

PART II

*Keynesian Disequilibrium
Dynamics in the Short Run*

The Keynesian Principle of Effective Demand

1. *Introduction: Keynes versus Wicksell*

There is little doubt that Keynes regarded the principle of effective demand as one of his most fundamental contributions to economic science—perhaps the most fundamental of all. This principle may be summed up by saying that the scale of output and employment as a whole is determined chiefly by the equilibrium between demand and supply of output as a whole (i.e., by the volume of effective demand).¹ His *General Theory* is indeed “primarily a study of the forces which determine changes in the scale of output and employment as a whole” (Keynes 1936, p. vii). He accused (neo-)classical economists of having tacitly assumed Say’s law and thus artificially removed all the obstacles to full employment in their economic system. Keynes then asserted that “if [Say’s law] is not the true law relating the aggregate demand and supply functions, there is a vitally important chapter of economic theory which remains to be written and without which all discussions concerning the volume of aggregate employment are futile” (1936, p. 26).

Wicksell’s theory of cumulative process, developed about forty years prior to *The General Theory*, already contained a germ of a “theory of the demand and supply of output *as a whole*.” For, as noted at the outset of part I, its starting point was the simple idea that if general prices rise, it must be due to an excess demand of *all commodities* relative to their supply. As Keynes was to do later, Wicksell then accused the advocates of the Quantity Theory of Money and of the orthodox neoclassical equilibrium theory of having “not sufficiently considered” the implications of the possible divergence between the demand and supply of all commodities, that is, of the possible breakdown of Say’s law, stating that they “usually made the mistake of postulating their [conclusions] instead of clearly proving them” (Wicksell 1935, p. 160).

The Keynesian principle of effective demand and the Wicksellian approach to economic dynamics part company at this point, however.

1. See *The General Theory* (1936, chap. 3) or Keynes’s own summary (1937a).

Wicksell's theory of output as a whole was inherited and expanded by the Stockholm school economists (as well as by Keynes himself in *Treatise on Money*). The Stockholm school placed the fundamental importance on the divergence between "looking forward" (or *ex ante*) and "looking backward" (or *ex post*) and sought the cause for this divergence in the imbalance between total product demand and total product supply or, which becomes equivalent under appropriate definition of saving, between *ex ante* investment and *ex ante* saving. This approach is, in other words, primarily a disequilibrium-theoretic one. Bertil Ohlin, one of the representatives of the Stockholm school, summarizes the method of the Wicksellian approach as follows:

There is no reason why the planned investment plus the planned consumption should be equal to the expected total income for society as a whole. In other words, the planned investment will differ from the planned saving, unless they should happen to be equal by mere chance. Owing to this difference, expectations will not be fulfilled. At the end of the period people will find that their incomes, investment and savings during that period have not been what they expected them to be. Consequently, the expectations, plans and actions with reference to the next period will differ from what they were in the last period. The economic situation will change in a way which can only be explained through a study of how these differences between expectations and the actual course of events during one period influence expectations and actions in the future. [1937a, p. 237]

Ohlin then attacked the methodology of Keynes and denied even the validity of equilibrium analysis. He said, for example:

Thus, I cannot find that the economic system tends towards a stable equilibrium described by simple reference to the change in the volume of investments. It is highly improbable that the system ever gets to a state where expectations are fulfilled. . . . Nor is there a tendency to move in the direction of some such position. And if the system should happen to get into such a position, this does not mean that it tends to remain there. [1937a, p. 238]

The Keynesian principle of effective demand, on the other hand, is much more orthodox in its methodology than is the Wicksellian approach. It is as equally equilibrium-theoretic as the (neo-)classical economics that Keynes was trying to undermine. Indeed, in a lecture he gave a year after the publication of *The General Theory*, he remarked:

I'm more classical than the Swedes, for I am still discussing the conditions of short-period equilibrium. Let us suppose identity of *ex post* and *ex ante*, my theory remains. *Ex ante* decisions may be decided by trial and error or by judicious foresight, or (as in fact) by both. [1937b, p. 182]

In the same lecture he even asserted:

I now feel that if I were writing the book again I should begin by setting forth my theory on the assumption that short-period expectations were always fulfilled; and then have a subsequent chapter showing what difference it makes when short-period expectations are disappointed.

For other economists, I find, lay the whole emphasis, and find the whole explanation in the *differences* between effective demand and income; and they are so convinced that this is the right course that they do not notice that in my treatment this is *not* so. The method of handling has taken several different forms though the underlying thought seems to me much the same in all of them. [p. 181]²

There is thus a wide gap in methodology between the equilibrium-theoretic Keynesian principle and the disequilibrium-theoretic Wicksellian approach, and both claim to be *the* most fundamental breakthrough in the construction of the theory of output, employment, and prices for the society as a whole.

The analysis given in chapter 3 demonstrated that in a flexible-wage Wicksellian economy, the Keynesian principle of effective demand is not capable of standing on its own feet. The fundamental equation of the product market asserted that as long as there is an imbalance between total product demand and supply in the sense that the product market has a "gap," a majority of firms' expectations about the state of product demand are necessarily upset and these inevitable disappointments and the consequent revisions of expectations bring about a cumulative price inflation or deflation in the product market. Similarly, the fundamental equation of the labor market asserted that, as long as there is an imbalance between total labor demand and supply in the sense that the labor market has a "gap," a majority of firms' expectations about the state of labor supply are necessarily upset, and the similar "endogenous" dynamic force brings about a cumulative wage inflation or deflation in the labor market. It is thus these imbalances or gaps that constitute the chief motive force of the Wicksellian economy. Indeed, it was proved in chapter 3 that "the assumption that short-period expectations are always fulfilled" is in the Wicksellian economy tantamount to assuming Say's laws of the product and labor markets, thereby inviting back the beautiful neoclassical equilibrium theory that Keynes sought to dispel. In the Wicksellian economy, the level of total product demand is relevant only in so far as it determines, together with the given level of total product supply, the value of product market gap (and indirectly influences the value of labor market gap) and thus causes an inevitable divergence between *ex ante* and *ex post*. We may thus conclude that, within the confines of the flexible-wage Wicksellian economy, the Wicksellian

2. Kregel (1976) contains insightful discussions on this equilibrium-theoretic nature of Keynes's short-run analysis.

approach, which lays the whole emphasis on the *gaps* and the resulting disappointments of expectations in the analysis of the evolution of the economic process, possesses an overwhelming theoretical supremacy over the Keynesian principle of effective demand.

Can we salvage the Keynesian principle of effective demand from wreckage? The answer is affirmative. In Part II, I attempt to "rescue" Keynesian economics. The starting point of such an endeavor is, not surprisingly, the removal of the Wicksellian assumption of part I that money wages are perfectly flexible at the beginning of every period. Instead, we shall now introduce the Keynesian assumption that money wages are not completely flexible, even at the beginning of a period.

Indeed, in order to present the Keynesian principle of effective demand in its purest form and to bring out in full relief the fundamental difference between the workings of the economy with and without the inflexibility of money wages, we shall swing the pendulum from one extreme to another and introduce in chapter 4 (and in that chapter only) an "ultra-Keynesian" assumption that money wages are *absolutely* rigid.

Once the Wicksellian assumption of flexible money wages is replaced by this ultra-Keynesian assumption of absolute money wage rigidity, the knife-edge property of the Wicksellian economy will vanish without traces, and an economy that has an entirely opposed feature will emerge in its place. First, it will be argued that, whereas any nonzero gap still leads to endogenous creation of surprises in the product market, the assumed absolute rigidity of money wages now deprives the labor market gap of the power of causing any endogenous surprises, no matter how large it might be. Consequently, any value of labor market gap and hence any level of total labor employment (below full employment) that is determined by equilibrium between total product demand and supply (in the sense of zero product market gap) becomes consistent with Expectational equilibrium of the economy as a whole. This is, of course, nothing more than the restatement of the Keynesian principle of effective demand within the framework of our disequilibrium economic dynamics. Second, it will be shown in chapter 4 that any imbalance between total demand and supply in the product market will induce "quantity" variables to move in a direction that restores their balance. Thus, under the assumption of absolute money wage rigidity, the economy may find itself in stable equilibrium at any level of total labor employment, as long as it does not exceed the full-employment level.

However, such a resurrection of the Keynesian principle in no way deprecates the importance of the disequilibrium-theoretic method of the Wicksellian approach. The primary object of chapter 5 is, in fact, to provide a synthesis of the Keynesian principle and the Wicksellian approach. To this end, we let the pendulum partially swing back and find a balance between the two extreme positions. More specifically, we abandon the ultra-Keynesian

assumption of the absolute money wage rigidity and suppose more generally that the firm has to incur a certain cost of adjustment every time it changes its money wage. This is our somewhat novel formalization of the notion of money wage inflexibility in the world of monopsonistic competition.

It will then be shown that under this general formulation of money wage inflexibility, there is a band of values of the labor market gap, called the equilibrium band, within which firms' simultaneous wage adjustment activities are mutually compatible but outside which they become incompatible. As a result, as long as the labor market gap remains within this band, the economic system behaves like the one characterized by the Keynesian principle of effective demand. But as soon as the labor market gap strays away from the equilibrium band, firms' expectations about the state of labor supply are inevitably upset by the very aggregate outcome of their money wage adjustments. If it sinks below the lower barrier of this band, the economy will be likely to plunge into a cumulative deflation process or a "crisis," and if it jumps above the upper barrier, it will be likely to set in motion a cumulative inflation process or an "inflationary hysteria." The analysis of these disequilibrium situations is of course the special province of the Wicksellian approach. We are therefore able in chapter 5 to make a happy reconciliation between the Keynesian principle of effective demand and the Wicksellian approach to economic dynamics and show that they are not competitive, but rather complementary methods for analyzing the Keynesian economy—the former being more effective in characterizing its equilibrium and the latter being indispensable for describing the course of events in disequilibrium.

Perhaps what is most fundamental to our inquiry is not this happy marriage of Keynes and Wicksell as such; it is rather the implication it has in our search for the possible "anchor" of the monetary economy, which was shown in part I to lack any inherent stability. For our synthesis implies that it is the inflexibility of money wages that empowers the monetary economy with a stable character by blunting the knife-edge condition for the mutual compatibility of the decisions of firms. And as money wages become more rigid, the more immune the economy becomes from crisis or from inflationary hysteria. This may be characterized as a paradox of rationality. The inflexibility of money wages, which often appears to be the result of the irrationality of workers or employers at the microscopic level, in fact bestows a certain rationality on the dynamic working of the monetary economy as a whole.

But we seem to have anticipated too much of the following story. We better start giving a full account of it.

2. *The Ultra-Keynesian Assumption of the Absolute Rigidity of Money Wages*

Let us start our analysis of the equilibrium and dynamics of the ultra-Keynesian economy. The existence of a nonzero labor market gap represents an overall

imbalance between demands and supplies in the labor market. When it is positive, at least one firm, and usually most, experiences a supernormal excess demand for labor; when it is negative, most firms experience a subnormal excess demand for labor. If money wages were flexible, then in order to eliminate such supernormal or subnormal excess labor demands, firms would simultaneously attempt to adjust their relative wages by raising or lowering money wages. It is this simultaneous bidding up or down of money wages that would create surprises endogenously and upset firms' expectational equilibrium in the Wicksellian labor market. But as soon as the assumption of absolute rigidity of money wages is introduced into our theoretical framework, firms are simply deprived of the means of adjusting their relative wages, no matter how supernormal or subnormal their excess labor demands are. They have no alternative but to accept any ratio of labor demand to supply.³ In consequence, surprises can no longer be created endogenously in the ultra-Keynesian labor market. We can thus maintain that under the assumption of absolute money wage rigidity, any macroscopic imbalance between labor demand and supply, that is, any value of the labor market gap, is consistent with Expectational equilibrium of the economy as a whole. Since the value of the labor market gap is negatively correlated with the aggregate rate of involuntary unemployment and hence positively correlated with the level of total labor employment,⁴ this implies that any aggregate rate of involuntary unemployment (as long as it is non-negative) and any level of total labor employment (as long as it is below the level of total labor supply) are consistent with Expectational equilibrium.

On the other hand, since we still retain the assumption of the complete flexibility of product prices at the beginning of every period, the emergence of any nonzero product market gap necessarily renders firms' relative price adjustments mutually incompatible and inevitably disrupts their expectational equilibria. Thus, even in this ultra-Keynesian economy, Expectational equilibrium still requires as its precondition the absence of any gap in the product market.

3. *The Keynesian Principle of Effective Demand*

The Keynesian principle of effective demand maintains that the scale of total labor employment is determined by the equilibrium relation between total product demand and supply. Keynes asserted in a lecture, quoted earlier, that this principle holds true even when *ex post* and *ex ante* coincide with each

3. It is true that the firms "can" control their own effective demands for labor. But once money wages are fixed, their levels are determined solely by their expectations of the state of product demand in the future in the short run. Recall that the effective demand for labor was defined as the level of labor employment that would maximize the expected gross revenue were there no labor supply constraint.

4. The relation between the value of labor market gap and the aggregate rate of involuntary unemployment is discussed in detail in chapter 5.

other (1937b, p. 182). We are now in a position to establish the Keynesian principle of effective demand in a state of Expectational equilibrium of our ultra-Keynesian economy.

Any college sophomore knows that, given the schedule of marginal efficiency of investment of producers, the propensity to consume of households, the liquidity preference of asset holders, the central bank's monetary policy, the government taxes and expenditures, and other factors, the volume of total product demand is determined primarily by the current as well as past levels of total income in the hands of spenders in the product market. Since the level of total income is positively correlated with the level of total labor employment, there should also exist a strong positive relationship between the volume of total product demand and the level of total labor employment in the current as well as in past periods. Their relationship, written $X_t = X(N_t, N_{t-1}, N_{t-2}, \dots)$, can be called the total demand schedule. This corresponds to what Keynes called aggregate demand function in *The General Theory* (1936, p. 25).

On the other hand, at the end of every period, each firm determines its employment by comparing its effective labor demand and a given labor supply, and starts its production activity from that moment. Output appears in the product market after the elapse of a production period τ . The level of total product supply is then the economy-wide aggregate of each firm's output decision and thus the aggregate consequence of each firm's labor employment decision τ periods earlier. Given the technological conditions of production and available stock of capital goods, there is therefore a strong positive relationship between the volume of total product supply Q_t and the level of total labor employment τ period earlier $N_{t-\tau}$. Their relationship, written $Q_t = Q(N_{t-\tau})$, can be called the total supply schedule. This corresponds to Keynes' aggregate supply function in *The General Theory* (1936, p. 25).

We now have both the total demand and the total supply schedule. Our next task is to find an equilibrium between them. Indeed, we already know (see proposition 3-1') that for the economy to be in Expectational equilibrium, the product market gap has to be zero, so that we have

$$\left(\frac{X_t}{Q_t} - G^* \right) / G^* = 0 \quad \text{for } t = 1, 2, \dots$$

This is simply the equation that balances demand and supply of output as a whole and hence "clears" the market for it. If we substitute the total demand and the total supply schedule in this market-clearing equation and solve it, we are then able to determine the level of total labor employment, or its trajectory over time, which is capable of sustaining the balance between demand and supply of output as a whole. Since under the assumption of absolute money wage rigidity any level of total labor employment, as long as it does not exceed the level of total labor supply, is consistent with Expectational equilibrium, the level of total labor employment thus "solved" defines an equilibrium position

of the economy. We have thus established:

Proposition 4-1 Under the assumption of the absolute rigidity of money wages, the total labor employment in a state of Expectational equilibrium is fixed at whatever level is required to balance the total demand and supply schedules in the product market. Its ultimate determinants are thus the marginal efficiency of investment, the propensity to consume, the schedule of liquidity preferences, the supply of cash balance, the government taxes and expenditures, and other factors upon which the shape of the total demand schedule depends, as well as the conditions of technology and the stock of capital goods upon which the shape of the total supply schedule depends. There is no a priori reason to expect that the equilibrium level of employment thus determined is equal to the full-employment level.

Simple though it is, this is the substance of the Keynesian principle of effective demand within the framework of our disequilibrium dynamics. It is simply the all-too-familiar Marshallian demand and supply analysis applied to the determination of employment and output as a whole. As was emphasized by Keynes himself, his principle of effective demand is a mere elucidation of the conditions of Expectational equilibrium (or short-period equilibrium), in which *ex ante* and *ex post* are on average equal to each other. In contrast to the Wicksellian approach which lays the whole emphasis on the differences between total product demand and total product supply and between total labor demand and total labor supply, the Keynesian effective demand principle is based upon the conditions for their equilibrium. Its methodology is thus purely equilibrium-theoretic. Although it has often been misunderstood by his own disciples as well as by his critics, this equilibrium-theoretic nature of the principle is Keynes's main point of emphasis. For having shown that any level of employment is consistent with equilibrium, Keynes could exploit the (neo-) classical equation: equilibrium = normality = reality and assert that a situation with large involuntary unemployment is no less "normal" and no less "real" than the situation of full employment. Indeed, it is rather the situation of full employment that has the quality of unreality in the economic world of Keynes.

4. The Stability of Keynesian Equilibrium under the Assumption of Absolute Money Wage Rigidity

In an economy with absolute money wage rigidity, the situation in which no gap exists in the product market and hence no endogenous source of surprises exists in the entire economy may be given the name "Keynesian equilibrium." It is the situation in which the level of employment and output as a whole is determined by the Keynesian principle of effective demand. (Under the more general formulation of the inflexibility of money wages given in chapter 5, we need one supplementary condition to characterize the notion of Keynesian

equilibrium.) It is evident that Expectational equilibrium is, by necessity, Keynesian equilibrium. But Keynesian equilibrium is not necessarily Expectational equilibrium, for Keynesian equilibrium is a synchronic equilibrium notion that assures only the mutual compatibility of firms' simultaneous decisions at a point in time.

We now argue that under the assumption of absolute money wage rigidity, the position of Keynesian equilibrium has a stable nature in the sense that any movement away from it sets in motion forces that tend to restore it.

To see this, suppose that the balance between total product demand and supply is upset by a shock and that there emerges a *negative* gap,

$$\left(\frac{X_t}{Q_t} - G^*\right) / G^* < 0,$$

in the product market. Then arithmetic, or the adding-up equation (3-13) in the product market, tells us that a majority of the firms now face subnormal ratios of demand to supply. When they start interpreting their failure to sell their products at normal rate not as a temporary phenomenon, but as a permanent one, they revise downward their expectations of the state of product demand and cut their product prices accordingly. This will, as we have seen in chapter 3, set off a cumulative deflation process in the product market.

Furthermore, if firms believe that the state of product demand will remain sluggish even in the future, they have to revise downward their expectation of future sales as well. Firms will then curtail their effective labor demands so as to reduce their product supply in the future. This will result in a decline of their labor employments and after the elapse of a production period reduce the level of total product supply. Evidently, such an induced decline of total product supply contributes to the elimination of the existing negative gap in the product market.

But such "quantity" adjustment may not be sufficiently strong to finish its task.⁵ But, fortunately in that case, "price" adjustment would come to help

5. According to the schedule of effective labor demand (1-16), a 1 percent decline in the expectation of the future state of product demand tends to reduce effective labor demand by $100/[\gamma + \eta(1 - \gamma)]$ percent. Therefore, if the reduction of effective labor demand were completely transformed into the equal reduction of actual labor employment, the resulting decline of total product supply τ periods later would be roughly by $100\gamma/[\gamma + \eta(1 - \gamma)]$ percent, which exceeds one percent only if the degree of returns to labor input γ is greater than unity. However, in general there are always some firms that have excess demands for labor. For those firms, a reduction of effective demand for labor does not result in an equal reduction of actual labor employment. Thus, unless the degree of returns to labor input is greater than unity *and* most firms have experienced excess supplies of labor before the reduction of effective labor demand, the resulting reduction in the level of total product supply will not completely offset the initial decline in the volume of total product demand. In what follows we ignore the case in which the induced reduction of total product supply exceeds the original decline of total product demand.

it. To see this, suppose that a negative gap still remains in the product market after the induced decline of total product supply. Then a cumulative price deflation will continue, although at a somewhat slower rate. We know that the process of cumulative price deflation consists of the process of the expected level of general price chasing the realized level of general price in the downward direction. It is therefore very likely that during the process of cumulative price deflation, firms also revise their expectations of the future level of general price and hence of the future state of product demand in the downward direction. [Recall that $a_{t+\tau}(i) \equiv P_{t+\tau}^{\eta(i)} X_{t+\tau}^{\xi(i)} \alpha_{t+\tau}(i)$.] Other things being equal, such an additional pessimistic revision of the future state of product demand will further discourage effective demands for labor and repress actual labor employment. It will then reduce the level of total product supply τ periods later, and eventually close the remaining negative product market gap. The cumulative price deflation will then consummate itself. (If we were in the Wicksellian economy, other things would not be equal. For as we saw in chapter 3, the accompanying cumulative wage deflation would stimulate the effective labor demands and indeed offset the effect of the ongoing cumulative price deflation. But under the assumption of absolute money wage rigidity, the possibility of cumulative wage deflation counterbalancing the stabilizing effect of the cumulative price deflation is by definition foreclosed.)

We have thus established:

Proposition 4-2. Under the assumption of absolute money wage rigidity, the emergence of a positive or negative gap in the product market will always induce adjustments in employment and output which tend to eliminate the gap.

To complete our stability analysis, we have to take into consideration the Kahn–Keynes multiplier process, which will be triggered by the induced decline of total labor employment. To avoid repetition, however, we postpone its discussion until chapter 5, where we present a more detailed analysis of the dynamic workings of the economy with money wage inflexibility.

5. The Wicksellian Economy versus the Ultra-Keynesian Economy

Before us are two opposing systems of economy—the Wicksellian economy, which assumes perfectly flexible money wages, on the one side, and the ultra-Keynesian economy, which assumes absolutely rigid money wages, on the other.

In the Wicksellian economy, only the normal level of output and employment that balances the product and labor markets is compatible with Expectational equilibrium. Moreover, any deviation from that unique equilibrium sets off a cumulative inflation or deflation, which will drive the system further away. The Wicksellian economy thus has a knife-edge property.

By contrast, in the ultra-Keynesian economy, any scale of output and employment determined by an equilibrium balance between total demand and supply in the product market is compatible with Expectational equilibrium. Furthermore, any deviation from a given equilibrium position sets forces into operation that will tend to restore equilibrium. The ultra-Keynesian economy thus has a built-in stability in whichever equilibrium it has found itself.

The task of chapter 5 is to unite these two opposing systems on a higher plane.