Schumpeter's Price Theory*

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ABSTRACT

Schumpeter distinguishes between the circular flow of economic activity and economic development. The former is characterised by equilibrium, while the latter involves discontinuous change. The price theory that Schumpeter associates with the circular flow is the well established Walrasian price system. However, the price theory which Schumpeter proposes for economic development is only partially developed in writings and has been largely ignored since. Yet, it is the analysis of economic development that constitutes Schumpeter's enduring contribution to economic thought. This paper provides a critical examination of Schumpeter's price theory as it applies when there is economic development.

Preliminary Draft – Not for Quotation

1. Introduction

At the outset it is important to note a peculiarity regarding the topic of this paper. Schumpeter is one of the best known and most cited economists of all time. Price theory is the now somewhat dated, but still well recognised, terminology used to refer to the central theoretical propositions of modern economics regarding the manner in which the market provides for the organisation of production and consumption. Yet, this author has so far been unable to find any explicit discussion of Schumpeter's price theory. The obvious inference that Schumpeter does not have a price theory is roundly rejected in the discussion below. The question of why his theory has been ignored for so long is left as a subject for future research.

The fundamental problem for the economy as posed by current mainstream theory is the allocation of scarce resources among competing ends. Price theory solves this problem through determining a system of prices that achieves equilibrium in terms of market supply and demand, with decision makers maximising their individual objectives subject to constraints imposed by society's scarce resources.

Schumpeter discusses the allocation of scarce resources among competing ends with given conditions of technology and consumer preferences as relating to the circular flow of economic life. For this problem, he accepts the Walrasian solution offered by the mainstream price theory of his day (Schumpeter, 1934, Chapter 1). There is nothing unique in Schumpeter's treatment of this case. However, Schumpeter extends the scope of the economic problem to include economic development.

> 'Development in our sense is a distinct phenomenon, entirely foreign to what may be observed in the circular flow or in the tendency to equilibrium. It is spontaneous and discontinuous change in the channels of the flow, disturbance of equilibrium, which forever alters and displaces the equilibrium state previously existing.' Schumpeter (1934, p.64)

Schumpeter's analysis of prices under conditions of economic development diverges from the analysis that solves the problem of allocating scarce resources in equilibrium and thereby constitutes a distinctive element of his price theory.

Schumpeter takes the prices arising from the circular flow as his starting point for the analysis of prices under economic development. However, innovation introduces a new element into price theory, as the entrepreneur who introduces the innovation receives a price that exceeds cost. This entrepreneurial profit then attracts others to the innovation,

> 'the final result must be a new equilibrium position, in which, with the new data, the law of cost rules again…..The incentive to produce more and more products will not cease before this condition is arrived at, nor before the price falls as a result of the growing supply.' Schumpeter (1934, pp. 131-2)

The idea that entrepreneurial profit results from a divergence between price and cost when products are subject to innovation characterises all of Schumpeter's examples of innovation (new processes, new products, new markets and new forms of organization) in *The Theory of Economic Development* and in his later writings on

economic development under capitalism.[1] While the profits for an individual entrepreneur are transitory, entrepreneurial profit is enduring as long as there is economic development. The existence of such profits as a permanent feature of the capitalist system undergoing development is sufficient to differentiate his theoretical structure from mainstream theory.[2] However, it is only in his epic, *Business Cycles*, that this theoretical differentiation is developed into an extended analysis of prices.

In *Business Cycles*, Schumpeter addresses the impact of innovations on the "price level" and the "price system" as well as providing detailed discussion of the prices of particular commodities. Most importantly from the perspective of understanding his price theory associated with economic development, he argues that there is a pattern of interrelated movements in prices of particular commodities, the price system and the price level, that reflects the evolution of the developing capitalist economy. Thus, the discussion below of Schumpeter's price theory emphasises the analysis contained in *Business Cycles*.

The next section focuses on Schumpeter's exposition of his theory of the price level and price system. A critique of Schumpeter's theory is presented in Section 3 and a way forward is suggested in Section 4, while Section 5 concludes.

2. Schumpeter's theory of prices in *Business Cycles*

The sub-title of *Business Cycles* is: *A Theoretical, Historical and Statistical Analysis of the Capitalist Process*. Schumpeter clearly intends *Business Cycles* to turn 'the scaffolding into a house, to embody the results of my later work, to present the historical and statistical complement, to expand old horizons.' [Schumpeter, 1939, v] Old horizons clearly refer to the theoretical framework of *The Theory of Economic Development* and his related articles on the theoretical apparatus used for analysing economic development. Thus, the analysis in *Business Cycles* is properly viewed as providing an elaboration and application of Schumpeter's approach to capitalism, including the elaboration and application of his price theory.

Specific discussion of prices in *Business Cycles* occurs after Schumpeter has set out the basic theoretical framework in the first five chapters of Volume 1 and has surveyed historical developments up to 1913 in the sixth and seventh chapters. Volume 2 begins with Chapter VIII on the price level and then Chapter X deals with prices and quantities of individual commodities. In between, there is a discussion of

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[1] For example, in *Capitalism, Socialism and Democracy* Schumpeter continues the emphasis on the creation and dissipation of entrepreneurial profit through innovation and subsequent imitation. However, here Schumpeter extends his analysis to include starting and ending points of the process in which price does not equal cost. Instead, he takes the view in discussing monopolistic practices that, 'The introduction of new methods of production and new commodities is hardly conceivable with perfect – and perfectly prompt – competition from the start.' (Schumpeter, 1942, p. 105) Thus, Schumpeter makes it clear that entrepreneurial profit is a category of income different from monopoly profit and that prices include an element missing from mainstream price theory based on equilibrium analysis.

[2] Mainstream price theory associates innovation with imperfect competition and monopoly profits, which creates a superficial similarity to Schumpeter's theory. However, in the mainstream theory monopoly profits are consistent with equilibrium in both the short and long run, whereas Schumpeter's theory incorporates entrepreneurial profit only under the conditions of disequilibrium that occur with economic development.

aggregate output and employment in Chapter IX, and following all this is a discussion of other economic magnitudes (including wages, interest rates and stock prices).

a. The theoretical framework

The analysis in *Business Cycles* adds to Schumpeter's theory of economic development by providing a time dimension to the notion of structural change driven by innovation. Schumpeter argues for a particular pattern of bunching of innovations in time and extensively analyses the working out of the adjustment to the innovations over time. The theoretical analysis of this time dimension is laid out in Chapters III to V, after Chapter II presents a discussion of the characteristics of the circular flow of an economy in the neighbourhood of equilibrium.

In Chapter III, How the Economic System Generates Change, Schumpeter reviews his concept of economic development driven by innovation as set out in *The Theory of Economic Development* and other of his writings that precede *Business Cycles*. The emphasis is on entrepreneurial profit as a result of innovation and the structural change in the economy that ensues from innovation. The time dimension of these changes is omitted from the analysis in the earlier writings.

The argument that structural change resulting from innovation leads to cyclical movements in economic magnitudes is contained in Chapter IV, The Contours of Economic Evolution. Here, Schumpeter proceeds by a series of approximations. In the first approximation, the cycle has two phases: prosperity and recession.

Prosperity occurs when entrepreneurs establish their new enterprises competing for resources already employed elsewhere in the economy by established firms. The prosperity continues during the rapid expansion of the entrepreneurial firms, enhanced by imitation of the new products and production processes by new entrants and at least some established firms. However, this expansion has its limits.

As the volume of output by the entrepreneurial firm and its imitators continues to expand, the market for these products becomes saturated and prices fall, marking the onset of the recession phase of the cycle. This recession phase is a period of consolidation rather than decline. Output continues to rise as a result of the prior expansion of capacity by entrepreneurial firms and their imitators. It is only profit and price that fall in the manner normally associated with recession. (Schumpeter, 1939, pp. 142-3)

Schumpeter's second approximation adds depression and recovery to the two-phase cycle to create a four-phase cycle. The extra phases are a response to excessive expansion following an innovation and are associated with what Schumpeter labels the secondary wave.

> 'but now we shall understand that under pressure of the breakdown in the secondary wave and the bearish anticipation that will be induced by it, our process will generally, although not necessarily, outrun (as a rule, also miss) the neighborhood of equilibrium toward which it was heading and enter a new phase, absent in our first approximation…. For this phase we shall reserve the term Depression. But when depression has run its course …., the system starts to feel its way back to a new neighborhood of equilibrium. This constitutes our fourth phase. We will call it Recovery or Revival. (Schumpeter, 1939, p. 149)

While Schumpeter argues that depression and recovery are not necessary to economic development, it should be noted that each of the long cycles examined by Schumpeter in *Business Cycles* is found to have both depression and recovery phases.

The third approximation discussed by Schumpeter considers the existence of overlapping cycles of different durations. Schumpeter identifies three cycle lengths that he finds useful in applying his theory to the historical record; Kitchin cycles lasting a little over three years, Juglar cycles lasting for approximately 9 and a third years and Kondratieff cycles lasting for approximately 56 years.[3] He notes that the timing and amplitude of each of the cycles is subject to variation and that cycles are often disrupted by external factors.

Schumpeter concludes the layout of his theoretical framework in Chapter V, Times Series and Their Normal, in which he discusses the statistical method that he uses in applying his theory to historical data. Here, he notes a sharp distinction of his approach from Walrasian or Marshallian models. In particular, he states, 'Hence, we may for our purpose, define a historic variable as a variable, the Stochastic Normal of which changes owing to a change in its Theoretical Normal.' (Schumpeter, 1939, p.196) The Walrasian Theoretical Normal applies only at the beginning and end of the process of change and is, thus, of no help in explaining the time path of the variable over the period of change. Neither is the corresponding Marshallian partial equilibrium concept of any help, as change in Schumpeter's schema is discontinuous. (*op cit*, pp.197-200)

b. The price level

The structure of Schumpeter's analysis provides hints as to the role price theory plays in his analysis. Prices are neither primary nor unimportant. Rather, they are part and parcel of the overall working of economic evolution. In this sense, Schumpeter treats price theory as inseparable from his theory of economic development, which can help to explain why his price theory has been so neglected even though his theory of economic development has received so much attention.

Schumpeter's specific discussion of prices in *Business Cycles* begins at the macro level in Chapter VIII, The Price Level. Here, he first emphasises the holistic nature of his approach, warning that, 'The fact that price-level series are first to be discussed should not be interpreted to mean that we consider them first in either causal or symptomatic importance.' (Schumpeter, 1939, p. 449) However, he goes on to note, 'Our analysis, however, leads us to believe that at least the symptomatic value of price movements should be great.' (*op cit*, p. 450) This apparent contradiction reflects the difficulties that Schumpeter faces in applying his holistic analysis of patterns of change in the process of economic development to individual measures, recognising the discontinuous nature of economic development and the multitude of other factors that impinge on each measure.

Although his analysis is holistic, price movements provide a logical starting point for Schumpeter's discussion of movements in measures of economic activity.

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[3] Schumpeter is careful to note that, 'it cannot be emphasised too strongly that the three-cycle schema does not follow directly from our model – although multiplicity of cycles does – and that approval of it or objection to it does not add to or detract from the value or otherwise of our fundamental idea' (Schumpeter, 1939, pp. 169-170)

By focusing on the price level Schumpeter is able to provide clearer predictions than are possible for individual prices or for many other economic aggregates. In particular, he states:

> 'Expectations from the pure model are so definite as to make it superfluous to elaborate them beyond what has been said in Chap. IV. Price level should rise in prosperity – under the pressure of credit creation, which, under conditions embodied in the pure model, would not be compensated either by an increase in output or by any fall in "velocity" – and fall in the downgrade – under the pressure of autodeflation and of increase in output – *more than it had risen in the preceding prosperity*. (*op cit*, p. 462, italics in original)

The definiteness of these expectations rests on the discontinuous impact of innovation, leading to movement away from and then back towards the Theoretical Normal conditions of the circular flow. Thus, the beginning and end of the cycle are characterised by prices that reflect costs as would be expected in the region of Walrasian equilibrium. As innovation is expected to have a generally cost-reducing effect for affected products, the implication regarding the net downward movement of the aggregate price follows directly. Of course, this abstracts from other influences on costs and prices, which as suggested in Section 3 below is problematic under current monetary institutions and policies.

c. Prices of individual commodities and the price system

Innovation as the driving force of economic development impacts on the structure of economic activity in Schumpeter's theory. This implies that there are necessarily changes in relative prices, or in what Schumpeter refers to as the price system. While some aspects of changes in the price system are discussed in Chapter VIII, most of the discussion is postponed to Chapter X, Prices and Quantities of Individual Commodities. Here, Schumpeter deals with the details of the diverse character of price movements across commodities and with their relation to movements in corresponding quantities.

Following on from innovation, the price system changes so that the prices of products where there has been successful innovation, innovating commodities, fall, at least in quality adjusted terms, relative to prices of products not undergoing innovation.[4] This change does not occur instantaneously or uniformly according to Schumpeter. As a result, 'The reader should therefore realize from the outset … that expectation from our model is not for uniformity but for what we actually find, great variety of amplitudes, periods, and sequences that does not tell in the least against an all-pervading movement and does not spell theoretical, although it does spell statistical, irregularity.' (Schumpeter, 1939, pp. 521-2)

This disclaimer is followed by description of price movements for a range of commodities, each deflated by an aggregate price level measure, which generally show distinct cyclical behaviour, albeit with differing amplitudes, periods and

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[4] A potential exception is when the innovation involves the reorganisation of the producers in the market to form a cartel or in some other way to increase market power and raise prices above the cost of production without any improvement in product quality.

sequences. Schumpeter notes that, 'The moral of the story is that only analysis of the history of the state on an industry will explain the behavior of its price-quantity pairs.' (*op cit*, 525) Further complications to potential price-quantity patterns are noted in Schumpeter's discussion of special cases in which there are lags in production, such as coffee, hogs and shipbuilding.

A final section of Chapter X deals with entrepreneurial price policies. Here, Schumpeter focuses heavily on dispelling the popular view that imperfect competition, particularly that arising from innovations, breeds price rigidity. He concludes noting,

> 'Thus, analysis of the nature and sources of the various kinds of price rigidity we observe and of that monopolistic or oligopolistic strategy which, intentionally or nonintentionally, rationally or irrationally, is responsible for some of them, hardly lends support to the ideas many students entertain about their importance or, as some would say, growing importance for the cyclical mechanism, particularly, their dislocating effects on the rest of the system in depression. There is less genuine rigidity, and what there is of it is less dislocating, than is widely assumed. (*op cit*, p. 543)

Schumpeter clearly argues for the generality, although not uniformity, of cyclical price movements in innovating commodities.

3. A Critique

Two aspects of Schumpeter's analysis stand out as flawed. First, his expectation that the price level at the end of the long cycle is below that at the beginning abstracts from the influence of money and credit. He provides an argument suggesting that the money supply and supply of credit are essentially endogenous, yet even in Schumpeter's time monetary institutions had developed in ways to make this treatment untenable. Second, his theory suffers because there is no analysis of pricing behaviour of individual producers to support the analysis of prices of individual commodities. In this sense, his price theory is incomplete as it lacks a foundation in micro behaviour of individual enterprises.

a. Endogenous money and credit

Schumpeter's prediction that prices end the long cycle lower than at the start is a result trend that derives from the cost-reducing impact of innovation. Other influences are recognised as disturbing the expected result trend, but after reviewing the historical evidence Schumpeter states:

> 'We may sum up by saying that the great waves of economic change recorded by history show in the behaviour of the price level, but that the association is so imperfect as to make it highly unreliable for purposes of diagnosis or prognosis. Since existence and adequacy of the disturbances that we hold responsible for that imperfection can in each case be established from independent historical evidence, the fact should not be recorded against our model. Among them, monetary

disorders, which in particular account for outstanding peaks, are by far the most important.' (Schumpeter, 1939, pp. 472)

Having the result trend remain intact with disturbances implies the absence of sufficient offsetting trend in the disturbances, which as Schumpeter notes include monetary disorders. He goes on to specifically address the argument that the price level is related to gold production (in an era when the major industrial countries still generally pegged their currencies to gold).

'It does not follow that the Kondratieff wave in price level is simply due to the variations in gold production. On the contrary, it is clear – since according to that theory price level is the result of variation in monetary gold stocks (which, let us note in passing, are still more of a function of business situations than total gold stocks) and output of commodities, and since variation in the latter result, in turn, from the working of our process – that whatever the behaviour of gold, unless it should happen to be exactly compensatory, the fingerprints of the Kondratieff must show on the price-level graphs, although more or less blurred by gold production' (*op cit*, pp. 473)

The suggestion that monetary gold stocks, as opposed to total gold stocks, reflect the working of Schumpeter's process is central to understanding his position that the price level can be expected to show a declining result trend over the long cycle. Essentially, Schumpeter is arguing that the supply of monetary gold is endogenous and subservient to the working of the capitalist process that he is analysing. Schumpeter holds a similar position with respect to the supply of fiat currency in discussing those historical periods where countries have moved away from the gold standard.[5]

Systemic changes in the world monetary system have undermined Schumpeter's position on the endogeneity of money and credit. The level of liquidity available in the world economy is no longer determined solely by the profit-seeking behaviour of private banks and the vagaries of gold discoveries. Central banks in the major industrial countries have taken an increasingly interventionist position in money markets, and creation of the International Monetary Fund in the aftermath of the Second World War has enabled coordinated control of liquidity.[6] The result has been abandonment of the gold standard and a clear inflationary bias in price levels across the world. In these circumstances, Schumpeter's insistence on the dominant role of cost-reducing innovation in determining the result trend for price levels is untenable.

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[5] See, for example, his discussion of the movements of the American price level during the long wave of 1787 to 1842, an era of free banking (Schumpeter, 1939, pp. 292-296).

[6] These changes had begun before the writing of *Business Cycles* and are recognised by Schumpeter, particularly in his discussion of the reaction to the economic crisis of the 1930s by the Bank of England and the US Federal Reserve Bank. However, central bank intervention at the time was focussed on dealing with financial crises rather than guiding the long-run development of the economy (Schumpeter, 1939, pp. 88-904).

b. Entrepreneurial behaviour and competitive response

Schumpeter associates successful entrepreneurship with profit, hence with price exceeding the cost of production. Cost may fall with price remaining constant, as in the case of process innovation, or price might rise with cost remaining constant, as can occur with product innovation, or there may be some combination of falling cost and rising price.[7] However, in each case entrepreneurial profit is transitory and dissipates over time with expansion by the entrepreneur, imitation by other new or established firms and further innovation.

While Schumpeter is clear that dynamic competition leads to dissipation of entrepreneurial profit, he does not fully develop the analysis of the pattern of entrepreneurial behaviour and competitive response that leads to this dissipation. In this sense, his analysis is incomplete and exposed to attack. Even the conclusion that competition between entrepreneurs and established firms will lead to dissipation of profit cannot be assured.[8]

If profits are not dissipated through dynamic competition, the argument that the system returns to the Theoretical Norm of Walrasian equilibrium with price equal to cost is undermined and the cause of the downgrade phase of the cycle is in doubt. At the other extreme, the behaviour of entrepreneurs and the response of competitors include their investment behaviour, which in turn affects the extent to which secondary wave phenomena enhance the likelihood that recession turns into depression. Thus, a fully developed theory of behaviour at the level of the individual firm, entrepreneurial or otherwise, is required to underpin Schumpeter's analysis of the cyclical mechanism.

4. The Way Forward

The discussion above suggests that developments in monetary institutions and monetary policy have made Schumpeter's treatment of the supply of money and credit untenable, thereby undermining his theory of the price level. Resurrection of this theory would depend on the analysis of the interaction between the monetary mechanism (institutions and authorities) and. the real economy. Such a macro-level analysis is beyond the scope of this paper.[9] Instead the focus here is on suggesting improvements to Schumpeter's theory as it relates to the price system.

As noted in Section 3 (b), Schumpeter's theory of the price system lacks a foundation in the analysis of behaviour for both the entrepreneurial firm and its competitors. Here, there are a few analyses of dynamic competition among firms with heterogeneous costs that could be adapted to the circumstances of innovation in Schumpeter's schema. In particular, the lowest cost firm can be put in the place of the innovating entrepreneur and the higher cost firms as its competitors.

For example, Bloch (2000) suggests that Steindl's (1976) analysis of dynamic competition provides a useful complement to Schumpeter's macro-level discussion of

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[7] Even rising costs may occur when the product improves to such an extent that price can be increased by more than the increase in cost, as in the case of new products that better meet the needs of the buyer.
[8] Clarke and Davies (1982) presents a model of equilibrium in oligopoly with firms having differing levels of production cost. In this model, firms with lower costs don't drive their higher cost rivals from the market.
[9] The reader is referred to Warburton (1953) for an insightful discussion of Schumpeter's analysis of the price level and its relation to money and credit.

innovation and competition. Steindl posits that low cost firms initially maintain constant prices in spite of continually falling unit production costs. As long as the growth of industry demand is sufficient to absorb all of the extra capacity the firms can finance from their retained profits while keeping a constant gearing ratio. Only when capacity expansion exceeds this limit do the low cost firms engage in aggressive competition to drive high cost rivals from the industry.[10]

Alternatively, Metcalfe (2007) adapts Marshall's concept of the representative firm in developing a model of dynamic competition. The representative firm is taken to be the average firm in terms of cost, and industry price is set equal to the costs of the representative firm. Firms with relatively high costs are then unable to cover their costs and exit the industry. As high cost firms exit, the representative firm is fitter, meaning average cost and price fall. The representative firm eventually approaches best practice and heterogeneity costs become uniform through evolution of the industry, as suggested by Schumpeter's concept of creative destruction.

5. Conclusions

Schumpeter provides a theory of economic development that contains within it a theory of both the price level and the price system under conditions of discontinuous change associated with innovation. This theory is clearly distinguished from the Walrasian theory of prices in general equilibrium, which Schumpeter takes as the starting point for the process of economic development. Yet, Schumpeter's contribution has been ignored to date.[11]

The discussion presented in this paper identifies missing elements of Schumpeter's theory of both the price level and the price system. In the case of the price level, the missing element is a theory of the money supply and credit creation. Schumpeter's theory depends on the money supply and credit creation being adaptive to the process of economic development. This is clearly not the case with modern monetary institutions and policy. Thus, an analysis of monetary economics is needed to complete Schumpeter's theory

With regards to Schumpeter's theory of the price system, the missing element is identified as a foundation in the analysis of entrepreneurial behaviour and competitive response. Here, suggestions are made for completing Schumpeter's theory by adopting various existing analyses of dynamic competition.

Schumpeter's great insight is that the capitalist system is continually subjected to discontinuous change due to innovation. In *Business Cycles* he argues that as a result the economy is in conditions approximating Walrasian equilibrium only at the beginning and end of long cycles spanning more than half a century. Even then, the forces of innovation and structural change are not completely absent. While his price theory is undeniably flawed, at least it is aimed at the correct problem of analysing pricing in a capitalist system undergoing economic development.

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[10] Downie (1958) presents a related model of dynamic competition in which high cost firms may engage in innovative activities and thereby avoid extinction.

[11] At least in part, this can be explained by the exclusive focus on equilibrium prices in mainstream price theory. Schumpeter's theory deals with circumstances of profound disequilibrium.

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