted economist.

Though different economists employ different models of the economy they all use a basic set of assumptions as a point of departure. The economist's basic competitive model has three components: assumptions about how consumers behave, assumptions about how firms behave, and assumptions about the markets in which these consumers and firms interact. (Stiglitz, 1996, p. 28)

The present paper takes it as an indisputable fact that subjective-behavioral thinking leads, for deeper methodological reasons, with inner necessity to inconclusive filibustering about the agents' economic conduct and therefore has to be replaced by something fundamentally different.¹ The key argument runs as follows: (a) the subjective-behavioral approach can not, as a matter of principle, afford a correct profit theory, (b) without a correct profit theory it is impossible to comprehend how the monetary economy works, (c) without this knowledge economic policy proposals are unjustifiable,² (d) thinking like an economist may be hazardous to the economy because it involves, as the matter stands at the moment,³ having no proper idea of the fundamental concepts income and profit. Hence, doing accepted economics is like doing physics without a clear idea of force and mass.

I think it is the lack of quite sharply defined concepts that the main difficulty lies, and not in any intrinsic difference between the fields of economics and other sciences. (von Neumann, quoted in Mirowski, 2002, p. 146 fn. 49)

¹ "By having a vague theory it is possible to get either result. . . . It is usually said when this is pointed out, 'When you are dealing with psychological matters things can't be defined so precisely'. Yes, but then you cannot claim to know anything about it." (Feynman, 1992, p. 159)

² "We have long known that the conduct of economic policy requires the policy-maker to have a theory of how the economy works." (Laidler, 1993, p. xii)

³ "The currently prevailing pattern of economic theorizing exhibits the following three characteristics: (1) a syncopated style of argument fluctuating back and forth between literary and symbolic modes of expression, (2) naive translation, or the loose paraphrasing of formulae into sentences, and (3) loose verbal reasoning for certain aspects of theoretical argumentation where explicit symbolic formulation is lacking." (Dennis, 1982, p. 698)

The point is, that alone the objective-structural approach yields sharply defined concepts. This is demonstrated in the following.

Section 1 provides the formal foundations. The structural axiom set is composed of rather straightforward propositions that are not new in themselves but unique in their consistent combination. They are applied in Section 2 to the determination of the market clearing price in the pure consumption economy. In Section 3 financial profit is in direct lineage derived from the axioms. This helps to explain why the correct profit theory is, as a matter of principle, beyond the grasp of methodological individualism. In Section 4 the formalism is consistently differentiated in order to include the investment industry and to derive the General Complementarity which defines the relation between retained profit, investment, and saving. Section 5 summarizes the manifest confusion about profit with a sketchy genealogy.

1 Fundamental things

... in economics the time has not come to speak of many things, the time has come to speak of fundamental things. (Akerman, 1936, p. 122)

1.1 The whole economy in the axiomatic nutshell

The first three structural axioms relate to income, production, and expenditure in a period of arbitrary length. The period length is conveniently assumed to be the calendar year. Simplicity demands that we have for the beginning one world economy, one firm, and one product. Axiomatization is about ascertaining the *minimum* number of premises. Three suffice for the beginning.

Total income of the household sector Y in period t is the sum of wage income, i.e. the product of wage rate W and working hours L , and distributed profit, i.e. the product of dividend D and the number of shares N .

$$Y = WL + DN \quad |t \quad (1)$$

If DN is set to zero then total income consists only of wage income.

Output of the business sector O is the product of productivity R and working hours.

$$O = RL \quad |t \quad (2)$$

The productivity R depends on the underlying production process. The 2nd axiom should therefore not be misinterpreted as a linear production function.

Consumption expenditures C of the household sector is the product of price P and quantity bought X .

$$C = PX \quad |t \tag{3}$$

The axioms represent the pure consumption economy, that is, no investment expenditures, no foreign trade, and no government.

All axiomatic variables are measurable in principle. The economic meaning is rather obvious for the set of structural axioms. What deserves mention is that total income in (1) is the sum of wage income and *distributed profit* and not of wage income and profit. Profit and distributed profit are quite different things as we shall see in a moment.

Arnsperger and Varoufakis (2006) provided a precise definition of accepted economics that boils down to three axioms. This is a happy coincidence because it enables a one-to-one comparison. The second column in Table 1 summarizes obsolete behavior-centered thinking, the first column summarizes the correct point of theoretical departure.

structural axiomatic economics	neoclassical economics
$Y = WL + DN$	methodological individualism
$O = RL$	methodological instrumentalism
$C = PX$	methodological equilibration

Table 1

Note that the first column is perfectly transparent while the second delineates a philosophical morass.

1.2 Definitions

Definitions are supplemented by connecting variables on the right-hand side of the identity sign that have already been introduced by the axioms. With (4) wage income Y_W and distributed profit Y_D is defined:

$$Y_W \equiv WL \quad Y_D \equiv DN \quad |t. \tag{4}$$

Definitions add no new content to the set of axioms but determine the logical context of concepts. New variables are introduced with new axioms.

We define the sales ratio as:

$$\rho_X \equiv \frac{X}{O} \quad |t. \tag{5}$$

A sales ratio $\rho_X = 1$ indicates that the quantity sold X and the quantity produced O are equal or, in other words, that the product market is cleared.

We define the expenditure ratio as:

$$\rho_E \equiv \frac{C}{Y} \quad |t. \quad (6)$$

An expenditure ratio $\rho_E = 1$ indicates that consumption expenditure C are equal to total income Y , in other words, that the household sector's budget is balanced.

2 The commodity price

... the prevailing tendency to call propositions of pure theory "laws" is misleading and inappropriate, ... (Hutchison, 1960, p. 63)

2.1 Determination

The price follows as a *dependent* variable from the axioms (1) to (3) and the definitions (5) and (6) as:

$$P = \frac{\rho_E}{\rho_X} \frac{W}{R} \quad \text{if } Y_D = 0 \quad |t. \quad (7)$$

From this the market clearing price follows:

$$P = \rho_E \frac{W}{R} \quad \text{if } \rho_X = 1 \quad |t. \quad (8)$$

From this the supersymmetric market clearing price follows under the additional condition of budget balancing:

$$P = \frac{W}{R} \quad \text{if } \rho_E = 1 \quad |t. \quad (9)$$

The supersymmetric market clearing price is, under the stated conditions, equal to unit wage costs, that is, profit per unit is zero at any level of employment. All changes of the wage rate and the productivity affect the market clearing price. The elementary consumption economy with full price flexibility on the product market is reproducible for an indefinite time span at any level of wage rate, productivity and employment under the premise that no quantitative restrictions on the material side obtain.

The supersymmetric market clearing price is an algebraic concept. There is no such thing as a deterministic law of demand or supply. Forces that move the economy towards an equilibrium are absent.

2.2 Intuitive implications

The supersymmetric market clearing price has been determined without any assumptions about human behavior. What is more, there is no place for the behavioral assumptions that are incorporated in demand and supply schedules. This would only overdetermine the formal system. Eq. (9) fully replaces the vacuous and misleading demand–supply–equilibrium explanation.

Eq. (9) also tells us that the commonplace quantity theory cannot be true. The quantity of money is not a determinant of the market clearing price. For further details about the derivation of the quantity of money from the structural axiom set see (2011a).

Eq. (9) can be rewritten as

$$\frac{W}{P} = R \quad |t \tag{10}$$

and now states that the real wage is equal to the productivity. This implies that the real wage is not separately determined in the labor market. The usual determination by means of demand and supply schedules for labor and the implicit optimization calculus of employees and employers is therefore redundant. The commonplace tenet that the real wage must fall in order to increase employment is inapplicable to the economy as a whole. Under the given conditions there is neither a relation between employment and real wage nor between employment and profit. The real wage is determined by the axiom set and the conditions $Y_D = 0$, $\rho_X = 1$, $\rho_E = 1$.

Eq. (9) finally tells us that, if we want absolute price stability in the pure consumption economy, wage rate and productivity must always move in step; failing this we will either see inflation or deflation.

3 Profit

... one of the most convoluted and muddled areas in economic theory:
the theory of profit. (Mirowski, 1986, p. 234)

3.1 Definition

The business sector's financial profit in period t is defined with (11) as the difference between the sales revenues – for the economy as a whole identical with consumption expenditure C – and costs – here identical with wage income Y_W :⁴

⁴ Under the condition of market clearing, i.e. $\rho_X = 1$. For details about changes of inventory see (2011b, Sec. 1). Nonfinancial profit is treated at length in (2012).

$$Q_{fi} \equiv C - Y_W \quad |t. \quad (11)$$

Because of (3) and (4) this is identical with:

$$Q_{fi} \equiv PX - WL \quad |t. \quad (12)$$

With the supersymmetric market clearing price (9) inserted this gives zero profit for the business sector as a whole for all configurations of wage rate, productivity and employment. Note that a productivity increase has no effect on profit but only on the market clearing price. The same holds for changes of the wage rate. The business sector may cut wage costs or improve efficiency at libitum, profit will not appear before the invisible hand makes $\rho_E > 1$ or $Y_D > 0$. Accepted microeconomic thinking is obviously inapplicable to the economy as a whole.

From (11) and (1) follows:

$$Q_{fi} \equiv C - Y + Y_D \quad |t. \quad (13)$$

The three equations are formally equivalent and show profit under different perspectives. Eq. (13) tells us that overall profit is zero if $\rho_E = 1$ and $Y_D = 0$.

3.2 Beyond the grasp of methodological individualism

The determinants of profit look essentially different depending on the perspective. For the individual firm price P , quantity X , wage rate W , and employment L in (12) appear to be all important; under the broader perspective of (13) these variables play no role at all.

The individual firm is blind to the structural relationships as given by (13). On the firm's level profit is therefore subjectively interpreted as a reward for innovation or superior management skills or higher efficiency or toughness on wages or for risk taking or capitalizing on market imperfections or as the result of monopolistic practices. These factors play a role when it comes to the *distribution* of profits *between* firms and these phenomena become visible when similar firms of an industry are compared. The case is perfectly clear when there is only one firm. It is a matter of indifference whether the firm's management thinks that it needs profit to cover risks or to finance growth or whether it realizes the profit maximum or not. If the expenditure ratio is unity and distributed profit is zero, profit as defined by (13) will invariably be zero, no matter what the agents want or plan.

From the structural axioms and definitions follows in direct lineage:

- The business sector's revenues can only be greater than costs if, in the simplest of all possible cases ($Y_D = 0$), consumption expenditures are greater than wage income.

- In order that profit comes into existence for the first time in the pure consumption economy the household sector must run a deficit at least in one period.
- Wage income is the factor remuneration of labor input L . Profit Q_{fi} is not a factor income. Since capital is non-existent in the pure consumption economy profit is not functionally attributable to capital.
- Profit has no real counterpart in the form of a piece of the output cake. Profit has a monetary counterpart.
- The existence and magnitude of financial profit does not depend on profit maximizing behavior of the firm but solely on the expenditure ratio of the household sector.
- The value of output is, in the general case, different from the sum of factor incomes. This is the defining property of the monetary economy.
- Only in the limiting case $Y_D = 0$, $\rho_X = 1$ and $\rho_E = 1$ is the value of output equal to factor income, i.e. $C = Y_W$. This is the zero profit case.

The fundamental error of value theory is to start from the *premise* that the value of the output of goods and services is always equal to the sum of factor incomes. This error can be traced back to Adam Smith (2008, p. 155).

Under the condition $C = Y$ financial profit Q_{fi} is according to (13) numerically equal to distributed profit Y_D . The fundamental difference between the two variables does not catch the eye in this *limiting* case. The equality of profit and distributed profit is an implicit feature of equilibrium models. These have *no* counterpart in reality. In the real world holds $C \neq Y$, hence profit and distributed profit are never equal.

Models that are based on the familiar definition total income \equiv wages + profits are erroneous because profit and distributed profit is not the same thing.

The fallacy of composition is, as a side-effect of methodological individualism, the prevalent defect of accepted economic thinking.

3.3 Retained profit and saving: the Special Complementarity

Once profit has come into existence for the first time (that is: logically – a historical account is a quite different matter) the business sector has the option to distribute or to retain it. This in turn has an effect on profit. This effect is captured by (13) but it is invisible in (12). Both equations, though, are formally equivalent.

Retained profit Q_{re} is defined for the business sector as a whole as the difference between profit and distributed profit in period t :

$$Q_{re} \equiv Q_{fi} - Y_D \Rightarrow Q_{re} \equiv C - Y \quad |t. \quad (14)$$

Retained profit is, due to (13), equal to the difference of consumption expenditures and total income.

The household sector's financial saving is given as the difference of income and consumption expenditures:

$$S_{fi} \equiv Y - C \quad |t. \quad (15)$$

In combination with (14) follows:

$$Q_{re} \equiv -S_{fi} \quad |t. \quad (16)$$

Financial saving and retained profit always move in opposite directions. Let us call this the Special Complementarity. It says that the complementary notion to saving is *not* investment but negative retained profit. Positive retained profit is the complementary of dissaving.

Eq. (16) tells us that the plans of households and firms are in the general case not compatible. If, in the pure consumption economy, the households realize their saving plans firms cannot realize their profit plans. This poses a serious theoretical problem if equilibrium is defined in behavioral terms as compatibility of all individual plans.

4 Micro and macro consistency

... saving and investment are, necessarily and by definition, equal – which after all, is in full harmony with common sense and the common usage of the world. (Keynes, quoted in Coates, 2007, p. 91)

... Keynes, too, sometimes gave the impression of not having fully grasped the logic of his own system. (Laidler, 1999, p. 281)

We are now ready to move from the pure consumption economy to the much more complex investment economy. Based on the differentiated formalism it is assumed that the investment goods industry, which consists of one firm, produces $O_I = X_I$ units of an investment good, which is bought by the consumption goods industry to be used for the production of consumption goods in future periods. The households buy but the output of the consumption goods industry (for details see 2011c). From (11) then follows for the financial profit of the consumption and investment goods industry, respectively:

$$\begin{aligned} Q_{fiC} &\equiv C - Y_{WC} \\ Q_{fiI} &\equiv I - Y_{WI} \end{aligned} \quad |t. \quad (17)$$

Total financial profit, defined as the sum of both industries, is then given by the sum of consumption expenditure and investment expenditure minus wage income which is here expressed, using (1), as the difference of total income minus distributed profit:

$$Q_{fi} \equiv C + I - (Y - Y_D) \quad (18)$$

$$\text{with } Y_W \equiv Y_{WC} + Y_{WI} \quad |t.$$

From this and the definition of financial saving (15) follows:

$$Q_{fi} \equiv I - S + Y_D \quad |t. \quad (19)$$

Higher total financial profits on the one side demand as a corollary, i.e. as a logical implication of the definition itself, higher investment expenditure and distributed profits and lower saving on the other side. By finally applying the definition of retained profit (14) the General Complementarity follows:

$$Q_{re} \equiv I - S \quad |t. \quad (20)$$

If retained profit Q_{re} is zero, that is, if profit and distributed profit happen to be equal in (14), then, as a corollary, investment expenditure and household saving in (20) must be equal too. Vice versa, if it happens that household saving is equal to investment expenditure then, as a corollary, profit and distributed profit must be equal too. In reality, though, profit and distributed profit are *never* equal and correspondingly household saving and investment are not equal either. The fact that retained profit is different from zero in the real world can be taken as an *empirical proof* of the logically equivalent inequality of household saving and business investment. That is, all $I=S/I \equiv S$ -models are logically deficient. This includes Hick's IS-LM model. The well-known ex-ante/ex-post rationalization is beside the point for the simple reason that a meticulous recording of all transactions during one period arrives at the General Complementarity (20) which is the logical terminus of the analysis (for details see 2013). As with most other errors of accepted economics, the $I=S/I \equiv S$ -tenet ultimately depends on the wrong profit theory.

5 Summary: A sketchy genealogy of manifest confusion

We have two criteria to assess a theory: material consistency and formal consistency (Klant, 1994, p. 31). A theory must satisfy both criteria, that is to say, it can be rejected either on empirical or on logical grounds alone. As a consequence of the foregoing analysis the following statements have to be rejected on purely

formal grounds. Each one sounds plausible on its own terms but is neither formally well-grounded nor compatible with the structural axiom set.

Ricardo: ... profits would be high or low in proportion as wages were low or high. (1981, p. 110)

Marshall: The normal earnings of management are of course high in proportion to the capital, and therefore the rate of profits per annum on the capital is high, when the work of management is heavy in proportion to the capital. (2009, p. 508)

Knight: The presence of true profit, therefore, depends on an absolute uncertainty in the estimation of the value of judgment, or on the absence of the requisite organization for combining a sufficient number of instances to secure certainty through consolidation. (2006, p. 285)

Schumpeter: And since the new combinations which are carried out if there is "development" are necessarily more advantageous than the old, total receipts must in this case be greater than total costs. (2008, p. 129)

von Mises: The ultimate source from which entrepreneurial profit and losses are derived is the uncertainty of the future constellation of demand and supply. (2007, p. 293)

Keynes: Thus the factor cost and the entrepreneur's profit make up, between them, what we shall define as the *total income* resulting from the employment given by the entrepreneur. (1973, p. 23), original emphasis

Hicks: The curve *IS* can therefore be drawn showing the relation between Income and interest which must be maintained in order to make saving equal to investment. (1937, p. 153)

Samuelson: *GDP*, or gross domestic product, can be measured in two different ways: (1) as the flow of final products, or (2) as the total costs or earnings of inputs producing output. Because profit is a residual, both approaches will yield exactly the same total *GDP*. (1998, p. 392)

Debreu: ... the consumers own the resources and control the producers. Thus, the i^{th} consumer receives the value of his resources ... and the shares ... of the profit of the 1^{st} , ..., j^{th} , ..., n^{th} producer. ... Consider a private ownership economy \mathcal{E} . When the price system is p , the j^{th} producer tries to maximize his profit on Y_j . Suppose that y_j does this; the profit $\pi_j(p) = p \cdot y_j$ is distributed to shareholders. (1959, pp. 78-79)

Arrow and Hahn: Given a set of prices for all commodities, it is possible to calculate for each activity its *profit*, the excess of the values of its outputs over the value of its inputs; ... The assumptions of perfect competition imply that ... each firm chooses an activity that yields it at least as much profit as any other possible. (1991, p. 53)

Kaldor: Income may be divided into two broad categories, Wages and Profits (W and P), where the wage-category comprises not only manual labour but salaries as well,

and Profits the income of property owners generally, and not only of entrepreneurs; ... (1956, p. 95)

Kalecki: Gross profits = Gross private investment + Capitalists' consumption. (1942, p. 259)

Goodwin: Surplus=profit=savings=investment. (1967, p. 55)

Boland: The Walrasian prices correspond to the Marshallian long-run equilibrium prices where every producer is making zero excess profits. Thus, since in the short-run non-zero profit is possible, the actual short-run prices cannot always be used for aggregation. But, from the macro perspective of Walrasian general equilibrium, the *total* profits in this case cannot be other than zero (otherwise, we would need a Santa Claus to provide the aggregated positive profit) but this does not preclude the possibility of short-run profits and losses of individual firms canceling each other out. (2003, p. 150), original emphasis

Minsky: The simple equation "*profit equals investment*" is the fundamental relation for a macroeconomics that aims to determine the behavior through time of a capitalist economy with a sophisticated, complex financial structure. (2008, p. 161), original emphasis

Wickens: Implicit measure of profits $\Pi_t = -k_{t+1} + (1 + \theta) k_t$. (2008, p. 82)

Keen: ... net annual income in this simple model equals the sum of wages plus profits. (2011, p. 366)

That much is evident from even the sketchiest synopsis: "A satisfactory theory of profits is still elusive." (Desai, 2008, p. 10). Thinking like an economist is, demonstrably, a rather futile exercise.

Economists by and large believe that they are entitled to define terms as they see fit and that it is a waste of time to quarrel over words. Confusion is redefined as pluralism and in turn ascribed to complexity. While it is certainly a waste of time to quarrel over words, it is indispensable to clarify the fundamental concepts and to make sure that they are consistent. As a matter of fact, this is the most important task, the defining act of a science, or, in J. S. Mill's words, the *opus magnum*.

What are the propositions which may reasonably be received without proof? That there must be some such propositions all are agreed, since there cannot be an infinite series of proof, a chain suspended from nothing. But to determine what these propositions are, is the *opus magnum* of the more recondite mental philosophy. (Mill, 2006, p. 746), original emphasis

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