# Chapter 2
# Analyzing Book I of *The General Theory*

**Abstract** Book I is the core of *The General Theory*. I clarify that Keynes has succeeded in proving the existence of involuntary unemployment, which is incurable by reduction of nominal wage while many standardized textbook tells us that rigidity in the nominal wage is the crucial assumption that upholds Keynes's proposition. What is acutely important is the interpretation of the incentive for labor supply (i.e., the interpretation of the second postulate of classical economics). Indeed, Keynes denies that the marginal disutility of labor is equalized to the real wage. However, one would surely find that Keynes also emphasizes that the real wage exceeds the corresponding marginal disutility of labor if one reads *The General Theory* carefully enough. It is a plausible assumption since, if such a relation is upheld, all workers are incentivized to participate. Whenever an economy faces a shortage of effective demand and labor demand contracts, the equilibrium real wage becomes costly because the marginal product of labor remains at a high level. In such a case, excess supply may possibly exist in the labor market, and such unemployment can be deemed involuntary.

**Keywords** Involuntary unemployment · Second postulate of the classical school · Change in the nominal wage principle of effective demand

## 2.1 Introduction

As discussed in Chap. 1, Book I of *The General Theory* is a concise but intensive summary of the theory developed throughout the work. I now proceed to show that in contrast to the current understanding of *The General Theory*, Keynes succeeds in proving the existence of involuntary unemployment that is associated with the *rational* behavior of workers (the incentive compatibility of labor supply). The vital point that induces this conclusion is that Keynes does not deny the second postulate of neoclassical economics (Keynes calls neoclassical economics classical economics), but rather extends that postulate.



M. Otaki, *Keynes's General Theory Reconsidered in the Context of the Japanese Economy*, Development Bank of Japan Research Series,
DOI 10.1007/978-4-431-55915-3_2

## 2.2 Involuntary Unemployment and the Stability of Society

As will be elucidated by this chapter, what Keynes asserts in *The General Theory* is that he had succeeded in the radical extension of traditional theory (neoclassical economics) and established a new theory that proves the existence of *involuntary unemployment* that originates from a shortage of effective demand.

However, before advancing the discussion, some preparatory considerations are necessary in order to understand the historical legitimacy and background of *The General Theory*. First, I must draw attention to the tradition of the poor law in Britain. According to Trevelyan (1944, pp. 112–113),

> Gradually, a proper system of Poor Relief, based upon compulsory rates, and discriminating between various classes of the indigent was evolved in England, first of all the countries of Europe. It was soon found that the whipping of 'sturdy beggars' was by itself no solution. The double duty of providing work for the unemployed, and charity for the impotent was gradually recognized by Tudor England as incumbent not merely on the Church and the charitable, but on society as a whole. In the reign of Henry VIII some great towns, like London and Ipswich, organized the administrative relief of their poor. At the end of Elizabeth's reign and under Stuart kings, it had become a duty prescribed by national legislation, enforced upon the local magistrates by a vigilant Privy Council, and paid for by compulsory Poor Rates.

Thus, the necessity of saving unemployed workers from poverty by providing work was markedly recognized even from the end of the fifteenth century in England. However, such a social safety net often suffers from a type of moral hazard behavior on the part of poor individuals. Trevelyan (1944: p. 278) argues:

> According to George King over one million persons, nearly a fifth of the whole nation, were in occasional receipt of alms, mostly in the form of public relief paid by the parish. The poor-rate was a charge of nearly £800,000 a year on the country and rose to a million in the reign of Anne. There was seldom any shame felt in receiving outdoor relief, and it was said to be given with a mischievous profusion. Richard Dunning declared that in 1698 the parish dole was often three times as much as a common labourer, having to maintain a wife and three children, could afford to expend upon himself; and that persons once receiving outdoor relief refuse ever to work, and 'seldom drink other than the strongest ale-house beer, or eat any bread save what is made of the finest wheat flower.' The statement must be received with caution, but such was the nature of the complaint of some ratepayers and employers about the poor-law.

Even in the nineteenth century,

> The condition of the agricultural labourer, particularly in the South, was often very wretched in the thirties and 'hungry forties,' when even the farmer who employed him was suffering from the bad times. And on the 'labouring poor' in field and factory, fell the heavy weight of the New Poor Law of 1839, when outdoor relief was abolished (not indeed quite universally) and the 'workhouse test' was imposed on applicants for public alms. Such was the remorseless utilitarian logic of the Poor Law Commissioners, to whom the Act gave power. It was a harsh remedy for a terrible disease: the Speenhamland policy of granting the poor-rate in aid of wages had pauperised even the employed workman and kept wage down; moreover, it was now ruining the ratepayers. An operation was necessary to save

> society, but the knife was applied without anaesthetics. The need to make life in the workhouse less attractive than employment in field and factory was the principle on which the Commissioners worked, and as they could not in that era the attractiveness of employment by enforcing a minimum wage, they felt obliged to lower the standard of happiness of the workhouse. (Trevelyan p. 538)

The foregoing quotations suggest the risk that too much compensation paralyzes an individual's discipline. Moreover, this unwanted propensity seriously aggravates the fiscal conditions of a society. Accordingly, as insurance theory tells us, social security payment should be significantly lower than the minimum wage. Nevertheless, since diligence differs across individuals and is unknowable, some individuals are possibly unemployed *voluntarily*.

The following paragraph quoted from Pigou (1933) indicates that an argument about the existence of involuntary unemployment remained even in the midst of the Great Depression:

> But in a period of depression, when all available vacancies are filled, the fact that these men do not desire employment does not cause them to act otherwise than they would do if they did they desire it; and, since it is impossible to look directly into people's minds, there are, therefore, no means of discovering or enumerating them.

As such, the deliverance from poverty, which stems from unemployment, is, in principle, a double-edged sword. On the one hand, such deliverance improves the wellbeing of workers who are involuntarily unemployed. On the other hand, some idle individuals are subsidized by social security payments that are financed by taxing the employed and employers. To the extent that information is imperfect and one can hardly identify who would commit such malpractice as Pigou discusses, the morale of workers is affected and labor productivity slows down. This in turn harms social welfare. Accordingly, whether or not deliverance from poverty due to unemployment can contribute to a society is a genetically statistical problem in the sense of the number of individuals who are involuntarily unemployed *on average*.

Besides such an empirically difficult problem, there is another problem regarding economic theory: does involuntary unemployment really exist? It is an elementary task to show the existence of voluntary unemployment. If the real wage is lower than the disutility of labor of an individual, he or she would rather choose leisure than consumption. This implies that such an individual is voluntarily unemployed. When one applies this logic to the overall structure of an economy, unemployment is never a serious economic problem.

Nevertheless, it is hardly tenable to insist that not less than 30 % of workers are coincidently disincentivized to work in an emergency as observed in the Great Depression. Pigou's (1933) insistence is precarious because it endangers the social order of a society. As Thomas More depicts in his *Utopia* (1516), a community in which the constituents cannot be thankful for living there is doomed eventually. The significant income disparity due to involuntary unemployment, if it exists, and the resultant poverty cause the distaste for one's nation. The most devastating consequence of such a misfortune is a '*revolution*' as Burke (1790) severely warns about and criticizes. In substance, a revolution is an internal war that leaves nothing but mutual and irreducible disgust among the residents of nation. In general, a revolution can never contribute to improvement in the economic efficiency of a nation, indeed, it seriously aggravates the overall well-being of the residents as the present situations in North Africa and the Middle East markedly indicate.

As Arendt's 'The Origins of Totalitarianism (1951)' suggests, distilled distrust and disgust among residents is, if not indicative of interwar periods, an embryo of totalitarianism because people lose the ability to express their free will owing to the fear of violence. If once violence is adjoined to a society in such a vacuum where humans mind are enslaved, a totalitarian society ensues. As Arendt had correctly understood, Keynes also regarded socialism as a variation of totalitarianism. Moreover, in the 1930s, it was widely believed that the economic performance of the Soviet Union and the totalitarian countries was no less successful than that of capitalist countries. Accordingly, even in Britain, the threat of totalitarianism was deemed to be serious, and hence, Keynes would be acutely conscious of the way to overcome mass *involuntary* unemployment. To summarize, the stability or cohesion of a nation depends significantly on whether the nation can save its economy from mass involuntary unemployment. Nevertheless, there are two serious constraints on achieving the desired result: how to finance the related government expenditure, and how to incentivize the recipient of social security payments so that he or she participates in work.

As aforementioned, because economists up until Keynes's era could not provide an appropriate theory to explain involuntary unemployment, Keynes felt that he should construct such a theory that was compatible with microeconomic theory. The results are concisely and intensely depicted in Book I.

In addition, one should note that the aggregate demand management policy that Keynes proposed is in accord with the conventional wisdom that the history of Britain had gradually built up. In this sense, Keynes's effective demand theory belongs indeed not to heretical thinking but to orthodox beliefs. What we must consider is why his theory in itself is not properly understood and why his policy recommendations are hardly implemented. The first question is dealt with separately in this chapter (regarding the theoretical aspects in economics) and Chap. 7 (regarding the philosophical aspects).

## 2.3 The Existence Proof of Involuntary Unemployment

This section reconsiders whether or not the assumption of *stickiness* of the nominal wage is crucial for the essence of *The General Theory* in which the existence of involuntary unemployment is proved. The essential problem is what stickiness means. If this concept implies that the nominal wage is treated as an exogenous variable in Keynes's model, it is consistent with appropriate line of thought. However, if the concept is used to mean that workers are irrational because they are prone to be fooled by an increase in wage-goods prices, such a thought is adrift from the essence of *The General Theory*.

In Chap. 2 (The Postulates of the Classical Economics) of *The General Theory*, Keynes classifies the assumptions about labor market conditions. The first postulate of classical economics is concerned with the aggregate labor demand; the second postulate of classical economics relates to the aggregate labor supply schedule. The first postulate, with which Keynes agrees, is the profit maximization condition of a representative firm under perfect competition, wherein the marginal product of labor should be equalized to the real wage. Namely,

$$\phi'(N) = \frac{w}{p} \tag{2.1}$$

where $\phi(N)$ is the aggregate supply price (short-run aggregate production function); $N$ is total employment; and $w$ and $p$ are the nominal wage and the price level respectively. Since the marginal product of labor diminishes together with an increase in total employment, the total demand for a labor force is a decreasing function of the real wage as illustrated by Fig. 2.1.

What is provocative is Keynes's interpretation of the second postulate. In general, especially in half-baked and bulky textbooks, there is an assertion that Keynes offhandedly treats the nominal wage a simply exogenously given. However, when one invokes the following remarks in *The General Theory*, one finds that the matter is not so simple:

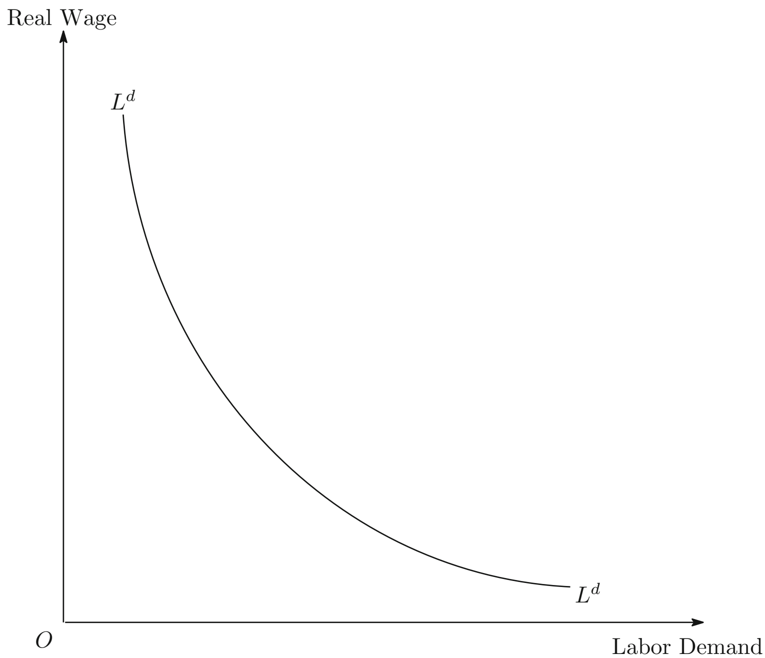


**Fig. 2.1** Labor demand function

> Thus, it is fortunate that the workers, though unconsciously, are instinctively more reasonable economists than the classical school, insomuch as they resist reductions of money-wage, which are seldom or never an all-round character, even though the existing real equivalent of these wages exceeds the marginal disutility of the existing employment; whereas they do not resist reductions of real wages, which are associated with increases in aggregate employment and leave relative wage unchanged, *unless the reduction proceeds so far threaten a reduction of the real wage below the marginal disutility of the existing volume of employment.* (pp. 14–15: Italics by the author)

It is clear from this description that Keynes never neglects the existence of the second postulate. Furthermore, in *The General Theory*, Keynes asserts:

> But we have thrown the second postulate, a decline in employment, although associated with labour's receiving a wage equal value to a large quantity of wage-goods, is not necessary due to a large labour's demanding a large quantity of wage goods; and a willingness on the part of labour to accept lower money-wages in not necessarily a remedy for unemployment. (p. 18)

To summarize, we can interpret what Keynes asserts as follows:

(i) The equilibrium real wage is determined above the labor-supply schedule prescribed by the second postulate and is derived from solving the utility maximization problem between leisure and consumption.
(ii) Accordingly, even though the real wage is reduced, there is no change in the total labor supply; hence, equilibrium total employment is determined solely by the conditions of the demand-side.

Without interchanging the existing interpretation of labor market equilibrium in Keynesian economics with our new interpretation, one can scarcely understand foregoing Keynes's remarks.

That is, as illustrated in Fig. 2.2, the feasible labor-supply domain is the shaded area located above the hypothetical labor-supply function, $L^sL^s$, which corresponds to the second postulate.

Within the shaded area, in fixed employment, workers can earn a real wage, compared with the situation in which workers behave price takers and maximize the utility. Thus, the shaded feasible domain implies a set where workers can obtain a higher utility than obtained by utility maximization as price takers. Hence, all workers wish to participate if an economy is located within this area. In turn, whenever the equilibrium of the labor market is achieved within the area, the resultant unemployment is, by definition, involuntary.[1]

[1]Mathematically, this discussion suggests that Keynes regards the labor supply schedule not as a function but as a *correspondence*. When one defines the labor-supply function, which derived from the second postulate, as

$$L^s = \lambda\left(\frac{w}{p}\right), \quad \lambda' > 0,$$

Keynes's labor-supply feasible set is defined by

$$L^{KS} = \left\{L \middle| L \leq \lambda\left(\frac{w}{p}\right)\right\}.$$

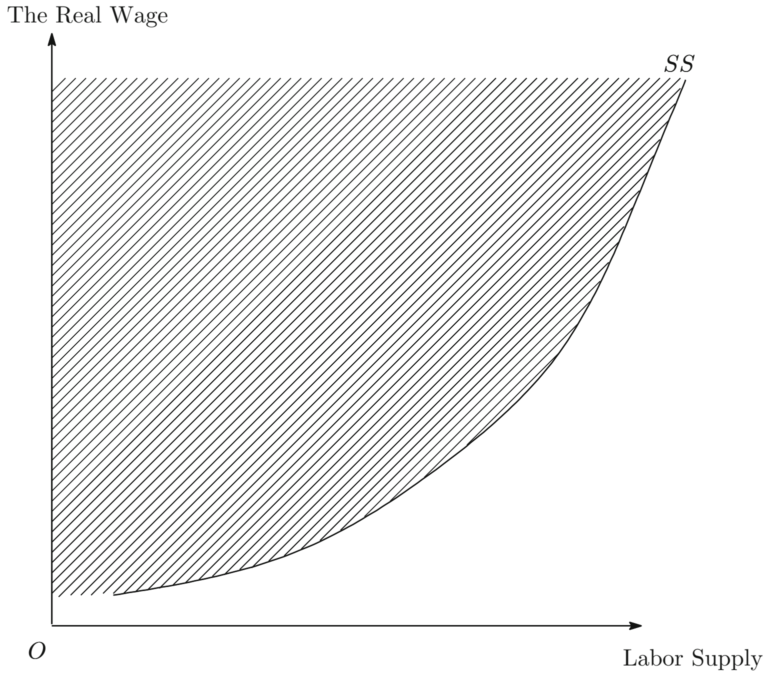


**Fig. 2.2** Extended second postulate

It is important to emphasize that Keynes presumes the stickiness of the nominal wage by *referring to the incentive compatibility of workers to participate* although most textbooks state that Keynes assumes stickiness without sufficient consideration.

The bold part of the aggregate labor-demand function $L^dL^d$, which is defined by Eq. (2.1), in Fig. 2.3 illustrates possible equilibria of the labor market.

The situation illustrated in Fig. 2.3 exists partly because Keynes assumes that the first postulate is upheld (see Fig. 2.1), hence, the equilibrium of the labor market should always be located on Curve $L^dL^d$. This is also because he assumes that the equilibrium real wage should be beyond the marginal disutility of labor, which is illustrated by Curve $L^sL^s$ in Fig. 2.2, in order to incentivize workers. Consequently, the overall equilibrium of an economy as a whole cannot be determined solely by the labor market equilibrium condition (i.e. the supply-side of the economy) unlike neoclassical economics.

The whole structure of neoclassical economics, which presumes the first and the second postulate, is illustrated by Fig. 2.4.

The first quadrant depicts the equilibrium of the labor market. The equilibrium is achieved at the intersection of Curve $L^dL^d$ and $L^sL^s$. The equilibrium real wage is

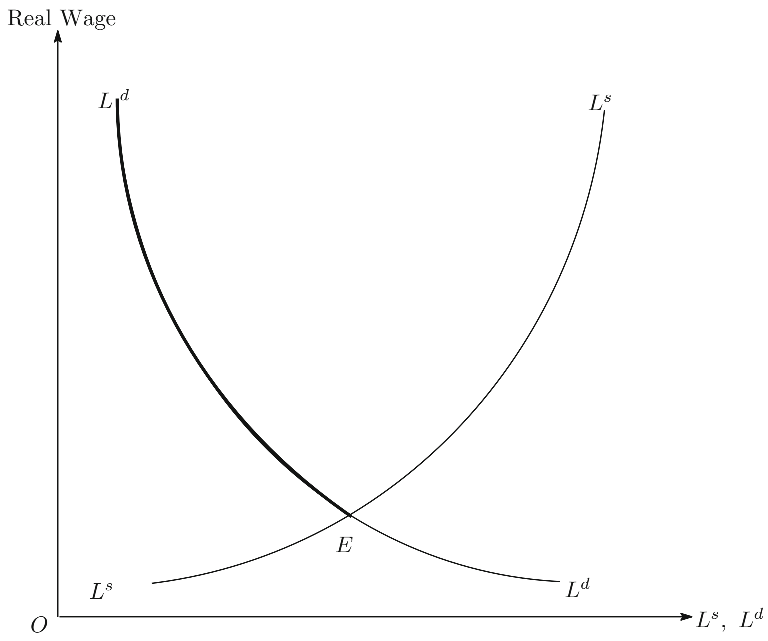


**Fig. 2.3** Labor market equilibrium

determined to equalize labor demand to supply. The fourth quadrant expresses the aggregate supply price (aggregate production function) $z \equiv \phi(N)$. It is apparent from the figure that, to the extent that the labor market clears, the real GDP is determined only by the aggregate supply price function $\phi(N)$ unrelated to the conditions of the aggregate demand.

Namely, regardless of how much individuals decide to save and how much entrepreneurs plan to invest, the equilibrium real GDP is determined only by the conditions concerning the labor market. Since aggregate savings can be defined as the residue of real GDP after deducting aggregate consumption, and real GDP is invariant in the case of neoclassical school, it is a natural consequence that aggregate saving is always equal to aggregate capital investment.

In other words, Say's law holds, as John Stuart Mill and Alfred Marshall assert. In Chap. 2 of *The General Theory*, using the aforementioned model, Keynes keenly criticizes both men. This is because all unemployment is voluntary since workers make their labor supply decisions optimally in the sense that their marginal utility from consumption is equalized to the marginal disutility of labor. In this regard, Keynes declares the following in *The General Theory* (p. 26):

> If, however, this is not the true law relating the aggregate demand and supply function, 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.

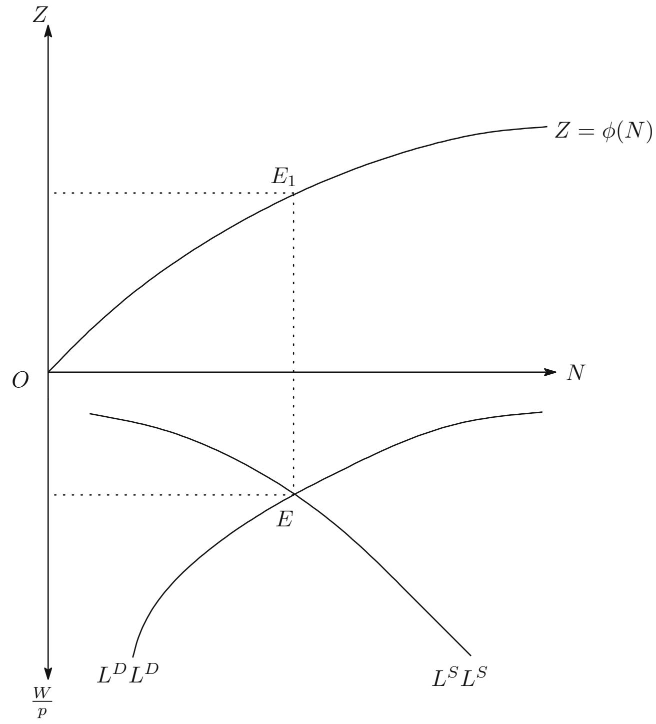


**Fig. 2.4** Neoclassical equilibrium

"The vitally important chapter of economic theory which remains to be written" is *The General Theory* itself.

Chapter 3 (The Principle of Effective Demand) of *The General Theory* concludes Keynes's model by taking the conditions of the demand-side of the economy into consideration. As discussed, in contrast to neoclassical theory, the model presented in *The General Theory*, is not concluded only by the aggregate supply conditions.

As the conditions of aggregate demand, Keynes provides the following aggregate demand function $D$:

$$D \equiv \chi(N) + D_2 \tag{2.2}$$

where $\chi(N)$ is the propensity to consume (the aggregate consumption function), the properties of which are precisely analyzed in Book II. Since some part of real GDP is considered saved and consumption increases with real GDP (total employment), it is natural to assume

$$0 < \chi'(N) < \phi'(N) \tag{2.3}$$

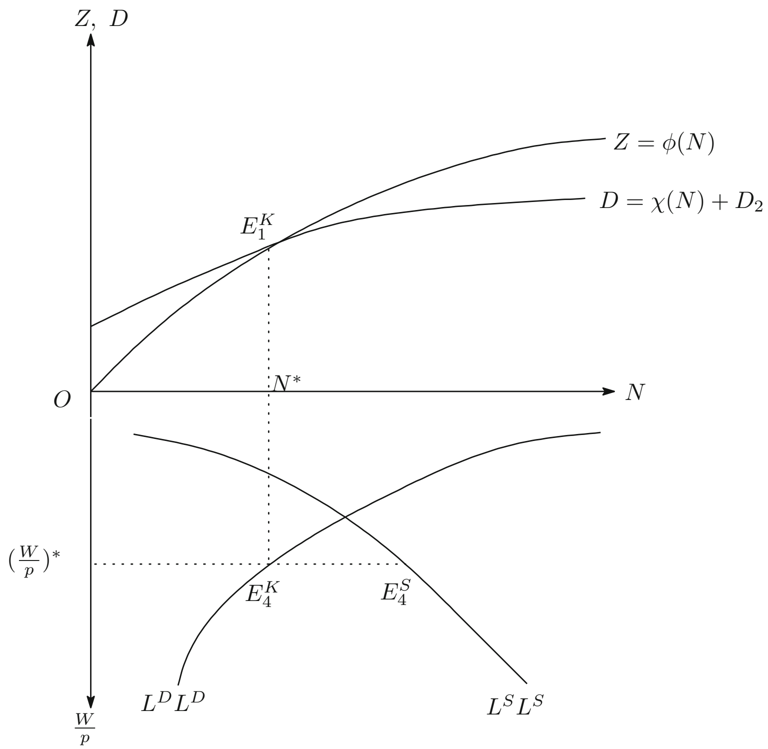


**Fig. 2.5** Keynesian equilibrium

$D_2$ is the real independent aggregate expenditure, which does not relate to total employment $N$ or real GDP. This includes capital investment and government expenditure.[2]

Combining Eq. (2.2) with the aggregate supply price $\phi(N)$, one obtains the following equilibrium condition for the goods market:

$$\phi(N) = \chi(N) + D_2 \tag{2.4}$$

The complete illustration of Keynes's model is presented in Fig. 2.5. The first quadrant illustrates the equilibrium of the goods market. The total employment level and real GDP is determined at the intersection $E_1^K$ of the aggregate supply price $Z$ and the aggregate demand $D$. Keynes dubbed such an equilibrium aggregate demand *effective demand*.

[2]There is a serious theoretical problem about whether capital investment is unrelated to savings to the extent that the ultimate owners of a firm are stockholders, and the employer is responsible to them. This problem will be considered in Sect. 1.5.

The best and most elegant part of Keynes's microeconomic theory is represented in the fourth quadrant. Here, the first and the second postulate are illustrated as Curves $L^dL^d$ and $L^sL^s$. When equilibrium total employment $N^*$ is determined by the principle of effective demand (the first quadrant), the equilibrium real wage $\left(\frac{w}{p}\right)^*$ is located at Point $E_4^K$, which is compatible with the profit-maximization condition of the representative firm. For the determined equilibrium real wage, there is potential labor supply, which amounts to $E_4^S$, and thus the workers, whose volume is $E_4^S E_4^K$, are *involuntary* unemployed as long as the level of effective demand remains at Point $E_1^K$.

As discussed, there is no incentive for employers and employees to diverge from this equilibrium. This is partly because the equilibrium real wage is compatible with the profit-maximization of the representative firm, and partly because this wage provides employees with higher utility than the corresponding marginal disutility of labor. This is the astute character of the labor market equilibrium in Keynes's model.[3] This analysis contrasts with the authorized interpretation of *The General Theory* by Hicks, Samuelson, and Modigliani, which entirely neglects the incentive-compatibility condition about labor supply.

Such a prominent feature of Keynes's model is most significant concerning the macroeconomic effect of the reduction of the nominal wage. That is, Keynes shows the following proposition:

**Proposition 2.1** *Suppose that the nominal wage $w$* sags. *Then, as far as its indirect effects on the aggregate demand are negligible, this only results in causing a proportionate reduction of the price level. In other words, the reduction of the nominal wage never rescues workers who are involuntarily unemployed.*

This proposition is evident from Fig. 2.5. If the locations of $D$ and $\phi$ are unchanged by the reduction of the nominal wage $w$, equilibrium total employment is kept intact. Accordingly, the corresponding marginal productivity of labor should also be unchanged. Thus, the real wage $\left(\frac{w}{p}\right)^*$ is invariant even though the nominal wage $w$ sags. This implies that the price level $p$ proportionately decreases with the nominal wage $w$.

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[3]Keynes asserts that

(5) Hence the volume of employment in equilibrium depends on (i) the aggregate supply function, $\phi$, (ii) the propensity to consume, $\chi$, and (iii) the volume of investment, $D_2$. This is the essence of the General Theory of Employment.

(6) For every value of $N$ there is a corresponding marginal productivity of labor in the wage-goods industries; and it is this which determines the real wage. (5) is, therefore, subject to the condition that $N$ cannot *exceed* the value which reduces the real wage to equality with the marginal disutility of labor. This means that not all changes in $D$ are compatible with our temporary assumption that monetary-wages are constant. Thus it will be essential to a full statement of our theory to dispense with this assumption (p.29)

This statement can be taken to mean that the equilibrium of an economy, which *The General Theory* considers, is confined to an underemployment economy where some workers are involuntary unemployed. However, a full-employment economy, where *true inflation* is associated, is also analyzed in Book V.

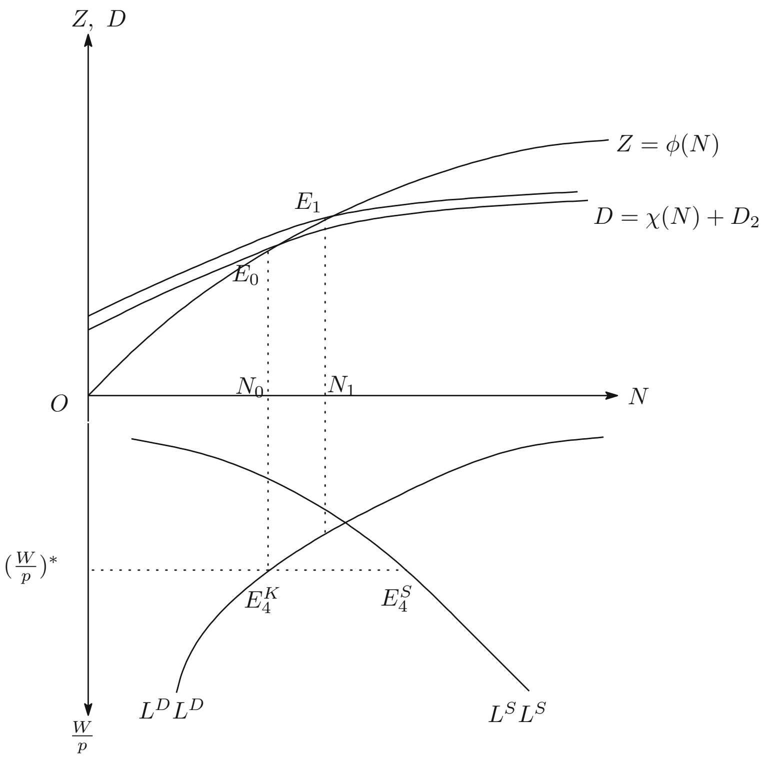


**Fig. 2.6** Effect of the expansion of aggregate demand

In other words, whenever perfect competition prevails and the price is determined so that it is equalized to the marginal cost (the nominal wage), to the extent that the production volume is constrained to remain constant, the effect of the cost reduction is entirely reflected in its output price.[4]

It is not wage reduction but the encouragement capital investment or the expansion of government expenditure that save workers from involuntary unemployment. Figure 2.6 depicts how an upward adjustment of the aggregate demand

[4]The following description is in *The General Theory*:

Now the assumption that the general level of real wages depends on the money-wage bargains between the employers and the workers in not obviously true. Indeed, it is strange that so little attempt should have been made to prove or to refute it. For it is far from being consistent with the general tenor of the classical theory, which has taught us to believe that prices are governed by marginal prime cost in terms of money and that money-wages largely govern the marginal prime cost. Thus if money-wages change, one would have expected the classical school to argue that prices would change in almost the same proportion, leaving the real wage and the level of employment practically the same as before,… (p.12) curve caused by an increase in autonomous expenditure, $D_2$, affects the volume of employment.

An economy initially located at Point $E_0$ moves toward Point $E$ by such an expansion in autonomous expenditure. Thus, the volume of total employment increases by $N_0N$.

One must also note that while the real wage sags because the price become dearer in accordance with the expansion of the aggregate demand, employed workers *never* fall into the money illusion. The reason is that the equilibrium real wage (the marginal utility from consumption) is still higher than the corresponding marginal disutility of labor. This contrasts with the prevalent interpretation of Keynes's theory, which neglects the incentive mechanism of labor supply and is hardly tenable from the perspective of the monetarist critique that the assumption of the nominal-wage stickiness implies the irrational behavior of workers (i.e., money illusion).

Thus, contrary to neoclassical economics (Say's law), in Keynes's theory, demand creates supply. Keynes regards involuntary unemployment as an acute social injustice that the market economy should overcome. To achieve this, it is evident that some kind of social planning such as efficient and well-founded government spending is inevitable. From this point of view, in *The General Theory,* Keynes criticizes neoclassical economics as follows:

> That it could explain much social injustice and apparent cruelty as an inevitable incident in the scheme of progress, and the attempt to change such things as likely on the whole to do more harm than good, commended it to authority. That it afforded a measure of justification to the free activities of the individual capitalist, attracted to it the support of the dominant force behind authority. (p. 33)

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http://www.springer.com/978-4-431-55913-9

Keynes's General Theory Reconsidered in the Context of the Japanese Economy
Otaki, M.
2016, XI, 98 p. 20 illus., 1 illus. in color., Softcover
ISBN: 978-4-431-55913-9