5. Employment, Money and the Price-Level

G.T. Book V completes the theoretical structure of *The General Theory* by considering the relationship between the principle of effective demand, the levels of money-wages and prices, and the quantity of money. It is appropriate to consider *G.T.* Chapter 18 here, rather than relating it to investment alone, as Keynes does as part of *G.T.* Book IV, since it summarises the theory of employment as a whole before considering the price-level. Keynes gives *G.T.* Book V the title 'Money-wages and prices'; the present title reflects this alternative arrangement of the *G.T.* chapters.

G.T. Book V touches upon two policy issues which continue to be of great relevance: the relationships on the one hand between money-wages and (un)employment, and on the other, between monetary policy and inflation. The downfall of Old Keynesian economics in the 1970s was associated with the combination of inflation and high unemployment known as stagflation, so that if *The General Theory* is indeed general enough still to be relevant today, it is necessary to identify where stagflation fits within its theoretical structure.

G.T. Chapter 18 (considered here in Section 5.1) summarises the equilibrium model which Keynes has built around the principle of effective demand first set out briefly in *G.T.* Chapter 3. He then moves outside the equilibrium model, so that *G.T.* Book V is of a different character to the earlier books. *G.T.* Chapter 19 (Section 5.2) considers (mainly) the causal link running from money-wages via the quantity of money to employment; *G.T.* Chapter 20 (Section 5.3) develops the causal link in the opposite direction from employment to prices and money-wages; while *G.T.* Chapter 21 (Section 5.4) considers the resultant relationship between the quantity of money and the levels of employment, money-wages and prices. However, in contrast to the dependent variables of the model of *G.T.* Chapter 18, the money-wage and the closely related price-level are not treated as equilibrium values, held continuously in a stable position by competitive forces.

5.1 THE EQUILIBRIUM SUB-SYSTEM OF *THE GENERAL THEORY*

G.T. Chapter 18 is the source of the Old Keynesian representation of *The General Theory* epitomised in Hicks's IS-LM model, as a system equilibrium of the goods and money markets corresponding to certain values of income and the rate of interest. The Old Keynesian IS-LM model and the Classical AD/AS model, derived from it and now found in all macroeconomics text-books, are discussed further in the Appendix. ► **A5.1.1, A5.1.2**

There can be no denying that section I of *G.T.* Chapter 18 describes a set of simultaneous equations and indeed uses the language of mathematics in setting out the parameters, independent and dependent variables of the model. Although Hicks's claim to have Keynes's blessing for IS-LM is controversial, Keynes undoubtedly assented to the interpretation, as far as it went. Note, in particular, that the original model approved by Keynes (Hicks, 1937) illustrates the determination of income, and says nothing directly about effective demand and employment. The dependent (and mutually dependent) variables of income and interest rate are equilibrium values determined by the parameters and independent variables. The equilibrium is, as we have seen in earlier chapters, the outcome of a Marshallian process of individual optimisation in competitive markets with flexible relative prices, and not a matter of the quantity adjustments portrayed in the Old Keynesian interpretation. The equilibrium position is defined by a mechanical model in the Classical tradition, that would have been quite acceptable to Marshall, and indeed Walras.

What is lost in the IS-LM and other simultaneous equation interpretations of *The General Theory* is Keynes's original categorisation of the independent variables as the prime movers of the system, as distinct from the given parameters. For Keynes, these independent variables are ultimately the three psychological factors, the propensity to consume, the state of long-term expectation and the preference for liquidity, together with the quantity of money expressed in wage-units. In the Classical system, the parameters alone (preferences, technology and endowment) determine the relative prices and quantities which in turn correspond to the values of income and employment, and also the quantity of real balances. In Keynes's model, there are independent variables beyond the reach of equilibrium analysis (exogenous, i.e. outside the equilibrium model, yet still variable in the short term), as well as parameters (also exogenous, but not variable in the short term).

Underlying this appears to be an insistence by Keynes that equilibrium analysis can only legitimately be undertaken with reference to a given state of

expectation. The future is not determined by the past and present, and has an independent existence reflected in the psychological factors. Thus although the model is deterministic, as all equilibrium models must be, it is not self-sufficient and closed in the sense that the parameters alone determine the outcome; rather it must be understood as a mapping of the independent variables onto the dependent. The model is open-ended, driven ultimately by changing views about the future which cannot be reduced to the parameters of the model or directly expressed numerically. The consumption function and the schedules of the marginal efficiency of capital and liquidity-preference are key analytical devices for translating these complex views about the future into relations between the Classical decision variables of price and quantity, and thus, together with the relatively Classical employment function, determining individual decisions about consumption, investment and employment. Exactly so, indeed, are consumers, investors and employers forced in practice to translate the unquantifiable and the uncertain into firm decisions about the future, and the complexity of these decisions is incorporated by Keynes into his three psychological functions. The long-term future itself cannot be modelled rigorously within the equilibrium system, but nevertheless this does not rule out attempts to explain, without invoking equilibrium, the tendencies of the independent variables over time in terms consistent with historical observations.[1]

G.T. Chapter 18 therefore presents *The General Theory* as a short-term equilibrium model nested within a larger open system, in which comparisons of different positions of static equilibrium of the model can be made, but which cannot itself be modelled in equilibrium terms. Keynes's use of equilibrium and choice of variables is heavily influenced by the observed stability of the system as a whole, on which section III places great emphasis, although these passages have subsequently spawned the 'elasticity pessimism' interpretation. As discussed in the Prologue, if the notion of equilibrium is to be of scientific value in economics, equilibrium positions must be continuous, observable and moderately stable, which also means that equilibrium must be relative to a given state of expectation, and therefore limited either to the static analysis of a point in time, or to short-term dynamics at most. Keynes strikes the right balance between what can, and what cannot, usefully be done with the Classical tools of equilibrium analysis.

5.2 THE INFLUENCE OF MONEY-WAGES ON EMPLOYMENT

Perhaps it is because the money-wage is outside the equilibrium sub-system that the myth has developed that Keynes assumes rigid money-wages, confusing this with their exogeneity in the sub-system, and with his recommendation of rigid or stable money-wages as a practical policy for price stability (*G.T.* 271). Certainly it is true that the money-wage and indeed the rents of all factor services (together making Keynes's 'cost-unit') are not determined by an equilibrium process, and do not clear the factor markets as in the Classical system. *G.T.* Chapters 19–21 consider the nature of the relationship between the money-wage and employment, thus reducing the degree to which the money-wage is exogenous to Keynes's theory as a whole, while it remains strictly so for the equilibrium sub-system. The money-wage is not beyond explanation, but it is not an equilibrium value. This may be why *G.T.* Book V is rarely cited by Classical economists, and why indeed the AD/AS model attempts to force the quantity of real balances and the money-wage back inside a closed equilibrium system.

The primary policy target of *The General Theory* was the Classical prescription that money-wage reductions would reduce unemployment. In *G.T.* Chapter 2 Keynes attacked the Classical theory of employment on two grounds, its implausible prediction of the withdrawal of labour in response to a rise in prices, and its logical inconsistency in asserting that money-wages and real wages are interchangeable concepts. After sixteen chapters of careful argument in presenting his new theory of employment based on the principle of effective demand, Keynes is at last ready to return to the question of money-wages. In large part, his new theory is itself the answer to the question, because his money variables can all be measured in wage-units without affecting their theoretical relationships (*G.T.* 260). So, in an immediate sense, he has already shown that the money-wage has no direct influence on aggregate employment. Nevertheless, given the importance of the wage-cut prescription in Classical thought, Keynes takes pains to identify the indirect repercussions of a change in money-wages, via its influence on the independent variables of the sub-system, notably the quantity of money expressed in wage-units.

Keynes identifies no less than seven possible channels of indirect influence (*G.T.* 262–4) before concluding that the only one that is remotely credible for policy purposes is through real balances (the so-called 'Keynes effect'). By assuming that the nominal quantity of money is exogenous he bends over backwards to accommodate the Classical position, noting that 'if

the quantity of money is itself a function of the wage- and price-level, there is indeed, nothing to hope [for] in this direction' (*G.T.* 266), and thus anticipating the Post Keynesian endogenous money critique of monetarism. He notes that a policy of wage-cuts becomes in pure theory equivalent to an expansive monetary policy, and is subject to at least the same limitations and constraints, in particular the risk to confidence. Furthermore, in practice a policy of wage-cuts also brings with it additional problems of enforcement, distributive justice, debt deflation and depression of the state of long-term expectation. The effects of a lower wage and of a falling wage need to be distinguished. ► **A5.2.1**

Chapter 3 of this book discussed these adjustment problems in connection with the Pigou effect and identified a debt-free, bank-free economy as the minimum precondition for a positive influence on employment, making it of no practical relevance. In terms of the present theoretical discussion, the Pigou effect represents a postulated relationship between three of the independent variables of Keynes's system, the consumption function and the quantity of money expressed in wage-units. The usual text-book argument, derived ultimately from Hicks's *Value and Capital* (1939), is that the Keynesian system describes the short-term equilibrium, and the Classical system the long-term equilibrium, where the distinction arises from the stickiness of price expectations (including wages) in the Keynesian system compared with the flexibility of prices in the Classical system. While the Old Keynesian system may correctly be described as 'fix-price', *The General Theory* itself is a 'flex-price' system, but not of Hicks's Walrasian type.

Leaving aside Keynes's expectation that increasing wealth leads in the long term to a *reduction* in the average propensity to consume, there is here a 'dimensional problem' in that the principle of effective demand relates to the short period and the Pigou effect to the long term, and if the quantity of real balances is considered part of the capital equipment, to the Classical long period. The Pigou effect simply does not fit into Keynes's equilibrium sub-system, since variables which adjust in the long term cannot bring about equilibrium in the short period. If the Pigou effect were in fact a short-period phenomenon, we would experience the violent instability of the price-level and the shattering of confidence, which are anything but conducive to increased employment, as noted by Keynes (*G.T.* 267, 269).

The Classical argument that the economy is self-adjusting towards full employment cannot be sustained by the incorrect claim that Keynes assumes fixed or sticky prices and wages. It must therefore rest upon the assumptions of a debt-free, bank-free world together with a long-period equilibrium relationship between real balances and the consumption function and its

corollary, the absence of a long-term demand for money as a store of value. This long period is of indeterminate length, both empirically and conceptually, since it has no physical foundation in production time, and certainly is not rigorous in the sense and usage of *The General Theory*, which insists that observed values of income and employment be treated as equilibrium values. The short-period employment equilibrium of the principle of effective demand requires only that a state of expectation exists at a point in time, and Keynes's long-period employment differs only from the daily short-period employment because of the relatively short time it takes to produce capital-goods; the long-period equilibrium of the Pigou effect does not have any similar physical basis or limit in the short term for its equilibrium period. It is a purely logical concept against which any and all observed values can be justified as examples of temporary disequilibrium.

In a world with an unknown future, the propensity to consume cannot be derived as an equilibrium value in the style of Fisher (1930) without a fatal loss of realism. The consumption function is caught between the opposing subjective forces listed by Keynes (*G.T.* 108–9), including Precaution, Independence and Avarice, ranged against Miscalculation, Extravagance and Generosity. None of these motives are a simple function of price; here we are dealing with the psychological and sociological fabric of society, quite unsuitable material for cutting with the Marshallian scissors.

5.3 THE INFLUENCE OF EMPLOYMENT ON MONEY-WAGES AND PRICES

Much of *G.T.* Chapter 20 is concerned with fairly complex matters of definition which might equally have appeared in *G.T.* Book II, and are a necessary preliminary to the argument of *G.T.* Chapter 21. The overall theme is the consequences of *changes* in effective demand. Section I returns to the aggregate supply function and its close cousin, the employment function, and defines elasticities of employment, output, money-wages and prices with respect to effective demand. ► **A5.3.1** Section II addresses the implications of the distribution of employment and provides another perspective on the short-term dynamics arising from production time, already considered at *G.T.* 50–51 and 122–4. ► **A5.3.2** Section III considers the implications of full employment and the definition of inflation, as a rise in prices *pari passu* with money-wages. ► **A5.3.3**

Section IV, by contrast, briefly restates the principal theme of *G.T.* Chapter 2, that *The General Theory* is a theory of a competitive monetary

production economy based on wage labour, in which firms make the hiring decisions and bargain with workers over money-, not real, wages. Although workers as a whole can demand and may receive higher money-wages in buoyant employment conditions, they cannot demand work at lower real wages when output falls, since accepting lower money-wages will not achieve this objective.

Leaving aside the technical detail, there are three other major points to be made about this chapter. Firstly, this is principally a discussion of the consequences of changes in effective demand, not aggregate demand. Although Keynes does discuss changes in aggregate expenditure or demand, he never loses sight of the fact that effective demand represents the equilibrium between aggregate supply and demand, and cannot be reduced to either one.

Secondly, it has not generally been recognised that the employment function represents the 'macrofoundation of microeconomics'. The fact that Keynes gives *G.T.* Chapter 20 the title 'The Employment Function' suggests an importance beyond its use to analyse the influence of changes in employment on money-wages and prices. The employment function is the inverse of the aggregate supply function, expressed in wage-units, except that it is a relation between effective demand (rather than aggregate supply price) and employment. Effective demand is the resultant of equilibrium across all product markets and is not struck, as often depicted, by the clearing of a market for homogeneous output. When output and the capital equipment are heterogeneous, the repercussions between markets must be taken into account, as Classical general equilibrium theorists have made clear. The Marshallian supply curves of individual industries and firms are no more independent of the volume of output and employment of industry as a whole than are the individual industry demand curves. Something needs to fix the equilibrium level of aggregate employment: in the Classical system this is the combination of factor endowment, technology and preferences, while in *The General Theory* it is effective demand. ► **A5.3.4**

Thirdly, the distinction between income and effective demand emerges once again in section III (*G.T.* 288), when Keynes refers to the windfall gains arising from changes in the state of expectation, in contrast to the profits entrepreneurs expect as a result of their own actions. The first and third points suggest that although Keynes did not consider stagflation, it is in the interstices between income, aggregate demand, aggregate supply and effective demand that it can be located within a Marshallian perfect competition equilibrium model. The big questions are: how can demand-pull inflation exist below full employment, and how can it be generated

independently of cost-push pressures from labour and other factors of production? The Epilogue will offer tentative answers to these questions. For the moment, note firstly that if aggregate demand in the expenditure sense (what Chick (1983) calls *D*) at the end of a production period exceeds aggregate demand in the sense of entrepreneurs' expectations (what Chick calls D^e) at the beginning of the production period, realised market prices will exceed the original expectations and the income realised from final output will exceed the effective demand that originally called it forth at the beginning of its production period. Secondly, ordinary supply prices (gross of user cost) may rise independently of aggregate supply prices (net of user cost), through a rise in marginal user cost. User cost provides an unexplored theoretical link from the demand for existing capital-goods to the prices of new output.

5.4 MONEY AND THE PRICE-LEVEL

Section I of *G.T.* Chapter 21 is an important recapitulation of Keynes's claim to offer a theory of the competitive price and quantity equilibrium, a theory of value and distribution based on supply and demand, of a monetary production economy. The passage on *G.T.* 293–4 is similar to Keynes's 1937 summary of *The General Theory* (*C.W.* XIV, pp. 109–23), in making a two-fold division, firstly between what we would now call microeconomics and macroeconomics; and secondly, between a state of expectation which is stationary and objectively correct, and one which is shifting and subject to continual revision as the future unfolds. Modern Classical theory (even in the form of inter-temporal general equilibrium) is a theory of stationary equilibrium in Keynes's sense, which encompasses steady state growth (*G.T.* 48, n1) and stochastic risk ('risk proper') as well as the stationary state; and accordingly reduces macroeconomic analysis to little more than its traditional microeconomic form. Once a shifting state of expectation is admitted, money (and specifically, liquidity-preference) cannot be detached from the theory of value. For Keynes, nevertheless, it remains essentially Marshall's theory of value.

The main purpose of *G.T.* Chapter 21 is to present, in sections III–V, a General Theory of the relation between the quantity of money and the price-level, which includes and replaces the Classical Quantity Theory. Section VI expresses Keynes's theory in an optional 'mathematical concoction', which he takes pains to distance from the theory itself, by defining a Marshallian elasticity of the price-level with respect to changes in the quantity of money,

itself composed of a chain of subsidiary elasticities, including those introduced in *G.T.* Chapter 20. This 'money-stock elasticity of the price-level' may be regarded as a replacement for the Classical (Cambridge) quantity equation $MV = Y$. ► **A5.4.1** The value of this elasticity can in general lie between zero and unity, while the Classical quantity theory admits only unity. Both Keynes's elasticity and the Classical quantity equation are of course identities, mere definitions with no causal content in themselves.

The relationship of this elasticity to the causal equilibrium sub-system is that it expresses the effect of a change in one of the independent variables of the sub-system (the quantity of money) both directly, and indirectly through the repercussions of changes in employment, on another independent variable, the money-wage. Keynes's emphasis on neglected partial differentials is a reminder that this feedback to the money-wage is only one of the possible indirect channels. Since the direct relationship between the quantity of 'real' balances and the 'real' prices in each industry, both measured in wage-units, is determined by the other independent variables and parameters of the equilibrium sub-system, the only additional causal relation included explicitly by Keynes in defining his elasticity is that between employment and money-wages, and this he takes to be fairly self-evident (*G.T.* 301), although not always open to 'theoretical generalisation' in the form of an elasticity based on a continuous function, let alone as a Phillips curve relation between *un*employment and the rate of growth of money-wages.

In the final section VII Keynes considers the long-term relationship between the quantity of money and the price-level and offers an explanation of its perceived long-term stability. The prohibition of attempts to use equilibrium analysis in this explanation is repeated ('This is a question for historical generalisation rather than for pure theory', *G.T.* 306). The existence of a 'stable proportion ... to which the psychology of the public tends sooner or later to revert' (*G.T.* 307) does not presume or imply a mechanical equilibrium relation between the quantity of money expressed in wage-units and the propensity to consume. The adjustment takes place through a rise in money-wages when employment is buoyant, tending to reduce real balances, offset to a greater or lesser extent by a rise in the efficiency of labour, and by a rise in the nominal quantity of money when the rate of interest is significantly above the psychological minimum acceptable to the holders of wealth. These changes in the wage-unit, technology and the money stock represent changes in the independent variables and parameters of the equilibrium sub-system, but they are not themselves part of the sub-system.

In this final section Keynes permits himself a diagnosis of the nature of the contemporary depression of the 1930s and the relative prosperity of the nineteenth century, returning to the themes sounded at the ends of *G.T.* Chapters 16 and 17. However, these are taken up in earnest in *G.T.* Chapter 24, which is part of the subject of our next chapter.

NOTE

1. There is a considerable literature on the appropriateness of the use of formal closed models to describe open systems, characterised by time, human agency and/or complexity. See O'Donnell (1997), Chick and Dow (2001) and Lawson (1997, 2003) for an introduction.