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Kakarot-Handtke, Egmont

University of Stuttgart, Institute of Economics and Law

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# The Truly General Theory of Employment: How Keynes Could Have Succeeded

Egmont Kakarot-Handtke\*

## Abstract

There is not much use to attack standard economics because deep in his heart the representative economist long knows that he is tied to a degenerating research program. The problem is, rather, that it seems to be exceedingly difficult to build up a convincing alternative. Keynes, for one, tried and was successful – albeit not fully. Unfortunately, he got some basics wrong. The conceptual consequence of the present paper is to discard the accustomed subjective-behavioral axioms and to take objective-structural axioms as the formal point of departure for the analysis of employment as the main practical issue of economics.

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\*Affiliation: University of Stuttgart, Institute of Economics and Law, Keplerstrasse 17, 70174 Stuttgart, Germany. Correspondence address: AXEC-Project, Egmont Kakarot-Handtke, Hohenzollernstraße 11, 80801 München, Germany, e-mail: handtke@axec.de

## 1 The corpus of the subject

There is no evidence to suggest that economists abandon degenerating programs in the absence of a progressive alternative. (Weintraub, 1985, p. 148)

For all intents and purposes there is not much use to attack standard economics because deep in his heart the representative economist long knows that he is tied to a degenerating research program (see for example Hahn, 1981, p. 1036). The problem is, rather, that it seems to be exceedingly difficult to build up a convincing alternative. Keynes, for one, tried and was successful – albeit not fully.

Keynes's conquest in the 1930s was due to the fact that the neoclassical theory could not account for the persistent unemployment of that decade. A generation later, persistent inflation even with less than full employment was equally decisive in ending Keynes's supremacy. (Stigler, 1983, p. 534)

Programmatically Keynes asserted that nothing less than a change of the foundational postulates of economics was needed.

... , there is no remedy except to throw over the axiom of parallels and to work out a non-Euclidean geometry. Something similar is required to-day in economics. (Keynes, 1973, p. 16)

Keynes's alternative foundations and his approach to solve the most pressing economic problem of his time can be sketched as follows:

Thus we can sometimes regard our ultimate independent variables as consisting of (1) the three fundamental psychological factors, namely the psychological propensity to consume, the psychological attitude to liquidity, and the psychological expectation of the future yield to capital assets, (2) the wage unit as determined by the bargains reached between employers and employed, and (3) the quantity of money as determined by the action of the central bank; so that, if we take as given the factors specified above, these variables determined the national income ... and the quantity of employment. (King, 1993, p. 71)

It is obvious that Keynes changed some fundamental behavioral assumptions but he did not question that economics has to be built upon a behavioral principle or law of human nature. In this he remained faithful to the methodology of the founding fathers.

From the above considerations the following seems to come out as the correct and complete definition of Political Economy: – "The science which treats of the production and distribution of wealth, so far as they depend upon the laws of human nature." Or thus – "The science relating to the moral or psychological laws of the production and distribution of wealth." (Mill, 1874, V. 30)

The idea that 'economics is a science of behaviour or that a science of behaviour is fundamental to economics' has been called methodological psychologism (Hudík, 2011, p. 147). What is common to the Classical, the Keynesian, and the Neoclassical school is the anticipation that an understanding of human behavior leads to an understanding of how the economy works. The three schools differ in their answer to the question of what the ultimate law of human nature or behavior looks like. The actual version is well known:

There is in economics, or at least among the overwhelming majority of its disciples, broad agreement as to what represents the corpus of their subject. This corpus revolves around the concept of maximizing behaviour, whether it be by the individual, firm or institution. (Blaug, 1990, p. 209)

This is the rational variant of psychologism or of what may be better called the corpus fallacy. It consists in this: From the common sense fact that human behavior is of overwhelming interest to humans does not logically follow that theoretical economics should be based upon an assumption about human behavior.

This paper starts from the observation that psychologism has been repeatedly tried and that it has consistently failed. All variants of psychologism have to be rejected. The corpus of the subject is not human behavior but the behavior of the monetary economy. The conceptual consequence is to discard the accustomed subjective-behavioral axioms and to take objective-structural axioms as the formal point of departure for the analysis of employment as the main practical issue of economics.

Section 2 first provides the new formal foundations with the set of three structural axioms. These represent the consumption economy as the most elementary economic configuration. The structural axiom set excludes all known nonentities. In Section 3 the properties of an economy with hyperbolic employment adaptation are determined as a benchmark. In Section 4 price setting is introduced and employment is taken as the dependent variable. This systemic configuration produces a positive feedback loop between wage rate and employment. It produces also a redistribution of profits between the firms that prevents a spontaneous move towards full employment. It is shown in detail how the price mechanism and the profit mechanism interact and that it is the profit mechanism that is crucial for the attainment of full employment – a point ignored by Keynes because his profit theory was defective. Section 5 concludes.

## 2 General maxim

It is proper that what is assumed in every particular case, should once for all be brought before the mind in its full extent, by being somewhere formally stated as a general maxim. (Mill, 1874, V. 46)

The formal foundations of theoretical economics must be nonbehavioral and epitomize the interdependence of the real and nominal variables that constitutes the monetary economy.

### 2.1 Axioms

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.

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  $N$ . Nothing is implied at this stage about who owns the shares.

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

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  $X$ .

$$C = PX \quad |t \quad (3)$$

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

The economic content of the first three axioms is absolutely transparent. The point to emphasize is that total income in (1) is the sum of wage income and *distributed profit* and not of wage income and profit. To recall, Keynes postulated:

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. (Keynes, 1973, p. 23), original emphasis

The treatment of profit and distributed profit makes all the difference between good or bad economics (for details see 2013a). Unfortunately, Keynes got the conceptual basics wrong. It is exactly at this inconspicuous point where the theory of employment went awry and with it the rest of the *General Theory*.

## 2.2 Definitions

### Income categories

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:

$$Y_W \equiv WL \quad Y_D \equiv DN \quad |t. \quad (4)$$

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

### Key ratios

We define the sales ratio as:

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

A sales ratio  $\rho_X = 1$  indicates that the quantity bought/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 expenditures  $C$  are equal to total income  $Y$ , in other words, that the household sector's budget is balanced.

## Monetary profit

Total profit consists of monetary and nonmonetary profit. Here we are at first concerned with monetary profit. Nonmonetary profit is treated at length in (2011).

The business sector's monetary profit/loss in period  $t$  is defined with (7) 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  $Y_W$ :

$$Q_m \equiv C - Y_W \quad |t. \quad (7)$$

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

$$Q_m \equiv PX - WL \quad |t. \quad (8)$$

This form is well-known from the theory of the firm.

## The Profit Law

From (7) and (1) follows:

$$Q_m \equiv C - Y + Y_D \quad |t \quad (9)$$

or, using the definitions (5) and (6),

$$Q_m \equiv \left( \rho_E - \frac{1}{1 + \rho_D} \right) Y \quad (10)$$

with  $\rho_D \equiv \frac{Y_D}{Y_W} \quad |t.$

The four equations (7) to (10) are formally equivalent and show profit under different perspectives. The Profit Law (10) tells us that total monetary profit is zero if  $\rho_E = 1$  and  $\rho_D = 0$ . Profit or loss for the business sector as a whole depends on the expenditure and distributed profit ratio and nothing else. Total income is the scale factor.

It is important to realize that neither Adam Smith nor the other founding fathers developed a correct profit theory (for details see 2013a). The lack of a correct profit theory since the classical suffices to make both orthodox and heterodox approaches unfit for real world application. As Hicks observed correctly:

Of all the traditional branches of economics, the theory of profits has had the greatest difficulty in attaining the "safe path of a science." Our knowledge of the causes determining value, or wages, is indeed incomplete; but in these fields we do not find, and have not found for some considerable time, that fundamental disagreement among competent writers about the mere direction of approach, or that utter failure of promising lines of inquiry to yield results of any great importance, which Kant declared to be the marks of a science still groping in the dark. (Hicks, 1931, p. 170)

### Individual monetary profit

For firm 1 individually eq. (8) reads in the case of market clearing:

$$\begin{aligned}
 Q_{m1} &\equiv P_1 X_1 - W_1 L_1 \\
 Q_{m1} &\equiv P_1 R_1 L_1 \left( 1 - \frac{W_1}{P_1 R_1} \right) \\
 &\text{if } \rho_{X1} = 1 \quad |t.
 \end{aligned} \tag{11}$$

Monetary profit of firm 1 is zero under the condition that the quotient of wage rate, price, and productivity is unity. This holds independently of the level of employment or the size of the firm. From the zero profit condition follows:

$$\begin{aligned}
 P_1 &= \frac{W_1}{R_1} \\
 &\text{if } \rho_{X1} = 1, Q_{m1} = 0 \quad |t.
 \end{aligned} \tag{12}$$

The price of product 1 is, in the simplest case, equal to unit wage costs. This is a systemic property; human behavior has nothing to do with it.

### Retained profit

Once profit has come into existence for the first time (that is: logically – a historical account is an entirely 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 (9) but it is invisible in (7). 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  $t$ :

$$Q_{re} \equiv Q_m - Y_D \quad \Rightarrow \quad Q_{re} \equiv C - Y \quad |t. \tag{13}$$



Retained profit is, due to (9), equal to the difference of consumption expenditures and total income.

### Monetary saving

The household sector's monetary saving is given as the difference of income and consumption expenditures (for nonmonetary saving see 2011):

$$S_m \equiv Y - C \quad |t. \quad (14)$$

In combination with (13) follows:

$$Q_{re} \equiv -S_m \quad |t. \quad (15)$$

Monetary saving and retained profit always move in opposite directions. This is the Special Complementarity. It says that the complementary notion to saving is negative retained profit; positive retained profit is the complementary of dissaving. There is no such thing as an equality of saving and investment in the consumption economy, nor, for that matter, in the investment economy (for details see 2013c).

If distributed profit is zero then follows as a corollary of (15):

$$\begin{aligned} Q_m &= -S_m \\ & \quad |t. \quad (16) \\ \text{if } Y_D &= 0 \end{aligned}$$

Profit is zero in the limiting case of zero distributed profit and zero saving. Otherwise profit is equal to dissaving, loss is equal to saving in a given period.

To overlook the complementary relation of saving/dissaving and loss/profit was, in a sense, the self-implemented central flaw of the classical theory of growth and distribution.

### 2.3 Nonentities excluded

Equilibrium in whatever definition is not taken into the premises. Methodologically, this would amount to a *petitio principii* (cf. Mill, 2006, pp. 819-827). Not admitted is, in addition, utility, optimization, and rational expectation. The first rule of theory building says: never put a behavioral assumption into the premises. The second rule says: avoid any assumptions that contradict known physical laws. Simultaneity is a case in point, foreknowledge is another. Finally, the default rule says: avoid the standard assumptions because they have not worked in the past and will not work in the future.

## 2.4 Logical implications: the market clearing price and the real wage for the economy as a whole

From (3), (5), and (6) follows the price as dependent variable:

$$P = \frac{\rho_E}{\rho_X} \frac{W}{R} \left( 1 + \frac{Y_D}{Y_W} \right) \quad |t. \quad (17)$$

This is the general structural axiomatic law of supply and demand for the pure consumption economy with one firm (for the generalization see 2014). In brief, the price equation states that the market clearing price, i.e.  $\rho_X = 1$ , is equal to the product of the expenditure ratio, unit wage costs, and the distributed profit ratio. All changes of the wage rate, of the productivity, of the average expenditure ratio, and of the income distribution affect the market clearing price in the period under consideration. We refer to this formal property as *conditional* price flexibility because (17) involves no assumption about human behavior, only the purely formal condition  $\rho_X = 1$ . Eq. (17) replaces supply-demand-equilibrium.

With (17) the real wage is *uno actu* given as:

$$\frac{W}{P} = \frac{R}{\rho_E (1 + \rho_D)} \quad (18)$$

if  $\rho_X = 1 \quad |t.$

The real wage is under the condition of product market clearing equal to the productivity  $R$  if distributed profit is zero, i.e.  $\rho_D = 0$ , and the expenditure ratio is unity, i.e.  $\rho_E = 1$ . In this limiting case, the wage income recipients get the whole product. If distributed profit is greater than zero and the expenditure ratio is greater than unity the real wage is less than the productivity. Under the condition of budget balancing and market clearing the real wage is determined by the production conditions and the income distribution (cf. Castle and Hendry, 2014).

The real wage is *not* determined by supply-demand-equilibrium in the labor market. The standard labor market theory is false. This conclusion follows in direct lineage from the objective structural axiom set.

## 3 Employment, price, and profit

Supply and demand are at the heart of how market economies work.  
(Mankiw, 1998, p. 519)

The primitive apparatus of the theory of supply and demand is scientific.  
But the scientific achievement is so modest, and common sense and

scientific knowledge are logically such close neighbors in this case, that any assertion about the precise point at which the one turned into the other must of necessity remain arbitrary. (Schumpeter, 1994, p. 9)

Schumpeter obviously had some trouble to convince himself that the familiar supply-demand-equilibrium has any scientific merits. It has none. We have already seen that the objective structural law of supply and demand (17) looks very different from the familiar ‘totem of the micro’ (Leijonhufvud) and that the latter is not applicable to the labor market. It seems necessary as well as promising to apply some new economic thinking to labor market theory.

### 3.1 Hyperbolic adaptation of wage rate and employment

The business sector now consists of two firms that produce different consumption goods. To simplify matters profit distribution is excluded; the 1st axiom (1) then turns to:

$$Y = \underbrace{W_1 L_1}_{Y_{W1}=\text{const.}} + \underbrace{W_2 L_2}_{Y_{W2}=\text{const.}} + \underbrace{D_1 N_1}_{Y_{D1}=0} + \underbrace{D_2 N_2}_{Y_{D2}=0} \quad |t. \quad (19)$$

Labor input, so our first assumption, adapts to changes of the respective labor supplies. More specific, the employment adaptation is hyperbolic in the period under consideration, that is, with increasing supply  $L^\theta$  the wage rate  $W$  goes down and employment  $L$  goes up, such that wage income  $Y_W$  remains constant. Vice versa if the labor supply shrinks. This holds for both firms. Hence, no matter how the labor supply changes, there is always full employment, and total income does not change at all. Hyperbolic adaptation is an idealization with some desirable properties. One of them is that employment changes in one firm do not affect the other firm provided the expenditure ratios stay put.

With increasing labor input the output of firm 1 increases. From (3), (2), and (6) follows the price under the condition of market clearing:

$$P_1 = \frac{\rho_{E1} Y}{R_1 L_1} \quad (20)$$

$$\text{if } \rho_{X1} = 1 \quad |t.$$

The market clearing price of firm 1 falls with increasing employment and vice versa. In perfect analogy one gets for firm 2:

$$P_2 = \frac{\rho_{E2} Y}{R_2 L_2} \quad (21)$$

$$\text{if } \rho_{X2} = 1 \quad |t.$$

In a growing economy with rising employment the hyperbolic relation between wage rate and employment makes that the respective market clearing prices (20) and (21) fall continuously. By consequence, the Laspeyres price index shows that a growing hyperbolic full employment economy is always deflationary. This effect is reinforced if the respective productivities increase over time. Note well that total income and total consumption expenditures remain absolutely constant.

The hyperbolic adaptations do not affect profit as can be immediately inferred from definition (7):

$$Q_{m1} \equiv \rho_{E1}Y - Y_{W1} \quad |t. \quad (22)$$

All variables remain constant independently of employment variations. The same holds for firm 2. Since their profits do not change the firms are indifferent with regard to different employment levels.

Full employment is always feasible in the pure consumption economy but depends on some critical maneuvers: (1) if there is additional supply of labor the wage rate falls, (2) if the wage rate falls the firm increases employment hyperbolically, (3) the firm reduces the price hyperbolically in order to sell the additional output, (4) the firm increases employment despite the fact that profit is the same on all employment levels.

All in all, this is a tall order, but the last condition is the most critical. Even if wage rate and price flexibility are perfect there exists, because of profit indifference, no motive for a firm to increase employment. Something like a behavioral equilibrium or disequilibrium does not exist.

This point got completely lost in the discussion about sticky wages and prices. However, this did not matter much because the discussion's outcome was anyway inconclusive. The real problem is in any case 'sticky' profit; and this means that an intrinsic economic drive towards full employment is lacking. The long standing assertion that full employment or something rather close to it is the outcome of the spontaneous working of the price mechanism is untenable. So far, Keynes's fundamental critique of what he called classicals was fully justified. Even with a perfect flexibility of wage rates and prices all employment levels are indifferent from the firms' perspective. Therefore, as a matter of principle, the unhindered and efficient working of the price mechanism does *not* guarantee full employment. The key problem at this point of the analysis is the employment indifference of the business sector.

### 3.2 Nonhyperbolic adaptation of wage rate and employment

In the general case, the product of wage rate and employment does not remain constant. With profit distribution still kept out of the picture the 1st axiom now reads:

$$Y = W_1L_1 + W_2L_2 + \underbrace{D_1N_1}_{Y_{D1}=0} + \underbrace{D_2N_2}_{Y_{D2}=0} \quad |t. \quad (23)$$

Analogous to (20) the market clearing price is given by:

$$P_1 = \frac{\rho_{E1} \left( W_1 + W_2 \frac{L_2}{L_1} \right)}{R_1} \quad (24)$$

$$\text{if } \rho_{X1} = 1, Y_D = 0 \quad |t.$$

The first thing to notice is that the market clearing price of firm 1 is no longer independent from what happens in firm 2. In the general case, the markets are entangled. By consequence we have for the market clearing price of firm 2:

$$P_2 = \frac{\rho_{E2} \left( W_2 + W_1 \frac{L_1}{L_2} \right)}{R_2} \quad (25)$$

$$\text{if } \rho_{X2} = 1, Y_D = 0 \quad |t.$$

Let us assume that the labor supply of firm 1 increases and that  $W_1$  falls as a reaction. In contradistinction to the hyperbolic case the firm does not react with an increase of employment  $L_1$ . From (24) and (25) then follows that the market clearing prices in *both* firms decline if all other variables are unchanged. Firm 2 is affected because total income falls and with it the nominal demand  $C_2$ . The respective expenditure ratios remain unchanged.

From (11) follows for the profit of firm 1:

$$Q_{m1} \equiv \rho_{E1}Y - W_1L_1 \quad |t. \quad (26)$$

In more detail this gives after substitution of (1) and rearrangement

$$Q_{m1} \equiv \rho_{E1}W_2L_2 - (1 - \rho_{E1})W_1L_1 \quad |t \quad (27)$$

and analogous for firm 2

$$Q_{m2} \equiv \rho_{E2}W_1L_1 - (1 - \rho_{E2})W_2L_2 \quad |t. \quad (28)$$

According to (27), the reduction of the wage rate  $W_1$  increases the profit of firm 1 and according to (28) it decreases the profit of firm 2. If employment follows profit then it is up in firm 1 and down in firm 2. An employment expansion that falls short

of being hyperbolic does not eliminate unemployment but only spreads it to the rest of the economy.

However, this process cannot last for long if profit has been zero in the initial period. In this limiting case firm 2 makes a loss as a consequence of the wage rate reduction in firm 1. If nothing else changes the bankruptcy of firm 2 is only a question of time. An obvious remedy is a wage cut that restores the initial zero profit configuration. Both firms then end up with lower wage rates and lower market clearing prices. The overall employment effect of a nonhyperbolic wage rate reduction in one firm is, in the final analysis, negligible.

### **3.3 Crossover adaptation**

The profit equations (27) and (28) point to an improbable but feasible behavioral combination that results in higher employment in firm 1 without adverse effects in the rest of the economy.

It is assumed that firm 1 raises employment at the going wage rate. Taken in isolation, this move reduces profit in firm 1 and boosts profit in firm 2. However, a parallel wage increase in firm 2 has the opposite effect. Hence, in combination both effects cancel out. Total income and total consumption expenditures increase. The partitioning of total expenditures, which is determined by the expenditure ratios, remains unchanged.

Compared to the hyperbolic adaption, the deflationary effect of the crossover adaptation is much smaller. This is an advantage. It is obvious, though, that the behavioral sequence that defines the crossover adaptation hardly ever occurs spontaneously.

## **4 Employment as dependent variable**

... Keynesian agents are inherently price setters, not price takers.  
(Gordon, 1990, p. 1136)

... observable economic events derive ultimately not from unspecified coordinating mechanisms, whether invisible hands, price systems, or neo-Walrasian “auctioneers”, but ... from definable actions of real people. (Clower, 1998, p. 410)

It is not some mysterious entity that sets the price, it is someone in the firm who sets the price. Of course, the price setter in a small firm faces different business conditions compared to the price setter in a giant firm, nevertheless it is in any case a person and not “the market” who sets the price. To take the price as dependent variable that clears the market is an analytical idealization; it is not a description of real world price setting. Therefore, it is a separate question whether conditional price

flexibility as introduced in Section 2.4 is at all justified or at least as a convenient approximation.

In order to analyze the logical alternative to conditional price flexibility, we now change the direction of dependency and take the price as independent variable. Thereby, the firm becomes the price setter. Analogous to the derivation of eq. (20) the price is at first given in general form, i.e. before the application of the condition of market clearing, as:

$$P_1 = \frac{\rho_{E1}}{\rho_{X1}} \frac{Y}{R_1 L_1} \quad |t. \quad (29)$$

We now invert the dependency and have employment as the dependent variable:

$$L_1 = \frac{\rho_{E1}}{\rho_{X1}} \frac{Y}{P_1 R_1} \quad |t. \quad (30)$$

This equation says that, with given expenditure ratio  $\rho_{E1}$  and given total income  $Y$ , the relationship between price  $P_1$  and quantity  $X_1$  is hyperbolic. From this then follows the inverse relationship between price and employment. It should be clear that any nonhyperbolic relationship can be represented by a combination of a hyperbolic adaptation and a change of the partitioning of the overall expenditure ratio. For the time being, the partitioning remains unaltered.

Under the condition of market clearing we get in greater detail:

$$L_1 = \frac{W_2 L_2 + Y_D}{\frac{P_1 R_1}{\rho_{E1}} - W_1} \quad (31)$$

$$\text{if } \rho_{X1} = 1 \quad |t.$$

Employment in firm 1 is positively affected by an increase of wage income in firm 2, by an increase of total distributed profit, by an increase of the expenditure ratio and by an – increase – of the wage rate  $W_1$ . At a constant price the higher wage rate is translated into higher nominal demand and ultimately into higher employment. If wage rate and price rise in step the effect on employment is nil. For an expansive employment effect the wage rate must rise faster than the price. If it is the other way round then we have inflation and growing unemployment. In other words, eq. (31) accounts also for stagflation (for details see 2012)

Within the accustomed framework of supply-demand-equilibrium the correlation of higher wage rate and higher employment is counter-intuitive. Against this it has to be pointed out that intuition is utterly misleading in a framework with price setting.

The Keynes-specific case is also covered by (31). An increase of the expenditure ratio  $\rho_{E1}$  that is not counteracted by a price or productivity increase boosts employment  $L_1$ . In the pure consumption economy, demand management is, as a matter of

course, restricted to variations of the expenditure ratios  $\rho_{E1}$  and  $\rho_{E2}$  (for the general investment multiplier see 2012, Sec. 6).

We have analogous for firm 2:

$$L_2 = \frac{W_1 L_1 + Y_D}{\frac{\rho_{X2} P_2 R_2}{\rho_{E2}} - W_2} \quad |t. \quad (32)$$

An increase of the wage rate in firm 1 has not only a positive effect on firm 1's employment but also on firm 2's. Mutatis mutandis for a wage rate increase in firm 2. Therefore, both firms together constitute a positive feedback loop that may go on for a considerable time depending on the availability of labor supply. Simultaneous adaptations of  $L_1$  and  $L_2$  are thereby excluded because of physical impossibility.

Firm 2 acts as a circuit breaker if the sales ratio, the price, or the productivity in the denominator of (32) increases in step with firm 1's wage income in the numerator. An increase of the sales ratio  $\rho_X$  means that an additional nominal demand is satisfied by running down the inventory. By consequence, there is no effect on employment in the current period. If  $L_2$  in (32) does not increase there is no positive effect on  $L_1$  in the following period in (31). If unemployment has been reduced to zero and inventories have been depleted firm 2 has no alternative but to break the feedback loop with an increase of  $P_2$ . In this case the employment effect is entirely confined to firm 1.

The interaction of (31) and (32) means that an increase of the wage rate in one firm can trigger a multiplier process that increases employment in both firms. A wage cut has the opposite effect. This is the crucial difference to the hyperbolic adaptation of Section 3.1.

From (11) follows for firm 1's monetary profit:

$$Q_{m1} \equiv (P_1 R_1 - W_1) L_1 \quad (33)$$

if  $\rho_{X1} = 1 \quad |t.$

In combination with (31) this yields:

$$Q_{m1} \equiv \frac{P_1 R_1 - W_1}{\frac{P_1 R_1}{\rho_{E1}} - W_1} W_2 L_2 \quad (34)$$

if  $\rho_{X1} = 1, Y_D = 0 \quad |t.$

The quotient declines with increasing  $W_1$ , that is, the firm's profit shrinks with an increase of the wage rate. On the other hand, the profit of firm 2 increases with  $W_1$ .



$$Q_{m2} \equiv \frac{P_2 R_2 - W_2}{\frac{P_2 R_2}{\rho_{E2}} - W_2} W_1 L_1 \quad (35)$$

if  $\rho_{X2} = 1, Y_D = 0 \quad |t.$

In the simplest case, i.e.  $\rho_E \equiv \rho_{E1} + \rho_{E2} = 1$  and  $\rho_D = 0$ , total profit is zero according to the Profit Law (10). If, in addition, zero profit for both firm holds according to (12) then with an increase of the wage rate  $W_1$  firm 1 makes a loss and firm 2 makes a profit of equal magnitude. If initial profits of both firms have been positive, i.e.  $\rho_E > 1$  and/or  $\rho_D > 0$ , then the profit of firm 1 shrinks and that of firm 2 grows.

While the profit of the business sector as a whole does, in the elementary case  $\rho_E = 1, \rho_D = 0$ , in no way depend on the wage rate, it does indeed so for a single firm. Therefore it is difficult to get the positive feedback loop going with only one firm, because this presupposes that the firm accepts a lower profit, at least in the initial period. Things are entirely different if the two firms that are formally represented by (34) and (35) move in step. In the ideal case, this leaves profits of both firms unchanged. This lockstep effect, however, is probably beyond the comprehension of myopic rationality. Or, if comprehended, it is hardly acceptable for a firm to make the first step. Since individual rationality stands in the way of an overall improvement only a coordinated action can get the positive wage rate multiplier going. This action includes that the firms refrain from price increases.

Seen from the economy as a whole, the situational logic would in the case of overall unemployment demand that the firms promote or at least accept wage rate increases at constant prices. This is strongly at odds with the myopic logic of the firm. The emotional involvements have been nicely portrayed by Adam Smith.

Our merchants and master-manufacturers complain much of the bad effects of high wages in raising the price, and thereby lessening the sale of their goods both at home and abroad. They say nothing concerning the bad effects of high profits. They are silent with regard to the pernicious effects of their own gains. They complain only of those of other people. (Smith, 1904, I. 9.24)

Because of this, the economy will not spontaneously move towards full employment, neither in the short nor in the long run. The real problem is not the downward stickiness of the wage rate but its upward stickiness. The economic Pavlovian reflex – price down/quantity up – does not work for the labor market as a whole. The structural reason is that the labor markets are not on the same plane with the product markets, but orthogonal to them. Walras's law does not extend to the labor markets (for details see 2013b). From this in turn follows that supply-demand-equilibrium is not the proper one-fits-all analytical tool.

Let us assume that firm 2, which may stand here for the rest of the economy, has absorbed the whole labor supply and is fully employed at  $L_2^\theta$ . Unemployment is confined to firm 1, which may stand here for a whole sector. Under the condition of zero profit distribution eq. (21) simplifies to:

$$L_1 = \frac{W_2 L_2^\theta}{\frac{P_1 R_1}{\rho_{E1}} - W_1} \quad (36)$$

$$\text{if } \rho_{X1} = 1, Y_D = 0 \quad |t.$$

This opens three avenues in a price setter economy for a movement from partial unemployment to overall full employment. First, via the wage rate. The requisite higher wage rate is, in dependence of the move to higher full employment labor input  $L_1^\theta$ , given by:

$$W_1 = \frac{P_1 R_1}{\rho_{E1}} - W_2 \frac{L_2^\theta}{L_1} \quad (37)$$

$$\text{if } \rho_{X1} = 1, Y_D = 0 \quad \text{with } L_1 \rightarrow L_1^\theta \quad |t.$$

The move to full employment reduces profit according to (34). In firm 2 price and profit increase according to (25) and (35).

The firm as sovereign price setter may reduce the price in order to increase sales hyperbolically and thereby ultimately employment. The requisite lower price is, in dependence of the higher full employment labor input  $L_1^\theta$ , given by:

$$P_1 = \frac{\rho_{E1}}{R_1} \left( W_1 + W_2 \frac{L_2^\theta}{L_1} \right) \quad (38)$$

$$\text{if } \rho_{X1} = 1, Y_D = 0 \quad \text{with } L_1 \rightarrow L_1^\theta \quad |t.$$

The redistribution of profits between the firms is analogous to the wage rate increase. Since  $P_1$  falls and  $P_2$  rises the effect on the price level is indefinite. The psychological hindrance inherent in this alternative is that it is not logically cogent for firm 1 to reduce price and profit in order to reduce unemployment. There is no spontaneous tendency to establish full employment. Instead, the firm will plead for a wage reduction and it can count on economists for support:

We economists have all learned, and many of us teach, that the remedy for excess supply in any market is a reduction in price. If this is prevented by combinations in restraint of trade or by government regulations, then those impediments to competition should be removed. Applied to economy-wide unemployment, this doctrine places the blame

on trade unions and governments, not on any failure of competitive markets. (Tobin, 1997, p. 11)

With price reduction is meant, in the given context, a reduction of the the wage rate. What all economists have learned and many teach is false. If implemented, the political advice of the representative economist regularly deteriorates the employment situation. The physician is worse than the illness.

Finally, the Keynesian way requires a higher expenditure ratio which is established by:

$$\rho_{E1} = \frac{P_1 R_1}{W_1 + W_2 \frac{L_2^\theta}{L_1}} \quad (39)$$

$$\text{if } \rho_{X1} = 1, Y_D = 0 \quad \text{with } L_1 \rightarrow L_1^\theta \quad |t.$$

In this case, too, the positive employment effect will spill over to the rest of the economy. The multiplier works, of course, also in the pure consumption economy without investment. The investment multiplier is only a bit more involved but not different in principle (for details see 2012, Sec. 6).

With regard to profit we have to discriminate between three configurations. Let us start with an initial zero profit situation, i.e.  $\rho_E \equiv \rho_{E1} + \rho_{E2} = 1$  and  $\rho_D = 0$ . In this case, an increase of  $\rho_{E1}$  makes that the profit of the business sector as a whole is greater than zero. The exact distribution of profit between the firms due to the multiplier effect can be left open for the moment. The dissaving or deficit spending of the households has a positive effect on employment according to (36).

Second, let us assume that in the initial period profit for the business sector as a whole has been already greater than zero, i.e.  $\rho_E > 1$  and  $\rho_D = 0$ . In this case, an increase of  $\rho_{E1}$  makes that the profit of the business sector as a whole increases.

The third configuration involves an initial loss for the business sector as a whole, i.e.  $\rho_E < 1$  and  $\rho_D = 0$ . In this case, an increase of  $\rho_{E1}$  reduces the overall loss or even turns it into overall profit. Given this initial configuration, there is no alternative to Keynesian measures. What has to be done first is to bring back the economy at least to overall zero profit. If the household sector does not spontaneously return to a configuration of, *at minimum*,  $\rho_E = 1$  and  $\rho_D = 0$  then this impulse must come from outside. In the pure consumption economy with zero distributed profit the overall expenditure ratio must not fall below unity for any length of time. In a situation with prolonged saving of the household sector, i.e.  $\rho_E < 1$ , wage rate or price changes are pointless. The price mechanism redistributes profit and loss but does not generate overall profit. And there is no guarantee that the expenditure ratio and the distributed profit ratio spontaneously produce the amount of profit that the economy needs for a proper functioning. The distinction between short and long run

is beside the point because with losses for the economy as a whole there is no long run. It is the profit mechanism, which is governed by  $\rho_E$  and  $\rho_D$ , that determines the fate of the economy and not the price mechanism. Hayek's marvel about allocation (1945, p. 527) has been and still is utterly naive.

Keynes was right, there is nothing in the economy to automatically prevent a shortfall of overall demand that lasts long enough to jeopardize the economy. There is no forceful reason why the configuration  $\rho_E < 1$  and  $\rho_D = 0$  should not last for several periods. Yet this means loss for the economy as a whole over several periods and ultimately the bankruptcy of some firms. This in turn increases unemployment. Therefore, the first thing to do is to bring back the overall expenditure ratio to unity. This, however, may not be sufficient because overall zero profit is compatible with profit for some firms and losses for others. This changes the problem situation from an overall demand deficit to the distribution of overall profit among firms. The problem of profit distribution among the sectors of the economy is different from the distribution of unemployment among the sectors. An increase of the expenditure ratio always eases the problem but in order to achieve overall full employment wage rates and product prices have to be selectively adapted. The ideal outcome would be an expenditure ratio of unity on the average and a configuration of wage rate and price in each sector that enables full employment. It is not to be expected that the whole adaptation process happens spontaneously. The simple reason is that adaptations that necessitate a profit reduction will not spontaneously be carried out by the individual firms.

In a price setter economy, also known as real world, an increase of the wage rate increases employment. Since downward flexibility of the wage rate does not eliminate unemployment, wage stickiness cannot explain unemployment. Insufficient overall demand, expressed by an expenditure ratio of less than unity, or downward stickiness of profit can. It is not true that the unhindered working of the price mechanism, as formally embodied in supply-demand-equilibrium, is sufficient for establishing full employment. This starting point of Keynes's employment theory was correct, but then things went wrong because he could not get the profit theory right.

His *Collected Writings* show that he wrestled to solve the Profit Puzzle up till the semi-final versions of his *GT* but in the end he gave up and discarded the draft chapter dealing with it. (Tómasson and Bezemer, 2010, pp. 12-13, 16)

Keynes's intended theoretical revolution could not succeed because the Keynesian and the Walrasian approach share the same error with regard to the two fundamental economic concepts income and profit. The overdue scientific revolution in economics has to get rid of *both* approaches.

## 5 Conclusion

It is there [in the principles course] that we distill our profession's accumulated knowledge and teach our fellow citizens how to better understand the world in which they live. (Mankiw, 1998, p. 519)

Why, indeed, is economics not yet a science – in the sense of representing a body of knowledge that grows cumulatively over time and has something of value to teach men and women of practical affairs? (Eichner, 1983, p. 508)

It is somewhat ironic that teachers who do not understand how the economy works profess that they help their fellow citizens to better understand the world. What exactly is the accumulated knowledge of the profession? General equilibrium theory? Or the tenet that wages must fall in order to restore full employment? There is more error in standard economics than knowledge.

Standard economics is built on indefensible premises. The best methodological rule therefore says: avoid the standard assumptions because they have not worked in the past and will not work in the future.

In the present paper, the standard subjective-behavioral axioms are replaced by objective-structural axioms. The new formal foundations are transparent and testable. All known nonentities are excluded.

The main results of the structural axiomatic analysis of employment are:

- The real wage is *not* determined by supply-demand-equilibrium in the labor market. The standard labor market theory is false.
- Even if wage rate and price flexibility are perfectly hyperbolic in the pure consumption economy, there exists because of profit indifference no motive for a firm to increase employment.
- It is in any case a person and not “the market” who sets the price. Analytically, the price is the independent variable and employment the dependent variable.
- In a price setter economy, also known as the real world, an increase of the wage rate *increases* employment. At a constant price the higher wage rate is translated into higher nominal demand and ultimately into higher employment.
- Since downward flexibility of the wage rate does not eliminate unemployment, wage stickiness cannot explain unemployment. Insufficient overall demand, expressed by an expenditure ratio of less than unity, or downward stickiness of profit can.

- It is not true that the unhindered working of the price mechanism is sufficient for establishing full employment.
- Keynes was right, there is nothing in the economy to automatically prevent a shortfall of overall demand that lasts long enough to jeopardize the economy.
- Keynes got the conceptual basics wrong. The Keynesian and the Walrasian approach share the same error with regard to the two fundamental economic concepts income and profit.
- It is the profit mechanism that determines the fate of the economy and not the price mechanism.

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