

Chapter 2

The General Theory of Employment, Interest and Money: An Overview with Commentary

Abstract Due to the intellectual influence previously enjoyed by Keynes' *General Theory*, this chapter is dedicated to a commentary on Keynes's great work, whose influence was largely recovered during the current global financial and economic crisis. The author points out the great importance and relevance of the book in solving the problems that occur in the periods of high involuntary unemployment. In this analysis, special attention is paid to Keynes's theory of cost structure based on the distinction between the primary cost (the user cost as its part), and the supplementary cost. In addition, attention is paid to the importance of changes in the user cost for the analysis of inflationary pressures, in the long run. Keynes's theory of capital and investment process, based on the relationship between the marginal efficiency of capital and the interest rate, and his position that the investment process is sufficiently attractive for entrepreneurs as long as the capital is scarce, is presented as one of the most contradictory parts of the *General Theory* in this book, taking into account that Keynes explicitly recommended expansionary monetary policy in order to keep the interest rate at a very low level when the actual output is close or equal to the potential output. Since Keynes did not write a single chapter about changes in the cost structure in the long run, caused by the changes in technology, the author ends this chapter by integrating Keynes's theory of capital with Horvat's model of economic growth based on the contributions of the sectors producing capital goods and final consumer goods to the average growth rate, and changes in the cost structure in the two sectors in the long run. Thereby the author presents that Keynes's theory of capital scarcity combined with an expansionary monetary policy does not necessarily cause inflationary pressures as long as the marginal productivity in the second sector (production of final consumer goods) increases up to the level necessary to maintain price stability.

Keywords Keynes · General theory · User cost · Capital scarcity · The employment function · Theory of wages · Demand for money · Theory of prices

2.1 The Starting Point for Analysis

Up until halfway through the 1930s, the dominant economic doctrine was that of the neoclassical economists. According to them, supply always creates its own demand—whatever producers produce on the market is realised. A glut in supply is simply followed by a reduction in prices and trade continues unhindered. When supply is less than demand, prices rise and again an equilibrium will be established. In this way, supply and demand are always balanced. Just as there are no problems in realising production, neither is there a problem of unemployment. There is a certain (small) percentage of unemployed persons who do not wish to work at the wage offered, as they do not consider it adequate compensation for the labour to be expended. The neoclassical economists consider such unemployment to be voluntary. There is no such thing as involuntary unemployment.

Actual conditions in the economies of Western Europe and the United States at the end of the third and beginning of the fourth decades of the 20th century differed quite significantly from their interpretation of reality. Hundreds of thousands of workers were seeking job, even at wages lower than being offered on the labour market. The warehouses of the captains of industry were full of unsold finished products. Prices fell, but there was no effective demand. The industrialists let the workers go. There was a need in practical economic life to take radical measures for recovery and in theoretical economics to write books and articles to explain what was happening and what needed to be done to ensure that the economies of the most developed countries could recover.

John Maynard Keynes was a student and then a follower of the ideas of Alfred Marshall for nearly two and a half decades. In analysing the causes of these major disturbances to real economic life, he understood that they could not be explained on the basis of a theory that denied what the major players in economics—people—actually based their behaviour on, whether as producers or consumers. So, Keynes conducted a rigorous examination of the fundamental views of the classical writers, amongst whom he included the followers of David Ricardo, like Marshall, Mill, Edgeworth and Pigou. Keynes concluded that the assumption that only voluntary unemployment existed, or rather that involuntary unemployment did not, did not correspond to reality. Nor was it a realistic assumption that supply automatically creates its own demand on the market. For Keynes, classical economic theory was valid only in a special case—when full employment actually exists. That condition is, however, the exception and not the rule.

Reality is different and rests on the following series of causal relations. By selling products, entrepreneurs earn income. As income rises, so does consumption, but by a smaller percentage than income. The difference is made up by savings. If the savings are not put to work through investment activities, an imbalance arises between supply and demand. The entrepreneurs' expectations regarding future revenues become pessimistic. This is why they do not create new jobs and may indeed get rid of existing ones. Unemployment begins gradually to increase, while demand for products and services falls.

Thus, there is a need to increase aggregate demand. The gap between income and consumption has to be bridged. Keynes found the solution in additional investment, which has to be made more attractive. Investment becomes more attractive or lucrative the lower the interest rate. The interest rate is a function of liquidity preference for money and of the money supply, and not of the supply of and demand for capital. The monetary authorities (central bank) must increase the money supply and, so, reduce interest rates. Then, securities prices can begin to grow and entrepreneurs find themselves in a more favourable situation. Investment becomes more attractive or profitable and expectations of future revenues more favourable. As a result of this growth in investment, unemployment reduces. The propensity to consume must be kept at a higher level and the propensity to save within reasonable boundaries. The government becomes an active player within the economy. Through effective fiscal policy, the government can provide relief for activities in sectors operating under less favourable conditions, while gathering resources from more efficient players. By issuing government securities, the Ministry of Finance collects financial resources, which are greater than those collected on the basis of taxation. One part of these resources so invested contributes to increasing aggregate demand. The government subsidises industrialists working in sectors with lower levels of efficiency, and so increases the marginal efficiency of capital and stimulates investment in those sectors too.

What follows is a very concise introduction to presenting the *General Theory of Employment, Interest and Money*,¹ following the order of the chapters as Keynes laid them out. Accordingly, in the *General Theory*, Keynes analyses the phenomena of economic life that determine total employment and total revenue, which are aggregate quantities for a given economy. The fundamental variables on which Keynes built his theory are: the psychological propensity to consume, the marginal efficiency of capital and the interest rate. None of these three variables can be directly derived from the other two—in this regard they are independent of each other.

The *General Theory* is without doubt one of the greatest works in the history of economic thought. Its great significance resides in the fact that the theoretical answers put forward in the work did actually find practical application. For two and a half decades after the Second World War, Keynes' prescriptions were followed by the governments of the United States and Great Britain. The results of applying the Keynesian approach were evident. By the beginning of the 1970s, however, application of the approach was yielding ever weaker results. As the United States switched to a system of floating exchange rates, against a background of steeply rising oil prices, the short-term focus of the approach became itself an obstacle to effective economic policy in the struggle against inflation. A significant source of

¹ The first edition of *The General Theory of Employment, Interest and Money* was published in 1936, in London, by Macmillan & Co. For this commentary, an electronic version available on the ISN ETH Zurich webpage (www.isn.ethz.ch) has been used. The author has also used the most recent version of the Collected Writings of John Maynard Keynes published by the Royal Economic Society [3].

problems in the approach lay in the fact that Keynes himself was contradictory in certain matters, and that he did not give a valid answer as to how to control inflation in the long-run. What are these problems and contradictions? The commentary on the *General Theory* that follows is intended for those who want to engage in more detail with the work, and with both its strong and weak points.

2.2 The Principle of Effective Demand

Effective demand is represented by the point where the aggregate supply curve and the aggregate demand curves meet. The price of aggregate supply is determined by the sum of factor cost, user cost and profit. The factor cost is the amounts which the entrepreneur pays out to the factors of production (labour services and other factors) exclusive of other entrepreneurs products and services. The user cost is the amounts the entrepreneur pays out to other entrepreneurs for what he has to purchase from them together with cost of depreciation. In other words, the user cost is the sum of intermediate goods and depreciation. If the price of aggregate supply is less than the expected demand, then the entrepreneur will have an interest in providing additional employment, up to the point where these two quantities are equal. This point of equilibrium of the supply and the demand, therefore, represents effective demand. The importance of the entrepreneur's expectations is clear from the following quote:

It follows that in a given situation of technique, resources and factor cost per unit of employment, the amount of employment, both in each individual firm and industry and in the aggregate, depends on the amount of the proceeds which the entrepreneurs expect to receive from the corresponding output.²

The following short presentation of Keynes's economic logic may serve as an introduction into the mode of thought presented in the *General Theory*. Given a particular set of techniques, resources and costs, income depends upon the quantity of employment. The income so realised is partly spent, partly saved. What amount is spent depends on the propensity to consume. The amount of employment entrepreneurs decide to create depends on expected expenditure on this investment and on consumption, i.e. on effective demand. Effective demand determines the quantity of employment, while the quantity of employment determines the total income. The level of employment in equilibrium depends on the following three variables: the aggregate supply, the propensity to consume, and on investment. As employment grows, so does the income of the community, and therefore consumption. However, consumption grows at a lower rate than income itself. The growing gap between income and consumption should be covered by growing investment, in order to keep the economy in a state of equilibrium, so that real demand can always be equal to expected demand.

² See Ref. [2], p. 20.

2.3 The Definition of Income, Savings and Investment

In Keynes's theory, entrepreneurs face three forms of cost: the factor cost of production, user cost, and supplementary costs. The primary cost is the sum of factor cost and user cost. Factor cost is expenditures paid by the entrepreneur to hired employees, and other factors of production exclusive of what he pays to other entrepreneurs. The entrepreneur's expenses on hired labour represent income for the owners of that labour—the employees. In the same way the entrepreneur's expenses on services of other factors of production (capital, natural resources) represent income for the owners of these factors. The user costs are the sum of the entrepreneur's expenditures for securing resources required from other entrepreneurs, that is the resources to be used up in producing the entrepreneur's product (intermediate products), and the costs of investment in, maintenance of and improving the equipment (depreciation and ongoing maintenance of equipment). Keynes specifies the structure of costs as follows:

We have defined the user cost as the reduction in the value of the equipment due to using it as compared with not using it, after allowing for the cost of the maintenance and improvements which it would be worth while to undertake and for purchases from other entrepreneurs. It must be arrived at, therefore, by calculating the discounted value of the additional prospective yield which would be obtained at some later date if it were not used now. Now this must be at least equal to the present value of the opportunity to postpone replacement which will result from laying up the equipment; and it may be more.³

The entrepreneur's income is the difference between total revenues and primary costs. Supplementary costs are expenditures the entrepreneur has out of its income—that is spending which is not related to regular production, but may arise as a result of excessive use of equipment, careless management, fire, or similar unforeseen circumstances.

Net income is the difference between income and supplementary costs. Aggregate consumption represents the difference between the sum of the value of all sales and the sum of the value of sales between entrepreneurs (the value of sales of intermediate products).

The fundamental psychological law according to Keynes is the relative lag in consumption as income grows:

The fundamental psychological law, upon which we are entitled to depend with great confidence both a priori from our knowledge of human nature and from the detailed facts of experience, is that men are disposed, as a rule and on the average, to increase their consumption as their income increases, but not by as much as the increase in their income.⁴

For the economy to function properly the difference between the increase in the value of aggregate supply and the slower growth in aggregate consumption must be covered by net investment. Keynes points out the danger of excessive financial

³ John Maynard Keynes, *Op. cit.*, p. 41.

⁴ John Maynard Keynes, *Op. cit.*, p. 52.

caution on the part of entrepreneurs, when it comes to increased spending on depreciation and maintenance of equipment. Where that is the case, net investment does not increase efficiently and cannot cover the difference between the value of aggregate supply and the slower growth in consumption, with the result that there is a shortfall in effective demand, and as a result of that a fall in economic activity.

The following quotes are characteristic of Keynes's views on the relationship between investment and consumption:

New capital-investment can only take place in excess of current capital-disinvestment if *future* expenditure on consumption is expected to increase. Each time we secure today's equilibrium by increased investment we are aggravating the difficulty of securing equilibrium tomorrow. A diminished propensity to consume today can only be accommodated to the public advantage if an increased propensity to consume is expected to exist some day.⁵

So, one cannot increase consumption without investment—in the absence of an increase in aggregate consumption, a fall in economic activity will follow, that is to say there will be a recessionary trend. Consumption increases, as real wages increase, and for real wages to increase, one must reject the assumption of the unchangeable (given) nature of technology and equipment. Investment should be directed towards new technology, to improve productivity (increase in the marginal product of labour). Still, Keynes did not build into his theory the effects of technical or technological progress, even though he did later assume them implicitly. As a result, the dynamic of the economic system is eliminated from his analysis, or, to be more precise, Keynes presented an analysis of the potential for arriving at full capacity utilization, that is of increasing production to the level of the potential output, but did not incorporate into his theory factors of economic growth that lead to a shifting of the long-run aggregate supply curve as a consequence of technical progress or improvements.

Analysing factors affecting consumption, Keynes listed the following incentives amongst the subjective factors of consumption: precaution, foresight, calculation, improvement, independence, enterprise, pride, and avarice. These factors rarely change much over the short term and are of no particular importance for short-term analysis. In addition to these incentives for the individual, there are also incentives to government institutions. Keynes lists amongst such motives the following four ones: the motive of enterprise, the motive of liquidity, the motive of improvement, and the motive of financial prudence. The motive of financial prudence is particularly interesting in terms of introducing (for the first time in his book) the term of technical change. Keynes' definition of the motive is following:

The motive of financial prudence and the anxiety to be 'on the right side' by making a financial provision in excess of user and supplementary cost, so as to discharge debt and write off the cost of wastage and obsolescence, the strength of this motive mainly depending on the quantity and character of the capital equipment and the rate of technical change.⁶

⁵ John Maynard Keynes, *Op. cit.*, p. 56.

⁶ John Maynard Keynes, *Op. cit.*, p. 58.

2.4 The Marginal Propensity to Consume and the Multiplier

The marginal propensity to consume represents the relationship between that part of the increase in income which is consumed and the increase as a whole. Consequently, the value of the marginal propensity to consume may be between zero and unity. According to Keynes, it is a fundamental psychological law that as income increases the marginal propensity to consume falls, and vice versa, as income decreases, the marginal propensity rises. The marginal propensity to consume tells us, accordingly, by what ratio a given increase in income will be split between consumption and savings or investment. We may represent the increase in income using the following expression:

$$Y_w = k \times I_w,$$

where (k) is the investment multiplier, a variable that depends on the marginal propensity to consume ($dC/dY = 1 - (1/k)$). Y_w and I_w are income and investment expressed in the wage unit (w). There is therefore a direct positive relationship between the marginal propensity to consume and the investment multiplier—as the marginal propensity to consume increases, so does the investment multiplier. The converse is also true, naturally. The investment multiplier represents the relationship between the change in income and the change in investment. In other words, the investment multiplier shows by how much the national income will change, if investment changes to the tune of a single monetary unit.

Keynes provisionally equated his investment multiplier with Richard Kahn's employment multiplier. Kahn's employment multiplier represents the relationship between the change in total employment and the change in employment in industries which produce capital equipment [capital goods]:

$$\Delta N = k \times \Delta N_2$$

Insofar as the multiplier is positively correlated with changes in the marginal propensity to consume, it follows that its value is determined by psychological changes, like consumption itself. In an economy at a higher degree of development, which presupposes employment at a level close to full employment, it therefore follows that a reduction in the marginal propensity to consume will bring about significantly higher levels of investment, but relatively little change in employment. This is understandable, insofar as investment in such economies is in highly productive technologies which require a higher degree of capital outfitting for labour and greater financial resources than investment in developing countries.

2.5 The Marginal Efficiency of Capital

The marginal efficiency of capital depends on expectations of future incomes and costs, as well as on present interest rates, which affect the calculation of the present value of the investment. Keynes describes the high degree of uncertainty in the process of investment as follows:

When a man buys an investment or capital-asset, he purchases the right to the series of prospective returns, which he expects to obtain from selling its output, after deducting the running expenses of obtaining that output, during the life of the asset. This series of annuities $Q_1, Q_2, \dots Q_n$ it is convenient to call the prospective yield of the investment.⁷

In the above quotation, the words “when... he purchases” and “prospective returns which he expects to obtain from selling its output” have been put in bold in order to stress the fundamental problem of investing implicit to Keynes’ approach. Thus, when a given individual or firm buys specific equipment, resources have been quite definitely invested, and whether that investment of resources, which is now a done deal, will pay off depends on the prospective, but nonetheless uncertain revenues for a certain number of future periods.

The marginal efficiency of capital represents the relationship between the prospective yield brought by investment in any additional unit of capital equipment and the replacement cost of that equipment. Keynes stressed that his definition of marginal efficiency of capital was identical to ‘the rate of return over costs’—a variable introduced into analysis by Professor Irving Fisher in his book *The Theory of Interest*. One can determine for each form of equipment a lower limit of efficiency, below which investing in it does not pay off. This limit determines demand for investment in that type of capital equipment. In the same way, the demand functions can be determined for other forms of capital equipment. One may use the sum of these individual functions to determine the general function of the marginal efficiency of capital, the function of demand for investment.

The lower limit of the efficiency of investment is determined by the interest rate. As long as the marginal efficiency of capital is greater than the interest rate, it pays off to invest. In other words, there is a positive differential between the yield from investment and the average interest rate, which represents the stimulus to entrepreneurs to take on additional risk and accept insecurity or uncertainty with regard to future income from investments. Once the marginal efficiency of investment is equal to the interest rate, additional exposure to risks and uncertainties loses any economic sense and there is no longer any incentive to take on additional risk over and above the incentive for relatively secure income in the form of interest on deposited savings.

The following two forms of risk have a major impact on the level of investment:

1. The first is investor or entrepreneurial risk with regard to the likelihood of actually realising the expected profit. The entrepreneur is most often a borrower,

⁷ John Maynard Keynes, *Op. cit.*, p. 69.

excluding those cases of ability to finance investment from own resources or share capital.

2. The second is creditor risk and it relates to the possibility that the debtor may not be able to settle the debt on deadline and so return the borrowed funds and associated interest, whether for subjective or objective reasons.⁸

Both these forms of risk are calculated on investing. Firstly, they are built into the level of the interest rate on any loan approvals, while secondly they are built into the price being offered by the investor.

In addition to these two forms of risk, Keynes singles out a third, which is related to the possibility of a change in the monetary regime which may affect the expectations of either the entrepreneur-borrower or the financial institution-creditor.

2.6 The State of Long-Term Expectations

The marginal efficiency of capital and the interest rate are what determine the scale of investment. The marginal efficiency of capital depends on the relationship between projected revenues or income and the supply price and the type of capital, i.e. replacement costs. The projected revenues depend on investor expectations, and expectations are in turn a function of existing facts, which are more or less certain, and of future events which can be forecast with a greater or lesser degree of certainty. Keynes included amongst existing facts the existing quantity of all capital goods, capital equipment taken as a whole and the strength of consumer demand for products whose production entails the possession of relatively expensive capital equipment.

Under future uncertain events, Keynes meant changes in the type and quantity of capital goods, changes in consumer taste, changes in effective demand during the lifetime of the investment and changes in the wage unit. This constellation of psychological expectations Keynes named jointly the state of long-term expectations.

The scale of investment can grow, even at unchanging interest rates, if the price of long-term securities (shares and bonds) itself grows on the capital markets for particular branches of industry. Keynes was entirely aware of the major role which well-organised capital markets had in the investment cycle in developed economies, even at the time of the writing of the *General Theory*. Keynes, however, stressed that important problems existed on capital markets, which could render investment in significant social projects ineffectual. Keynes included the following under this form of problem⁹:

- The significant percentage of total invested capital belong to shareholders who do not dispose of sufficient information and are not well informed regarding the prospects of their future expectations.

⁸ John Maynard Keynes, Op. cit., p. 73.

⁹ John Maynard Keynes, Op. cit., p. 78.

- Seasonal fluctuations in the profits of companies whose secondary activities may result in a significant part of capital being invested in securities.
- The formation of a herd behaviour under the influence of large numbers of uninformed individual financial investors, leading to major fluctuations in opinion related to factors which have no significant impact in reality on the investment.
- The very significant relationship between speculators and entrepreneurs. Speculators specialise in studying herd behaviour, with a view to achieving rapid and large-scale profits. A predominance of speculation on capital markets may lead to major changes in securities prices and to a crowding out of investment in significant social projects. Entrepreneurs are oriented towards viewing utility over the long-term—so long as entrepreneurial motives dominate the markets, investment markets can be a significant factor for stabilisation of the economy and of investment activities.
- The degree of confidence of financial institutions approving funds in those whose funding they are approving.

Keynes was personally involved in financial transactions and understood the functioning of capital markets very well at two levels: he was himself an investor of his own funds in financial assets (structuring his own portfolio), on the one hand, while also being the Chariman of the National Mutual Life Assurance Society (1921–1938), in which capacity he was involved in decision-making regarding the structuring of the portfolio of financial assets of that institution. Consequently Keynes's understanding of the impact of psychological factors on the behaviour of financial investors and financial markets played a major role in how he analysed the impact of these markets on investment activities in the real sector, as well as having a major impact on his theory of demand for money, in which he gave great importance to speculative demand for money.

2.7 Keynes' General Theory of the Interest Rate

Depending on the propensity to consume, an individual spends part of their income on purchasing goods and services. The remainder may be invested in the bank (a savings account) or in securities (financial assets), or held in the form of cash (cash money as asset). What part of the remaining income will be kept in the form of cash depends on the degree of insecurity over the level of future interest rates. Thus, insecurity over the future interest rate is a necessary condition for a propensity to hold cash to arise. Keynes called this propensity the liquidity preference. The liquidity preference and the quantity of money remaining on satisfaction of the propensity to consume determine the level of the interest rate. The interest rate is not the price which equalises supply and demand for capital, but is rather a price derived from the supply of and demand for money. Keynes did not accept the definition of interest as the reward for refraining from consumption. According to

Keynes, the interest rate is the reward for refraining from liquidity, as the simple act of putting off consumption does not necessarily mean depositing money in the bank. An individual may save by retaining cash in their own possession, i.e. by keeping cash as a form of asset and therefore forgoing the interest rate (the interest rate is an opportunity cost for holding money as an asset).

The phenomenon of liquidity preference is psychological in nature. Keynes considered the liquidity preference an initial independent variable. Still, insofar as the liquidity preference comes about as a result of uncertainty over future interest rates, which are at least in part derived from current interest rates, it is only in cases where current interest rates coincide with past expectations that the liquidity preference can be considered an entirely independent variable of the system. If present interest rates differ significantly from previous expectations, the liquidity preference ceases to be an independent variable, as a certain number of other factors now become implicated in the causal chain, including, for example, measures taken by the monetary authorities, which may be pursuing a different policy than previous authorities.

Liquidity preference is a potentiality or functional tendency, which fixes the quantity of money which the public will hold when the rate of interest is given; so that if r is the rate of interest, M the quantity of money and L the function of liquidity-preference, we have $M = L(r)$. This is where, and how, the quantity of money enters into the economic scheme.¹⁰

Keynes defines three types of need as having a crucial impact on the liquidity preference. These are the following three motives:

- The motive for exchange,
- The motive for security, and
- The motive for speculation.¹¹

The quantities of money required for exchange (buying and selling goods and services) and security do not depend to any great degree on the interest rate. The liquidity preference, however, prompted by a speculative motive, can be a significant source of change in the interest rates. If the interest rate equalises the demand and the supply of money at the quantity reached once the motives for exchange and security have been met, then an equilibrium state is established. If an excessive motive for holding cash for speculative reasons arises, then there will be instability of the interest rates. This is why an increase in the quantity of money will affect growth in bond prices above all expectation, to the point at which further growth is not expected, and a tendency for their prices to fall will then appear. This fall in bond prices will bring supply and demand of money, which is to say the interest rate, back into balance.

¹⁰ John Maynard Keynes, *Op. cit.*, p. 84.

¹¹ John Maynard Keynes, *Op. cit.*, p. 85.

2.8 The Classical Theory of the Interest Rate

Keynes agreed with the classical economists regarding the need for savings to equal investment. On the other hand, he did not accept the classical theory of the interest rate, that is the definition of the interest rate as the price which brings the supply of and demand for capital, or savings and investment, into equilibrium. The classical economists started from a given quantity of income, assuming which, they then analysed various relations of saving and investment. According to them, the interest rate grows, when demand for capital, that is investment grows. If investment is growing and investments are equal to savings, this means that savings must also be growing. Still, changes in savings and in investment entail a change in income—one cannot have changes in investment and saving at a set level of income. For Keynes, the classical economists overlooked this change in income because they were analysing relations in an economy enjoying full employment. Since a change in income is possible only on the basis of a change in employment, which the classical economists had excluded from their analysis, classical analysis was really reduced to just one special case of the functioning of a given economy.

Demand for investment is not determined by the interest rate, but by the relationship of the supply and demand for capital goods: their price. On the basis of the price for capital goods and the expected income from investment, one may arrive at the marginal efficiency of capital, and from the marginal efficiency and the interest rate at the scale of investment. The root of the mistake in the classical theory of the interest rate lies in supposing that interest is a reward for waiting (saving or deferring consumption) rather than for abstaining from liquidity.

2.9 Psychological and Business Incentives to Liquidity

Demand for money appears as a result of four forms of motive: the income motive, the business motive, the precautionary motive and the speculative motive.

- The income motive appears as a result of the need to “bridge the interval between the receipt of income and its disbursement.”
- The business motive appears as a result of the interval between paying for intermediary products ordered and work done, on the one hand, and charging for one’s own products and services sold, on the other (the time difference between income and outgoings of cash).
- The precautionary motive (holding cash for security) arises as a consequence of the possibility of unforeseen expenditures.
- The speculative motive is very important in Keynes’s system, because of the transmission of the effects of changes in the quantity of money in circulation,

which is the same as to say the effectiveness of the monetary policy transmission mechanism through financial markets onto the real sector.¹²

How homogenous securities markets are in predicting future interest rate movements is very important. If overall expectations are relatively homogenous, changes in the interest rate will have no very significant impact on changes in the quantity of money. If, however, expectations of the interest rate differ, i.e. are not homogenous, then bond and share prices can be subject to very intensive change. Accordingly, there will be a greater volume of financial transaction, which can cause the quantity of money and the interest rate to change.

In essence, Keynes distinguishes two categories of demand for money: transaction and speculative. The transaction demand for money depends on the level of income which is intended to meet our needs for exchange and security. The speculative demand for money depends on the interest rate and expectations. When additional money is issued, the amount of money in circulation increases and that increase will accrue to somebody as income, so that it follows that there will be an increase in income. Increased income will in part be allocated to the transaction demand and in part to satisfying the speculative motive. Part of the money allocated for meeting the speculative motive will push bond prices up, which will in turn lead to an increase in the volume of trade in financial assets. This increased volume of trade on capital markets will cause the interest rate to fall. As a result of this fall in interest rate, investment will rise and so will income.¹³

According to Keynes, it is of great importance for any economy what part of income is designated to meet speculative desires (the speculative motive), precisely because that quantity of money will play a decisive role in forming the interest rate. Changes in securities prices determine the volume of trade on capital markets and the level of the interest rate. Mass psychology is of great importance on such markets, as it determines expectations about future interest rates. If expectations conflict with monetary policy measures, the result will be major and undesirable changes in the interest rate and the quantity of money, which will influence the investment activity, the level of employment and income levels. If the policy of monetary authorities is in line with expectations formed on the securities markets, any interest-rate level will clear the market (represent an equilibrium). In the opposite case, there will be very undesirable and destabilising movements.

2.10 Sundry Observations on the Nature of Capital

In this chapter, Keynes tries to complete his theory of capital, or rather the effectiveness of capital over the long-term. *The basic assumption is that capital has to be sufficiently scarce to be effective over the longer term.* This is clear from the following quote:

¹² John Maynard Keynes, Op. cit., pp. 97–98.

¹³ John Maynard Keynes, Op. cit., pp. 99–100.

For the only reason why an asset offers a prospect of yielding during its life services having an aggregate value greater than its initial supply price is because it is *scarce*; and it is scarce because of the competition of the rate of interest on money. If capital becomes less scarce, the excess yield will diminish, without it having become less productive—at least in the physical sense.¹⁴

From this quotation, it may be concluded that capital is sufficiently scarce if its marginal efficiency is greater than the interest rate, since this means that the overall investment has still to reach its maximisation level, defined as equality of the marginal efficiency of capital and the interest rate. So long as the marginal efficiency of capital is greater than the interest rate, in Keynes's framework, i.e. without any analysis of the impact of international capital flows, investment will remain less than savings. Investments are equal to savings when the marginal efficiency of capital is equal to the interest rate.

The basic problem for investing lies in uncertainty over future effective demand, which gives rise to uncertainty over the rate of return on resources invested. Were saving to entail consumption on a specific day in the future, investment would become so much the more efficient, insofar as it would be possible to calculate effective demand and therefore the marginal efficiency of capital fairly exactly:

In optimum conditions, that is to say, production should be so organised as to produce in the most efficient manner compatible with delivery at the dates at which consumers' demand is expected to become effective. It is no use to produce for delivery at a different date from this....¹⁵

Meanwhile, given that the simple act of saving does not mean consumption on a given day in the future, or even that those resources will ever be spent or that the owner will ever convert them into cash, investment depends to a very large degree on the condition of expectations.

In his theory of the multiplier, Keynes assumes that an initial increase in employment will come about in the sector manufacturing investment goods and that only later will a more rapid increase in employment in the manufacturing sector producing for consumption follow. For capital to be efficient, it must also be relatively scarce. In other words, it must represent a reward to entrepreneurs for taking additional risks and, in particular, for the uncertainty which is so important a characteristic of investment. The longer the production process, the more favourably it will augment demand for its products to a sufficient level for their price to grow and render investment efficient:

... And conditions of equilibrium require that articles produced in less agreeable attendant circumstances (characterised by smelliness, risk or the lapse of time) must be kept sufficiently scarce to command a higher price. But if the lapse of time becomes an agreeable

¹⁴ John Maynard Keynes, *Op. cit.*, p. 106.

¹⁵ John Maynard Keynes, *Op. cit.*, p. 107.

attendant circumstance, which is a quite possible case and already holds for many individuals, then, as I have said above, it is the short processes which must be kept sufficiently scarce.¹⁶

Accordingly, Keynes connects the idea of sufficient scarcity with higher prices or reduced supply of specific types of product, in comparison to demand for them. Additional employment is created on the basis of knocking down wages in the sector producing investment or capital goods. Production processes in the sector are sufficiently lengthy to meet the conditions Keynes considers key to stimulating the investment cycle. Because of their lengthiness and sufficient scarcity, the prices for these products should provide sufficient incentive (be sufficiently high) to increase both profits and employment, at least on the basis of lower real wages, as Keynes advocates.

If the growth in employment is to continue, after this initial increase prompted by investment in the production of capital goods, the investment cycle must transfer to the production of goods for mass consumption. Since these production processes are relatively short, it follows that they too must be made sufficiently scarce for the price of the products to be high enough to act as an incentive for investors ready to invest in producing them. This part of Keynes's theory about the nature of capital and how it should stimulate additional employment is, at least to some extent, contradictory and at the root of the unresolved problem in the *General Theory* of how to rein in accelerating inflation while keeping capital relatively scarce and translating employment growth induced by falling real wages into employment growth with higher real wages.

The theory of the scarcity of capital is in conflict with the theory of employment, and in particular with Keynes's assumption that higher employment with falling real wages can over time be replaced with higher employment with higher real wages. This leaving to one side of the issue of the structure of costs and how employment at lower real wages is to be magically transformed into employment with growing real wages results in an unavoidable tendency for increased inflationary pressure, as the economy approaches full capacity utilization.

2.11 The Essential Properties of Interest and Money

The interest rate is one of the key economic variables and plays a very major role in the economic system of any country, whether it has a large or small economy. By comparing the interest rate with the marginal efficiency of capital, we may determine the scale or volume of investment and so the level of employment and income. Keynes emphasises that it is possible to express the interest rate for any good in terms of itself. The interest rate is calculated by taking a money amount equivalent to the price of the good, putting it on deposit for a set period, and comparing it to

¹⁶ John Maynard Keynes, *Op. cit.*, p. 107.

the future price of the good at the end of the same period. By multiplying this ratio by 100, we get a number that tells us what quantity of that good we would be able to buy after the set period with the resources we have at our disposal. If the number is less than 100, the interest rate on the good expressed in terms of itself is negative. On the other hand, if the number is larger than 100, the interest rate in terms of the good itself is positive. A good has a nil interest rate in terms of itself, according to this way of going about things, when the ratio of the two quantities is equal to the number 100.

Different assets entail utility and expense in different ratios, which depend on the following variables, as defined by Keynes:

1. Some assets provide a yield to their owner in the form of an additional product or some form of service—we may designate this return (q).
2. Almost all assets, other than money, entail carrying costs. Keynes designates these costs (c).
3. Different assets have different liquidity praemia. The liquidity premium (l) is the possibility that, at any given moment, one can use this asset to purchase some other asset. By definition, money is the asset with the highest liquidity premium, insofar as it is the universal medium of exchange and standard of value.¹⁷

The total utility of a given asset is determined by the sum of the yield and the liquidity premium minus the carrying costs ($q + l - c$). The liquidity premium is negligible, for most goods, compared to the carrying costs. Thus, it is the relationship between the return or yield and the carrying costs that determines the efficiency of many, if not most assets. So long as the returns are sufficiently high to cover the carrying costs, with an additional sum left over that is at least equal to the rate of interest on the cash deposit, then investment in the asset pays off. The interest rate on cash deposits is determined by the liquidity premium it secures. The characteristic features that give money its role as the universal medium of exchange and standard of value are as follows:

1. From the perspective of private entrepreneurs, money has zero elasticity of production. Elasticity of production is the term used for how much additional labour has to be invested in producing an additional unit, given an increase in the amount of labour commanded by it. This condition means that entrepreneurs cannot produce money and change its quantity.
2. The second feature that money has is that the elasticity of substitution of money by some other asset is or near to zero. This feature means as the exchange value of money rises there is no tendency to substitute another good for it, and it stems directly from money's role as a means of exchange and standard of value.
3. The determining characteristic of money, which is what gives it the role of universal means of exchange, is its high liquidity premium, the highest of all other goods, and its very low, almost negligible, carrying costs.¹⁸

¹⁷ John Maynard Keynes, *Op. cit.*, pp. 112–113.

¹⁸ John Maynard Keynes, *Op. cit.*, pp. 115–116.

Determining the value of assets in any other asset than money would result in higher carrying costs, which in combination with the liquidity premium, would eat into the asset's value. Consequently the value of assets expressed in that asset would fall. The zero elasticities of production and substitution, like the high liquidity premium, are what secure money the privilege of being the measure or standard in which debts and wages are agreed, in other words what secure its stable value. It is because of these characteristics of money that the interest rate on money represents the fundamental measure of the efficiency of other assets.

It is, moreover, an important characteristic of money that its interest rate declines considerably more slowly than for other goods. In producing other forms of asset, entrepreneurs render those assets more abundant and therefore less valuable, so that the interest rate of those goods expressed in terms of themselves declines relatively fast, which is not the case of money, thanks to the zero elasticity of production of money for the entrepreneur. It is precisely the entrepreneurs' inability to produce money that makes money a sufficiently scarce good, allowing it to maintain a relatively stable value over the longer term.

2.12 The Underlying Logical Framework of the General Theory

In the 18th chapter of the *General Theory*, Keynes reviews once more the basic logic of his system of analysis and views on how an economy functions, or should do. Keynes explains the basic assumptions of the analysis as follows:

We take as given the existing skill and quantity of available labour, the existing quality and quantity of available equipment, the existing techniques, the degree of competition, the tastes and habits of the consumer, the disutility of different intensities of labour and the activities of supervision and organisation, as well as the social structure, including the forces, other than variables set forth below, which determine the distribution of the national income.¹⁹

Keynes takes these factors as given, that is as unchanging, but only in the short run. In fact, the short-run is basically defined as the period in which these factors do not change. The following quantities in Keynes's system are exogenously determined:

1. Three variables which are psychological in character: the propensity to consume, the liquidity preference, and the state of expectations regarding yield on assets.
2. The level of the wage unit, as determined by negotiations between trade unions and employers.

¹⁹ John Maynard Keynes, *Op. cit.*, p. 122.

3. The quantity of money, as determined by the action of the central bank.²⁰

Keynes offers the following as the independent variables of the model:

- The propensity to consume,
- The marginal efficiency of capital, and
- The interest rate.

There is no interdependence between these variables, insofar as none of them can be directly derived from either of the others, alone or in combination. The marginal efficiency of capital and the interest rates depend on psychological factors, like the state of expectations about yield on assets (the marginal efficiency of capital) and liquidity preference (interest rates).

The dependent variables and the Keynes' model are:

- The level of employment, and
- The output (gross domestic product).

Keynes expresses both these dependent variables in the wage-units, given that he built his theory of value on the foundations of the labour theory of value.

2.13 Changes in Money-Wages

In the 19th chapter of the General Theory, Keynes provides a critique of the analysis of the impact of changes in money wages on unemployment as applied by the classical economists. Their analysis had rested on the assumption that reducing money wages would increase demand by cutting prices, so that growth in the real wage could then bring about increased employment, due to a higher level of aggregate demand. The classical economists' analysis involved three phases. In the first phase, they looked to the quantities which can be placed on the market at a given price. Then they connect various quantities with various prices, and then on the basis of these demand curves, they deduce a labour demand curve, on the assumption that none of the other costs change (except those related to changing the output). In this way, the classical economists determined or deduced the demand function for labour at the level of an industry (branch of industry), which they then mechanically transferred to the economy as a whole.²¹

It was precisely this equation of a partial equilibrium, or rather transferring this logic for an individual branch of industry onto the economy as a whole, without any significant changes or analysis of the interaction between branches of industry and sectors that Keynes considered mistaken as an approach and an unacceptable way of analysing the general equilibrium. The second important shortcoming of the classical analysis of the impact of changes to wages was that the approach assumed

²⁰ John Maynard Keynes, *Op. cit.*, p. 123.

²¹ John Maynard Keynes, *Op. cit.*, p. 127.

the overall supply of labour was equal to demand for it, from which it follows that there is no such thing as involuntary unemployment. Third, and for Keynes the most illogical position in classical economic analysis, was that every, even a very small, reduction in the real wage leads to a reduction in the supply of labour.

In his own analysis of changing wages and their impact on the relationship between the supply of labour and demand for it, Keynes started from the following two questions:

1. Will reducing the wage result in an increase of employment, so long as the marginal efficiency of capital, the propensity to consume and the interest rate remain unchanged?
2. Does reducing the wage have a probable impact on employment through a mediated influence on these three fundamental variables of Keynes's system?

Cutting wages has an impact on reducing employment, and so on changing expectations regarding the future level of aggregate demand, and therefore an impact on changing the marginal efficiency of capital, the propensity to consume, and the interest rate. Thus, if these variables are unchanged, no additional employment can come about, as future income would be less than the price of supply. The mediate impact of cutting wages on the propensity to consume, the marginal efficiency of capital and the interest rate is manifest in the following way²²:

- A fall in wages will, to some degree, cut prices, which will mean the reallocation of actual income away from workers to other factors entering into marginal prime cost and away from entrepreneurs to rentiers. One result of this reallocation will be a reduction in the propensity to consume, which will have negative repercussions on the future level of employment.
- Insofar as the analysis is being conducted of an open economy, then cutting wages represents a reduction in comparison to abroad, which will be positive impulse for investment, because of the lower price of domestic goods abroad. This effect of reducing wages should be positive when it comes to increasing employment.
- While cutting wages may have a positive impact on the balance of payments, it can at the same time effect a worsening of the terms of trade. Worsened terms of trade will depress real wages, which will affect any increase in the propensity to consume.
- If the reduction in wages is temporary in character, that is if wages are expected to grow again soon and as a result demand to increase, there may be an increase in employment as a result of the expected growth in the marginal efficiency of capital, derived from the expected immediate increase in wages. If, however, even lower wages are expected in future, then such expectations will lead to a fall in the marginal efficiency of capital, a fall in investment and a consequential fall in employment.

²² John Maynard Keynes, *Op. cit.*, pp. 129–131.

- If the cut in wages is accompanied by a general reduction in the level of prices, this will have a positive effect on reducing the liquidity preference, which may result in lower interest rates. A fall in the interest rate would increase the marginal efficiency of capital and create the conditions for a more favourable investment climate, in other words increase investment. If this is a short-term phenomenon, the effect will be so much the less because of the expectation that interest rates will rise again soon, as a result of increasing prices and liquidity preference.
- A general reduction in wages may give rise to favourable expectations on the part of entrepreneurs about the future and in that way increase the marginal efficiency of capital. If, however, optimistic expectations of increasing wages in the near future are also prevalent amongst workers, then the optimistic views of the entrepreneurs may easily change into pessimistic ones and on that basis cause a reduction in the marginal efficiency of capital, investment and employment.
- A fall in wages will not provoke more favourable expectations in entrepreneurs who are heavily in debt, because of the expectation that it will lead to a fall in consumption and real wages, and consequently an inability to create their product.

Keynes then explained the shortcomings of the policy of flexible wages, which may be interpreted in brief as follows:

- There is no way to bring about universal change of wages for all employees and simply reduce wages for everyone by the same percent after a long period of time, which would have a series of negative effects on the marginal efficiency of capital.
- Because additional employment produces a fall in the marginal productivity of labour, the real wage has to be cut, not by cutting nominal wages, but by increasing the price of final goods at unchanged wages, which would maintain some sort of fairness in allocation between workers and factors whose income is determined on the basis of an unchanged amount.
- Increasing the quantity of money by reducing wages, increases the debt burden on entrepreneurs.
- If a fall in the interest rate is achieved by increasing the quantity of money and reducing wages (reducing the wage-unit), it results in negative trends regarding expectations of future effective demand and consequently a reduction in the marginal efficiency of capital.

On the basis of the foregoing interpretation of Keynes's views, it is clear that Keynes advocated a stable money wage (nominal wage), which would facilitate conducting a stable price policy. This view of Keynes is entirely logical for analysis of the short run, but it is contradictory in the long run, given that he never gave any answer as to how one might limit the workers' expectations or demands for higher wages, insofar as he advocated cutting real wages, as a consequence of preferring modest growth in the prices of final products in the hope of growth of the profit

potential and investment. That is, given increased prices for final products and unchanged wages, the real wage would be reduced and in this way the real cost of labour and so marginal cost reduced.

Keynes thus claims in this chapter that price stability may be achieved by a policy of unchanged money wages, so that over the short term prices change only in a dependent relationship to employment, which is in contradiction with his view from Chapter 6 that the short-term price is formed out of marginal prime costs, from which one should not exclude the user cost. This is evident from the following quotation:

Apart from “administrative” or monopoly prices, the price level will only change in the short period in response to the extent that changes in the volume of employment affect marginal prime costs; whilst in the long period they will only change in response to changes in the cost of production due to new techniques and new or increased equipment.²³

2.14 The Employment Function

The employment function represents the relationship between the number in employment and effective demand measured by the wage-unit. By definition, this function represents an inverse form of the total supply function. The employment function for a given branch of industry is derived from two sets of curves:

- The supply function for the branch, and
- The supply function for the industry as a whole.

Let us suppose that all the other factors of the system are unchanged, but that effective demand changes as a result of increased investment. At any given level of effective demand, expressed in the wage-unit, there will be a corresponding level of employment for the industry as a whole, and, depending on how effective demand is distributed, there will be a certain level of employment for each industrial branch. Individual employment functions can be summed, because they are expressed in the same unit—the wage-unit. If we let Nr stand for the number employed in a branch of industry and Dw for effective demand in the industry as a whole, then $Nr = Fr(Dw)$, while the total number of employed is equal:

$$N = \sum Nr = \sum Fr(Dw)$$

Keynes defined three forms of elasticity with regard to effective demand, expressed in the wage-unit:

1. *The elasticity of employment* $e_{er} = (dNr/dWr) \times (Dwr/Nr)$ This elasticity shows the change in employment in a branch of industry resulting from the change in effective demand, expressed in wage-units, intended for purchasing a product from that branch of industry.

²³ John Maynard Keynes, *Op. cit.*, p. 134.

2. *The elasticity of output* $e_{or} = (dOr/dDwr) \times (Dwr/Or)$ The elasticity of output shows the percentage by which output will change if effective demand, expressed in wage-units, changes by 1 %.
3. *The elasticity of expected prices* $e_{pr} = (dPwr/dDwr) \times (Dwr/Pwr)$ The elasticity of expected prices shows by what percent prices of the product of a given industrial branch will change if effective demand in that branch changes by 1 %.²⁴

Because the effective demand of a branch of industry is equal to a multiple of that branch's total output (Or) and the price, expressed in wage-units, (Pwr), it follows that:

$$OrPwr = Dwr,$$

and from this relation, it follows:

$$(dOr/dDwr) \times (Dwr/Or) + (dPwr/dDwr) \times (Dwr/Pwr) = 1, \quad \text{that is}$$

$$e_{or} + e_{pr} = 1.$$

Thus, according to this law, an increase in effective demand is partially induced by an increase in the price and partially by an increase in output. The same holds true for the whole industry. Were we now to express the wage and the price of a unit of production in money terms, so that W is the money wage for a unit of labour, while (p) is the unit price of a product expressed in money, then we might designate with ep and ew the elasticities of money prices and the elasticities of money wages' independence from changes in effective demand, expressed, also, in money (D). From the foregoing relations, Keynes deduces the following relation²⁵:

$$e_{pr} = 1 - eo(1 - ew).$$

It is precisely from this relation that we may deduce Keynes's weakness in explaining how to transition from additional employment with a falling real wage to additional employment with a rising real wage. For the real wage to grow, ew has to be greater than ep , and, since by definition for Keynes $ep + eo = 1$, we may quite easily state that there is no value for which ew is greater than ep that can satisfy both equations.

If we reject the idea that there is only one way of allocating effective demand to industrial branches and accept the realistic assumption of a larger number of potential distributions of aggregate effective demand, then we may conclude that total employment does not depend only on the amount of total effective demand, but on how it is allocated. One consequence of this is situations in which different levels of employment are possible for the same level of effective demand. For

²⁴ John Maynard Keynes, *Op. cit.*, pp. 140–142.

²⁵ John Maynard Keynes, *Op. cit.*, p. 143.

example, where the lion's share of demand in the allocation is directed towards a branch with a lower elasticity of employment, then overall employment will be lower. Where a greater share of aggregate effective demand is directed towards a branch with a greater elasticity of employment, then total employment will be greater for the same quantity of effective demand.

If demand is directed towards products with a lengthier or more roundabout period of production, the number of additional people employed will be less, and so the elasticity of employment will be less. Keynes defined the period of production as the number of time units required for an announcement of a change in demand to produce the greatest elasticity of employment. Consumer goods have the longest period of production, determined in this way.

So, if effective demand rises as a result of higher investment, the elasticity of employment will be greater and more workers will be employed over the short term because of the shorter period of production. If this increase in demand is the result of higher consumption, however, it will in large part be absorbed by higher price, and to a lesser extent by an increase in the number of people employed. This means that a longer time period is required for the elasticity of employment to achieve a value close to one.

In other words, Keynes was suggesting in this way that the fastest way out of a depression in the short term, which was the primary motivation for writing the *General Theory*, will be investment in capital goods, that is investment in infrastructure and the production of goods for producing mass consumption goods. These investments have a larger multiplier of employment because of the shorter period of production and, particularly importantly, because they have a greater elasticity of employment than elasticity of price, so that the increase in aggregate demand (effective demand) is primarily absorbed by an increase in output and employment and to a lesser extent by an increase in prices. Thus, effective demand has a dominant impact on the real variables.

The foregoing presentation of Keynes's analysis and his recommendations for exiting depression relates to an economy that has a low or relatively low degree of capacity utilization (a spare capacity), so that it can react quickly in the short term by increasing production, without major changes in the cost structure. When, however, the economy reaches the level of full employment, the elasticity of employment will be zero and the entire increase in effective demand will be absorbed by price rises. Under Keynes's theory, it is only when prices rise under conditions of full employment that we have a situation of real inflation.

2.15 The Theory of Prices

At the beginning of the twenty first chapter, Keynes points out a shortcoming of classical economic theory in explaining how prices are formed, namely that, in dealing with the theory of value, the classical economists conclude that price is a result of the relationship of supply and demand, as well as of the movements of

marginal costs and the elasticity of the short-run supply function. Once they have introduced money into the analysis, however, they treat the quantity of money as a factor independent of the relationship of supply and demand for goods and conclude that prices are determined by the quantity of money and the income velocity of money. Keynes claimed that money could not be considered an independent factor and, consequently, that the level of prices was the result of the interaction of supply and demand for goods and the quantity of money, while the quantity of money depends on the relationship of supply and demand for goods and on psychological expectations.

Keynes emphasised as a fundamental characteristic of money its role in connecting past and future:

In a single industry its particular price level depends partly on the rate of remuneration of the factors of production which enter into its marginal cost, and partly on the scale of output. There is no reason to modify this conclusion when we passed to industry as a whole. The general price level depends partly on the rate of remuneration of the factors of production which enter into marginal cost and partly on the scale of output as a whole, i.e. (taking equipment and technique is given) on the volume of employment.²⁶

Keynes stressed the importance of changes in demand and their impact on costs and the output, without neglecting how prices in the various branches of industry are related:

It is on the side of demand that we have to introduce quite new ideas when we are dealing with demand as a whole and no longer with the demand for a single product taken in isolation, with demand as a whole assumed to be unchanged.²⁷

Introducing money into the analysis of macroeconomic interdependencies, Keynes considers the effects of changes in the quantity of money on the level of prices as a consequence of the following influences:

1. Change in effective demand caused by changes in the quantity of money;
 2. The impact of the law of diminishing returns;
 3. The inability to substitute productive resources and inelasticity of supply in certain branches;
 4. Changes to the wage-unit; and
 5. Different rates of return on factors which enter into marginal cost.²⁸
1. *Changes in effective demand* Keynes defined effective demand as the product of the quantity of money in circulation and the income velocity of money ($MV = D$). Changes in the quantity of money are reflected in the value of effective demand in the first phase through the impact on the interest rate. Changes in the interest rate, as a consequence of changes in the quantity of money, effect change in the liquidity preference, the marginal efficiency of

²⁶ John Maynard Keynes, Op. cit., p. 147.

²⁷ John Maynard Keynes, Op. cit., p. 147.

²⁸ John Maynard Keynes, Op. cit., p. 148.

capital and the investment multiplier. An increase in the money supply should cause a fall in the interest rate, an increase in the marginal efficiency of capital, an increase in investment and a consequent increase in employment. However, the distribution of effective demand will play the key role in determining the final effects of increasing the money supply and the fall in interest rates on the change in prices and production (nominal and real categories). If the increase in effective demand is directed for the most part to industrial branches with a high degree of capacity utilization, the increase in effective demand will result in a larger increase in prices than in production. If the lion's share of the increase in effective demand is oriented towards branches with a low degree of capacity utilization, the increase in prices will be less, while the largest percentage of the increase in effective demand will be absorbed through rising output and employment. Only in exceptional cases will an increase in the quantity of money be connected with a fall in effective demand.

2. *The impact of the law of diminishing returns* Because additional employment under conditions of existing techniques, equipment and technology leads to a fall in the marginal product of labour, as a result of the operation of the law of diminishing returns, in turn causing a fall in wages, given that the level of wages is derived from the marginal product of labour. Since Keynes advocated a fixed or moderately rising money wage, this means that an increase in output necessarily entails higher costs. For entrepreneurs to increase their profits, they must compensate for the increasing costs of production, as a consequence of the growth in the cost of labour, by putting up the price of their product. If money wages rise, then the rise in the price of products must be higher than the increase in money wages, the consequence of which is a fall in real wages.
3. *The impossibility of substituting for productive resources and the inelasticity of supply* As there is no way of substituting for productive factors in various branches of production, there is no way to reorient excessive demand from one branch into another branch of production. In cases where demand has increased for products of an industrial branch which has used up its capacities and the sources of supply of factors of production, practically the entire increase in demand will be absorbed through price rises. If there are multiple branches in the economy which have already entirely used up their capacity, but for whose products there exists additional demand, this will cause a greater rise in the general level of prices, with a very weak impact if any on additional employment.
4. *The impact of changes in the unit wage* During a period of economic growth and increasing effective demand, employers are ready to increase many wages. Accordingly, the money value of the unit wage does not appear to be out of step with changes in the prices of goods from the breakdown of consumption in working households. Keynes, however, assumes that workers will not seek an increase in their money wages simultaneously with every increase in effective demand. Thus the money value of the wage-unit changes, but in discontinuity, which results in putting up prices. Keynes calls these points of discontinuous rise in the costs of the factors of production the conditions of semi-inflation,

in distinction from a condition of true inflation, which appears when rising effective demand combines with full employment:

When a further increase in the quantity of effective demand produces no further increase in output and entirely spends itself on an increase in the cost-unit fully proportionate to the increase in effective demand, we have reached a condition which might be appropriately designated as one of true inflation. Up to this point the effect of monetary expansion is entirely a question of degree, and there is no previous point at which we can draw a definite line and declare the conditions of inflation have set in. Every previous increase in the quantity of money is likely, in so far as it increases effective demand, to spend itself partly in increasing the cost-unit and partly in increasing output.²⁹

5. *Different marginal products of the factors of production that enter into marginal cost* Because the money compensation differs for different factors of production which are an integral part of the marginal costs of production, due to different levels of the marginal value of the products of the factors, the elasticity of supply of these factors is also different. Keynes particularly stresses the importance of user cost:

Perhaps the most important element in marginal cost which is likely to change in a different proportion from the wage-unit, and also to fluctuate within much wider limits, is marginal user cost. For marginal user cost may increase sharply when employment begins to improve, if (as will probably be the case) the increasing effective demand brings a rapid change in the prevailing expectation as to the date when the replacement of equipment will be necessary.³⁰

Keynes, accordingly, shows us the direction in which we should focus our attention if we wish to explain phenomena and changes over the long-term, but he does not establish the relationship between the level of prices, the level of nominal wages, and user cost over the long-term. A more precise consideration of the impact of user cost on price levels approximates to the concept of unit cost. The unit cost represents the average value of costs which enter into marginal prime costs. The unit cost and the volume of production are key determinants of the level of prices.

2.16 Notes on the Business Cycle

Keynes explained fluctuations in the business cycle using his own method, where the independent variables are the propensity to consume, the marginal efficiency of capital and the interest rate. Keynes gave pride of place in explaining the business cycle to changes in the marginal efficiency of capital:

But I suggest that the essential character of the trade cycle and, especially, the regularity of time-sequence and of duration which justifies us in calling it a cycle, is mainly due to the way in which the marginal efficiency of capital fluctuates. The trade cycle is best regarded,

²⁹ John Maynard Keynes, Op. cit., p. 151.

³⁰ John Maynard Keynes, Op. cit., p. 151.

I think, as being occasioned by a cyclical change in the marginal efficiency of capital, though complicated and often aggravated by associated changes in the other significant short-period variables of the economic system.³¹

In the phase of late boom, excessively optimistic expectations tend to form regarding the future returns on capital assets and, accordingly, so do excessive rates of growth of investment. Because, during this phase of the business cycle, capital becomes abundant (there ceases to be a relative scarcity of capital as a major factor justifying investment), expectations of future returns change suddenly from optimistic to (overly) pessimistic, bringing about a sharp fall in the marginal efficiency of capital. As a result of this fall, there will be a fall in employment and a consequential fall in aggregate demand.

If the fall in the marginal efficiency of capital is steep and sudden, because of a sudden switch from optimistic to pessimistic expectations about future yields and returns, just cutting the interest rate is not enough to revive business activity. The reason for this lies in the sudden loss of confidence in the effectiveness of economic policy measures and the very pessimistic estimate of future yields. A certain passage of time is necessary for recovery, which Keynes said lasts between 3 and 5 years. This period corresponds with the average lifetime of equipment in which investment has already been made and whose marginal efficiency of capital is unsatisfactory. Inseparable from this position of Keynes is his further position that a necessary condition for getting out from depression is reviving the economy through new investment. The new investment, however, must be directed towards more effective techniques and technological solutions.

One of the most important factors of the length of the phases of the business cycle is the cost of surplus stocks. Thus, during a phase of excessive investment and inability to sell products, it is a necessary consequence that surplus stocks of finished products grow. The carrying costs of these inventories represent major elements of cost and it would be desirable, to the degree possible, to reduce the price of goods in stock so as to free the entrepreneurs from their stocks and the associated costs. However, selling stocks represents disinvestment, which has a negative effect on employment. A similar problem arises with stocks of materials and semi-finished product (variable inputs). Keynes divides the business cycle into the following four phases:

1. The first phase—the phase of falling business activity. The characteristics of this phase are a reduction of stocks of raw materials and unfinished goods (disinvestment) and an increase in stockpiles of finished goods (production for stockpiling).
2. The second phase—the phase of the lowest level of business activities. This phase is characterised by further reduction of investment in raw materials and semi-finished product, with a simultaneous reduction of production and, consequently, a reduction in the stockpiles of finished products.

³¹ John Maynard Keynes, *Op. cit.*, p. 155.

3. The third phase—the phase of the recovery. During the recovery phase, entrepreneurs increase investment in raw materials and semi-finished products, while still reducing their stockpiles of finished product.
4. The fourth phase—the phase of prosperity. The phase of prosperity is marked by an increase in investment in raw materials and semi-finished products, and with an increase in investment in stockpiles of finished products.

According to Keynes it is possible to avoid the cyclical fluctuations of business activities over the longer term by cutting the interest rate during the boom, rather than letting it rise, which is a possible remedy for excessive optimism:

Thus the remedy for the boom is not a higher rate of interest but a lower rate of interest! For that may enable the so-called boom to last. The right remedy for the trade cycle is not to be found in abolishing booms and thus keeping us permanently in a semi-slump: but in abolishing slumps and thus keeping us permanently in a quasi-boom.³²

Keynes's particularly negative approach to the use of high interest rates with a goal to restraining investment is clear from the following statement:

Thus an increase in the rate of interest, as a remedy for the state of affairs arising out of a prolonged period of abnormally heavy new investment, belongs to the species a remedy which cures the disease by killing the patient.³³

2.17 The Social Philosophy of the General Theory

The fundamental economic problems of any society are ensuring full employment and preventing an unjust distribution of income and wealth. For society to realise full employment, there is a need to continuously maintain a favourable relationship between the marginal efficiency of capital and the interest rate. The volume of investment depends on the interest rate and the marginal efficiency of capital. The problem consists in the fact that the incentive for an increase in savings is a higher interest rate, while at the same time a higher interest rate causes the marginal efficiency of capital to fall. Therefore, it is the main task of society to establish such relationships between the interest rate and the marginal efficiency of capital as to allow a sufficient level of saving and a sufficient quantity of investment, on the basis of which new jobs can be opened and full employment attained. This is why Keynes, as already stressed in the previous section, was a strong advocate of low interest rates and a high propensity to consume, which would facilitate sufficient demand and efficiency of investment.

³² John Maynard Keynes, *Op. cit.*, p. 159.

³³ John Maynard Keynes, *Op. cit.*, p. 160.

Keynes also advocated expanding the role and competencies of the state in economic life, in order to allow the executive in a given country to secure stable conditions for the conduct of business activities:

The State will have to exercise a guiding influence on the propensity to consume partly through its scheme of taxation, partly by fixing the rate of interest, and partly, perhaps, in other ways.³⁴

Keynes advocated for an active role of the state, not in the sense of participating in ownership, but with a view to ensuring the necessary and sufficient conditions for the system to operate as a whole and, in that way, enable stable operations by private entrepreneurs:

Whilst, therefore, the enlargement of the functions of government, involved in the task of adjusting to one another the propensity to consume and the inducements to invest, would seem to a 19th-century publicist or to a contemporary American financier to be a terrific encroachment on individualism, I defend it, on the contrary, both as the only practicable means of avoiding the destruction of existing economic forms in their entirety and as the condition of the successful functioning of individual initiative.³⁵

With regard to the social distribution of income and assets, Keynes stressed that there exist both social and psychological justifications for significant inequality in the distribution of both, but that there were no justifications for inequality of the scale that existed in the period when he was writing his work. In fact, it was for precisely this reason that Keynes thought that the rentier form of capitalism had no future in the long term, any more than a society in which such a form of capitalism dominated:

I see, therefore, the rentier aspect of capitalism as a transitional phase which will disappear when it is done its work. And with the disappearance of its rentier aspect much else in it besides will suffer a sea-change. It will be, moreover, a great advantage of the order of events which I'm advocating, that's the euthanasia of the rentier, of the functionless investor, will be nothing sudden, merely a gradual but prolonged continuance of what we have seen recently in Great Britain, and will need no revolution.³⁶

It is clear from the views cited above that Keynes was fighting for a greater role for the state, which, through an effective economic policy, the basic levers of which were fiscal policy (the public debt) and monetary policy (the interest rate), was to ensure an adequate propensity to consume, a low interest rate, and a relatively high level of taxation on the owners of non-productive assets. In this way, the state would secure sufficient room for the individualist-entrepreneur to conduct innovative business activities.

The state, however, could not be allowed to suppress individualism in entrepreneurship through its measures, because that was the very foundation of the system:

³⁴ John Maynard Keynes, *Op. cit.*, p. 187.

³⁵ John Maynard Keynes, *Op. cit.*, pp. 188–189.

³⁶ John Maynard Keynes, *Op. cit.*, p. 186.

But, above all, individualism, if it can be purged of its defects and its abuses, is the best safeguard of personal liberty in the sense that, compared with any other system, it greatly widens the field for the exercise of personal choice. It is also the best safeguard of the variety of life which emerges precisely from this extended field of personal choice, and the loss of which is the greatest of all the losses of the homogenous or totalitarian state.³⁷

The task of the state is, accordingly, to secure stable conditions in which market competition can unfold:

The task of translating human nature must not be confused with the task of managing it. Though in the ideal commonwealth men may have been taught, inspired or bred to take no interest in the stakes, it may still be wise and prudent statesmanship to allow the game to be played, subject to rules and limitations, so long as the average man, or even a significant section of the community, is in fact strongly addicted to the money-making passion.³⁸

Respect for private property is a precondition for respect for private initiative:

There are valuable human activities which require the motive of money-making and the environment of private wealth-ownership for their full fruition. Moreover, dangerous human proclivities can be canalised into comparatively harmless channels by the existence of opportunities for money-making and private wealth, which, if they cannot be satisfied in this way, may find their outlet in cruelty, the reckless pursuit of personal power and authority, and other forms of self-aggrandisement. It is better that a man should tyrannise over his bank balance than over his fellow-citizens: and whilst the former is sometimes denounced as being but a means to the latter, sometimes at least it is an alternative.³⁹

Consequently, the wealthy are not undesirable, but, rather, to the contrary, one should allow as large a number of people as possible to become wealthy, on the one hand, and allow that social group to increase its propensity to consume so as to allow the reproduction of capital and achieve full employment:

Thus our argument leads towards the conclusion that in contemporary conditions the growth of wealth, so far from being dependent on the abstinence of the rich, as is commonly supposed, is more likely to be impeded by it. One of the chief social justifications of great inequality of wealth is, therefore, removed.⁴⁰

2.18 Keynes's Theory of Capital, the Speed of Economic Growth and a Possible Answer to the "Inflation Trap"

Keynes's *General Theory of Employment, Interest and Money* beyond any doubt provoked a great change in the economic mode of thought, creating an academic basis for a great growth in the significance of macroeconomic management of the

³⁷ John Maynard Keynes, *Op. cit.*, p. 188.

³⁸ John Maynard Keynes, *Op. cit.*, p. 185.

³⁹ John Maynard Keynes, *Op. cit.*, p. 185.

⁴⁰ John Maynard Keynes, *Op. cit.*, p. 185.

business cycle and the scope for realising full employment. At the same time, the main weakness of Keynes's approach was the unsolved question of how to control inflation as economic growth from a phase with a low degree of capacity utilization (actual output is much less than potential output) becomes economic growth stimulated by a low interest rate in a phase of a higher or high degree of capacity utilization (actual output is close or equal to potential output).

In this context, it is useful, as a potential contribution to the analysis of this problem, to investigate or analyse whether user costs are a key element in long-term price level stability. Keynes wrote about user cost in the appendix to the 6th chapter of the *General Theory*, ascribing them great importance for the stability of economic growth. According to Keynes, the short-term price of a unit of production is formed on the basis of marginal prime costs, which are made up of the factor cost and the user costs. The long-term stable price of supply should equal the sum of the marginal prime cost, supplementary cost, the cost of risk and the cost of interest. Keynes points out that the fluctuation in the user cost is more significant and outweighs fluctuation in labour costs. As the degree of capacity utilization increases (growth of employment) user costs increase due to the law of diminishing returns.

On the basis of the preceding commentary on Keynes's *General Theory*, we may draw a clear conclusion that Keynes's preoccupation was thus with solving the problem of mass involuntary unemployment and determining effective measures for exiting economic depression in the short term, that is given a set of productive techniques and available resources. In such an environment, investors are very pessimistic, unwilling to invest and they need incentive. Keynes's introduction of targeted measures of expansionary monetary policy and equally expansionary fiscal policy, with the outright Central Bank purchase of new issues of government bonds was a key recommendation for the conduct of economic policy in the 1930s, with a view to reducing of private entrepreneurs' uncertainty over future revenues and on that basis to increasing the incentive to invest, based on an increased marginal efficiency of capital, derived from a policy of low interest rates. Moreover, Keynes's analysis, as contained in the *General Theory*, is primarily an analysis of the instruments of economic policy focused on attaining internal equilibrium, because of the nature of the problem and the time in which that problem arose (the Great Depression). The time when Keynes wrote the *General Theory* was not a time in which measures based on the liberalisation of flows of goods and, more particularly, of capital were dominant.

Thus, the primary focus of the analysis was on attaining the internal equilibrium which had to be attained over the short term. By contrast, in his analysis of the long-term, Keynes did not consider the impact of technological progress on changes to the structure of costs, even though in the appendix to his 6th chapter he did explain in somewhat more detail his theory of costs based on user costs. Moreover, in his analysis of capital accumulation, Keynes did stress that in the long-term unit cost would probably be under the significant influence of user cost, and to a lesser extent of changes in wages. In this way, he implicitly assumed changes in material costs and changes in depreciation, but did not work out that aspect, that is he did not work it out fully as a special chapter or part of a chapter in which he would be

analysing the effects of investment in research and development on changes to the quality of techniques and technologies of production, or of changes on that basis on the structure of costs, or provide answers to the question of how to maintain price stability in the long term, while also ensuring that investment in physical capital continues to pay off, if the remedy for maintaining prosperity is low interest rates.

In his theory of the capital formation, as we have already discussed, Keynes's key assumption is that what ensures investment pays off and capital increases is its relative scarcity. Capital is sufficiently scarce so long as the marginal efficiency of capital is greater than the interest rate, so that, during the phase of economic boom and employment at or close to full employment, the remedy for maintaining that level of economic activity is a low interest rate. For aggregate demand to be sufficient to maintain employment at a level of full employment, the marginal propensity to consume must be kept at a relatively high level, that is at a level that allows stable share of personal consumption in the creation of GDP. Business sector investment is the condition *sine qua non* of maintaining a level of full employment, as a sufficiently attractive marginal efficiency of capital is maintained by growth in the money supply and suppressing the interest rate to a very low level. Under such circumstances, however, capital becomes ever more abundant and one of the bases in the analysis of the efficiency of investment is lost. So, growth in the money supply under conditions of full employment and capacity utilization equivalent to full capacity (the potential output) means that, according to Keynes's analysis, the entirety of the additional money supply is spent on rising unit costs (higher prices). This is the phase that Keynes called the stage of true inflation.

A mathematical response to the theoretical dilemma left by Keynes can be found in the work of Branko Horvat, a candidate for the Nobel Prize for economics in 1983.⁴¹ Modelling economic growth and testing Marx's so-called law of the faster growth of sector one (sector one in Marx's theory is the production of capital goods), Horvat proved mathematically that the law was not valid. Horvat's mathematical proof that more intensive investment in the production of capital goods than in the production of consumer goods was not a necessary condition of accelerated economic growth can be used with success to clarify Keynes's theory of capital, in which the scarcity of capital is the key condition to ensure that investment pays off and that the economy can be maintained in a condition of boom without inflationary pressures.

Horvat developed his model using differential calculus in sixteen gradually developed formulas, and at the end of the proof established the following relation⁴²:

$$r'(t) = [r(t)/km][\alpha(t) - (um - uo)/I(t)]$$

⁴¹ That was the year the Nobel Prize for Economics was awarded to Gerard Debreu. Branko Horvat was on the shortlist, which contained only two names. That is, in the final round of voting, Debreu and Horvat were the only rivals.

⁴² See Ref. [1], pp. 55–62.

where

- $r'(t)$ the marginal rate of growth of the economy;
- $r(t)$ the average rate of growth of the economy;
- km the marginal capital coefficient;
- $\alpha(t)$ the rate of growth of the sector producing capital goods (sector one);
- um the marginal coefficient of user cost (the ratio of the difference between user cost in the current and in the previous period, to the change in production in the current period compared to the previous period);
- uo the average coefficient of user cost (the ratio between user cost in the current period and the value of production in the current period);
- $I(t)$ the index of the increase of overall production at time (t) compared to the base time period (to) .

Here it should be stressed that the marginal and average coefficients of use (U_m and U_o) in Horvat's model correspond to the marginal and average share of Keynes's user cost in the additional (in the case of marginal) or total value of production (in the case of average share). Thus, Horvat's use represents the sum of the values of material costs and depreciation, and so is equal to Keynes's user cost.

From the above identity, it follows that a change in the general rate of growth of a given economy depends on the following variables: the average and marginal coefficients of user cost and the marginal capital coefficient. Horvat's model is based on the early Harrod-Domar model (an early post-Keynesian model of growth), and this is particularly relevant to the case where the marginal capital coefficient is equal to the average capital coefficient. So, the key variables of the model are the following:

1. *The average coefficient of user cost (uo)* is the ratio of the total user cost and total production, or gross domestic product. Total user cost represent the sum of all material costs in a given economy, and the total costs of depreciation in the economy:

$$uo = U(to)/P(to)$$

2. *The marginal coefficient of user costs (um)* is the ratio of the difference between user costs in the current and in a previous time period and the difference between the total value of production in the current and in a previous time period:

$$um = [U(t) - U(to)]/[P(t) - P(to)]$$

3. *The marginal capital coefficient (km)* is the ratio of the difference between the total value of available fixed and working capital in the current period and the value of available fixed and working capital in the preceding period, with the difference between GDP in the present and in the preceding time period:

$$km = [S(t) - S(to)]/[P(t) - P(to)]$$

In the preceding three expressions, $U(t)$ and $U(t_0)$ represent the total user cost in the current and the baseline period, $S(t)$ and $S(t_0)$ the total value of fixed and working capita (the value of physical capital) in a given economy for both the current and the baseline period, while $P(t)$ and $P(t_0)$ represent the values of total production (output) in the current and base year.

Change in the general rate of growth, i.e. acceleration of economic growth, depends on the expression in brackets on the right side of the equation. In other words, for the economy to achieve an accelerated growth rate, the expression in brackets must be positive, i.e.:

$$\alpha(t) \geq (um - u_0) / I(t)$$

The coefficient $\alpha(t)$ represents the rate of growth for the sector producing capital goods (sector one). The relationship of these variables gives rise to the following regularities:

- (1) If the marginal coefficient of user cost is greater than the average coefficient (a situation in which an economy is becoming less efficient—consuming more inputs in the current period per unit of output than in the previous period), the primary sector producing capital goods must grow faster, for the economy to grow faster as a whole than in the previous period. In Keynes's theory, exit from depression requires investment in capital goods because the investment multiplier and the employment multiplier act faster for these forms of investment. This means that in the recovery phase, investment in capital goods is still sufficiently scarce and still has a sufficient rate of return, on the one hand, and allows for a faster rate of employment growth, on the other, to ensure the first phase of recovery, the transformation of a stagnant or declining economy into a growing one.
- (2) Nevertheless, the continuous accelerated growth of the sector manufacturing capital goods is not a necessary condition for economic growth, given that it follows from the equation given above that the sector producing capital goods does not have to grow (it can stagnate or even have a negative growth rate) for the economy as a whole to grow. This condition is met when the marginal coefficient of user cost is less than the average coefficient of user cost, so that even a zero value for the $\alpha(t)$ coefficient satisfies for the expression in brackets to be positive, because of the negative difference between the marginal and the average user cost coefficient. Thus, after the recovery phase facilitated by growth in investment in capital goods, there follows a boom stage in which investment in the production of capital goods does not have to continue to grow, can in fact continue to be scarce, without compromising the continuation of the boom. This continued boom unfolds with increased investment in the production of consumer goods, which were not a priority during the recovery phase, because of the relatively low marginal propensity to consume and low effective demand. Keynes himself stressed that during the boom phase, the solution to maintaining a sufficient scarcity of capital will be

increased investment in the production of consumer goods. It follows from Horvat's model that a faster rate of growth of production of consumer goods than for capital goods happens when changes in the cost structure are such that the marginal user cost is less than the average user cost, and this is possible thanks to the change from the law of decreasing returns to the law of increasing returns as a consequence of the previous phase of increasing the capital/labour ratio based on advanced technology.

- (3) The economy as a whole, accordingly, grows even when the sector manufacturing capital goods is stagnating (the primary sector), i.e. when the rate of growth in that sector has fallen to a lower percentage than the percentage by which the coefficient of user cost has improved over the average coefficient of user cost. It is a necessary condition of economic growth, however, in this case that the production of consumer goods grow faster than the production of capital goods, i.e. that the production of consumer goods records a rate of growth that is greater than the rate of the reduction of growth of the production of capital goods.

Reducing the marginal coefficient of user cost in comparison to the average coefficient of user cost in an economy means that the economy as a whole, i.e. its manufacturing and service sectors, are performing successfully and, so, consuming fewer inputs per unit of additional production than previously. In periods where such a situation exists, resources previously invested in expanding productive capacity (previous accelerated growth of the production of capital goods) will have resulted in a greater or improved efficiency of production and so in greater productivity and lower average costs. Accelerated growth of the sector manufacturing consumer goods, consequently, is a consequence of more efficient production, realised on the basis of investment in increasing the availability of capital goods. If the marginal coefficient of user cost, after the period of adjustment to the new structure of the economy is over, is greater than the average cost, this means that productivity in the economy is falling, which in turn means that the resources previously invested in capital equipment cannot be paid off at the initially planned rates of return of investment. Economic growth in this phase, based on a higher rate of growth in the production of capital goods, does not represent a sound basis for sustainable economic growth. It is, in fact, a phase of excessive investment in which capital ceases to be scarce, so that not even a policy of low interest rates can maintain the marginal efficiency of capital over the long-term as a level which will secure the reproduction and accumulation of capital itself.

On the basis of our application of the Horvat model, through which he proved that Marx's so-called law of faster growth of the first sector does not hold, and adaptation to Keynes's terminology, we have shown that price stability can be maintained under conditions when the actual output is close or equal to the potential output (to the level of full employment), given improvement in the cost structure based on a reduction of user cost per unit of production, based on technological change, that is investment in higher quality capital equipment and the production of

better quality inputs of production, which would increase the productivity of labour and transform the law of diminishing returns into production with growing or at least constant returns.

References

1. Horvat B (1987) Radna teorija cijena i neki drugi neriješeni problemi ekonomske nauke (Labor theory of prices and some other unresolved problems of economic science). Rad, Beograd
2. Keynes JM (1936) The general theory of employment, interest and money. Macmillan & Co. Available on: The ISN ETH Zurich webpage—www.isn.ethz.ch
3. The Royal Economic Society (2013) The collected writings of John Maynard Keynes—volume VII: the general theory of employment, interest and money. Cambridge University Press, Cambridge

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