

Involuntary Unemployment : the Elusive Quest for a Theory

M. De Vroey

Discussion Paper 2005-4

Département des Sciences Économiques
de l'Université catholique de Louvain



UCL

Involuntary Unemployment: the Elusive Quest for a Theory

Michel De Vroey[◇]

December 2004

A paper to be presented at the Conference on the History of
Macroeconomics, Louvain-la-neuve January 20-22, 2005

Abstract

This paper addresses the issue of why Keynesian economists have had such a hard time in giving the concept of involuntary unemployment a place in economic theory. Is the gradual demise of this concept a manifestation of some inner defect in economic theory or is it due to some intrinsic weakness in the concept itself, which limits its usefulness when it comes to economic theorising? I have recently published a book which attempts to answer this question, and my aim in this paper is to present its main results. I start by characterising Keynes's programme as consisting of the following four elements: 1) demonstrating the existence of involuntary unemployment; 2) demonstrating that wage rigidity can be exonerated as its cause; 3) giving a general equilibrium or interdependency explanation of the phenomenon; 4) demonstrating that demand stimulation is the proper remedy for the problem. Next, I bring out four conceptual ambiguities that have plagued discussions about involuntary unemployment: the confusion between involuntary unemployment and underemployment; the confusion between involuntary unemployment in the individual disequilibrium sense and involuntary unemployment in the frustration sense; a loose understanding of the notion of full employment; and, finally, a less than rigorous definition of the notion of rigidity. The paper continues by presenting my arguments on whether different types of New Keynesian models (implicit contracts, efficiency wages, coordination failures and imperfect competition) have succeeded in achieving Keynes's programme. My conclusion is that they all fail on at least one of its items. In the final section of the paper, I speculate on whether it is still worthwhile for economists with a Keynesian inclination to keep fighting in defence of involuntary unemployment.

Keywords: Keynes, Involuntary Unemployment, New Keynesian Theory

JEL classification: B22; E12; E24; J64

[◇] IRES, Université catholique de Louvain, 3 Place Montesquieu, 1348 Louvain-la-neuve, Belgium. E-mail address: devroey@ires.ucl.ac.be

This work was supported by the Belgian French-speaking Community (Grant ARC 03/08-302) and the Belgian Federal Government (Grant PAI P5/10).

1. Introduction

The aim of this paper is to present the results of a research project on which I have been working for almost ten years, and was finalised in a book recently published by Routledge entitled *Involuntary Unemployment: the Elusive Quest for a Theory* (De Vroey, 2004). It offers a history of macroeconomics from Keynes's *General Theory* to neo-Keynesian models, tackling this broad subject from the specific angle of the involuntary unemployment concept.

The puzzle that my book tries to solve can be put as follows: why is it that Keynesian economists, who felt that a concept such as involuntary unemployment had a definite real-world relevance — in the Great Depression certainly, but also in subsequent, less dramatic, states of the economy — have had such a hard time giving it a place in economic theory? What are the stumbling blocks that this enterprise encountered? In other words, why did Lindbeck and Snower have to make the following comment:

Strange as it may seem to the layman, economists have found it difficult to agree on what should be meant by involuntary unemployment and to pose coherent arguments that show why people who are willing and able to work at the prevailing wages in market economies cannot find jobs when they seek them. ... Economists have had a difficult time explaining how involuntary unemployment comes about and may it may persist for substantial periods of time. They appear to have gone through all the various behaviours that doctors exhibit in the face of unresponsive patients: scepticism, diagnosis, refinement of the diagnosis, finding reasons for doubt, retracting the diagnosis, pronouncing the problem non-existent, formulating a new diagnosis, and so on (Lindbeck and Snower, 1988: 19).

For years, this notion of involuntary unemployment stirred up heated controversies, generating polar opposite standpoints. The following quotations, from Mancur Olson and Robert Lucas, illustrate this point:

There are, of course, large numbers of people who voluntarily choose not to work for pay (such as the voluntarily retired, the idle rich, those who prefer handouts to working at jobs, those who stay at home full time to care for children, and so on) and, given the way unemployment statistics are gathered in the United States and other countries, no doubt some of these show up in the unemployment statistics. But common sense and the observations and experiences of literally hundred of millions of people testify that there is also involuntary unemployment and that it is by no means an isolated or rare phenomenon. ... Only a madman — or an economist with both 'trained incapacity' and doctrinal passion — could deny the reality of involuntary unemployment. (Olson, 1982:195)

Involuntary unemployment is not a fact or a phenomenon which it is the task of theorists to explain. ... It does not appear possible, even in principle, to classify individual unemployed people as either voluntary or involuntarily unemployed depending on the characteristics of the decision problem they face. One cannot, even conceptually, arrive at a usable definition of full employment as a state in which no involuntary unemployment exists. (Lucas, [1978] 1981: 243)

Although it was already in use before Keynes's *General Theory*, the concept of involuntary unemployment came to prominence in this book. Keynes went to great pains to define it and dissociate it from other types of unemployment. He claimed to have succeeded in demonstrating the possibility of its existence, and most commentators took him at his word. Involuntary unemployment found a place in macroeconomics textbooks without its validity being questioned. Gradually, however, the standard use of the concept, as well as the broader framework in which it was embedded, began to be questioned. The criticism came from two distinct directions. First, there were authors (such as Patinkin, Clower, Leijonhufvud and subsequent disequilibrium economists) who wanted, as it were, to salvage Keynes's central message from what it had become in standard Keynesianism. The second line was more deeply anti-Keynesian, consisting of a two-stage attack bearing both on the conceptual consistency of Keynesian theory and the efficiency of its policy prescriptions. It was initiated by Friedman in his American Economic Association Presidential Address (Friedman, 1968), with the fiercest blows being struck later by Lucas and his colleagues. Involuntary unemployment was not the central target of their attack, but it became a collateral victim.

Unsurprisingly, the new classical attack on Keynesian economics did not put an end to the debate. On the contrary, by a standard dialectical effect, it stirred up a revival of Keynesian thought, known as "new Keynesian economics". For better or worse, these authors agreed to wage the battle on the field decided by the new classicists, i.e. to respect the so-called 'equilibrium discipline'. In a first stage, they reacted by constructing new involuntary unemployment models, which could no longer be criticised on the grounds of their lack of micro-foundations. However, while still claiming that the functioning of the market system could be beset by market failures, they gradually ceased to put the defence of involuntary unemployment at the top of the agenda, thereby implicitly giving in to the Lucasian criticism that theoretical conversations would lose nothing by dispensing with it. To date the opponents of the introduction of the involuntary unemployment concept in economic theory have had the upper hand.

These are the intellectual events that my book explores. I am of course unable to enter into a detailed analysis of the different episodes of this story within the scope of this paper. My aim is rather to present a few central lessons from my inquiry. This paper is organised in eight sections, as follows. Section 2 offers a reconstruction of Keynes's programme. Sections 3 to 5

bring out three conceptual ambiguities which, in my opinion, have played a crucial role in the misunderstandings that have plagued discussions on involuntary unemployment (as my book is mainly concerned with conceptual issues, so too is this account). In Section 3 I reflect on the meaning of the involuntary unemployment notion, emphasising the need to distinguish it from the underemployment notion. In Section 4 I bring out the ambiguities of the notion of full employment taking a prominent ‘old’ Keynesian involuntary unemployment model, that proposed by Modigliani, as an illustration. In Section 5 I ponder upon the opposite notions of flexibility and rigidity. In Section 6 I discuss the issue of whether New Keynesian models have succeeded in demonstrating involuntary unemployment. Finally, in Section 7 I wonder whether it is worthwhile for present day Keynesian economists to keep fighting in defence of involuntary unemployment.

2. Keynes’s programme: a reconstruction

Keynes’s aim in the *General Theory* was to provide a theory of the existence of involuntary unemployment. This, he recognised, was a phenomenon whose real-world existence was self-evident, but for which no place existed within economic theory. Bridging this gulf was the task he set himself. However involuntary unemployment was just one element in a broader picture. Dozens of books aiming to fill the holes in Keynes’s reasoning have been written; none of their proposed interpretations have gained unanimous acceptance. Nonetheless a standpoint must be taken as to the nature of this broader picture. Mine is as follows.

The common explanation of unemployment in Keynes’s time was that it resulted from the wage level being too high and failing to adjust to states of excess supply. Such an explanation was part of a Marshallian analysis in which one market, here the labour market, was considered in isolation from the rest of the economy. Keynes wished to escape from this framework. He wanted to discharge wages being too high from any responsibility for the existence of involuntary unemployment. In other words, the explanation for involuntary unemployment had to be located outside the labour market. What Keynes was actually striving for was to move the analysis of unemployment from a partial to a general equilibrium or interdependency framework (although this terminology did not exist at this time, and of course it was not Walrasian general equilibrium that he might have had in the back of his mind). In other words, Keynes viewed involuntary unemployment as expressing some system failure, a malfunctioning of the decentralised economy. Its existence had to temper, if not upset, the optimistic interpretation of the system put forward by many economists since Adam Smith. In particular, Keynes wanted to link involuntary unemployment with a deficiency in aggregate demand, itself associated with some leakage from the productive towards the financial sector.

Moreover, Keynes did not want to join the imperfect competition line of argument which was emerging at the time in Cambridge. He wanted to put his argument in terms of perfect competition — possibly because he associated imperfect competition with collusion, unions, etc., whereas he wanted to bring to the fore some deeper systemic features of the economy.

Finally, as far as policy was concerned. Keynes believed that a remedy existed for the flaw in the economic system that he had striven to display, and that it was *not* lowering wages. To him the government certainly had an active role to play. For all Keynes's evasiveness on this point, the interpretation (which quickly became popular) that the appropriate remedy was state-induced demand stimulation, seems appropriate. The rationale for this view is that demand activation follows from the diagnosis that Keynes posited, namely that involuntary unemployment resulted from aggregate demand deficiency. The latter implies demand activation as its remedy!

To summarise, Keynes's research programme consisted of the following items:

- 1) demonstrating the existence of involuntary unemployment
 - 1a) with an individual disequilibrium connotation (the reason for this qualification will be explained below);
- 2) demonstrating that wage rigidity can be exonerated as its cause;
- 3) giving a general equilibrium or interdependency explanation of the phenomenon
 - 3a) within a perfect competition framework;
- 4) demonstrating that demand stimulation is the proper remedy to solve the problem.

Moreover, this programme had to be realised in a methodologically correct way, that is, by departing from the canonical neoclassical model as little as possible.

The main task undertaken in my book is to assess a series of Keynesian models against this programme. I start, of course, with the *General Theory*, and continue by studying Hicks's IS–LM model, its recasting by Modigliani in his 1944 article, the views on involuntary unemployment held by the first generation of Keynesian economists (Lange, Leontief, Tobin, Klein and Hansen) and a few macroeconomic textbooks of the 1960s. Next, I study the writings of disequilibrium authors (Patinkin, Clower, Leijonhufvud, Barro-Grossman, Drèze, Benassy and Malinvaud). An examination of the anti-Keynesian offensive led by Friedman and Lucas, follows. Finally, the last part of the book deals with seminal New Keynesian models, investigating whether they are able to give a solid demonstration of either involuntary unemployment or underemployment. Azariadis's implicit contract model, Shapiro and Stiglitz's shirking model, Lindbeck and Snowers' insider/outsider model, three types of coordination failure models (Diamond, Howitt and Roberts), and two types of imperfect competition models (Hart, and Blanchard and Kiyotaki) are considered.

3. Defining involuntary unemployment and differentiating it from underemployment

According to standard microeconomic theory, the fact that an economic agent is not participating in the labour market is not a problem. It must simply be the case that the prevailing wage is lower than or equal to his or her reservation wage (i.e. the lowest wage at which an agent will be ready to forego one unit of leisure time). This is called the ‘reservation wage principle’. The existence of involuntary unemployment can then be seen as a violation of this principle. It occurs when agents are unemployed despite the fact that the market wage exceeds their reservation wage. According to the first-order condition of their decision problem — the equalisation of the marginal rate of substitution between consumption and leisure with the real wage rate — they should be participating in the labour market, but they are not. Nonetheless trading, rather than an adjustment in the wage rate, is occurring. Put differently, at the wage/employment mix characterising effective trading, some suppliers are ‘off their supply curve’ and rationed. Market non-clearing and the breaching of the reservation wage principle are thus two sides of the same coin. This definition can be traced back to Chapter 2 of the *General Theory*, where it is pinpointed by Keynes as a violation of the second classical postulate.

I want to argue that this definition amounts to describing somebody who is involuntarily unemployed as being in a state of individual disequilibrium. To this end, the standard notion of optimising behaviour needs to be qualified by driving a wedge between the ideas of optimal planning and optimising behaviour.

The optimal plan refers to agents’ solutions to the choice problem they are facing. The plan is formed before the opening of trading, and is expressed in their individual supply or demand schedules. In contrast, optimising behaviour refers to what is observed after trading has started. Thus, optimising behaviour implies that the optimal plan has come through. My point is that optimal choice and optimising behaviour need to be logically separated — finding a solution to a choice problem and implementing it are not the same thing.

Individual equilibrium exists whenever the action of a given agent during a given trade round turns out to be the execution of his or her individual optimising plan as decided at the beginning of the trade round. Individual disequilibrium refers to a situation where this is untrue. It thus means the inability of some agents to transform their optimal plans into optimising behaviour.

In this light, involuntary unemployment must be viewed as the emblematic case of individual disequilibrium, a case of ‘forced leisure’, as opposed to ‘chosen leisure’. The unemployed, the argument runs, are deprived of the capacity normally attaching to every economic agent to participate in the interactive democratic process through which market outcomes are

generated. Excluded from the opportunity to work, such individuals are cast aside by the market system, through no fault of their own. Therefore, the ‘involuntary’ modifier seems perfectly appropriate.

The definition of involuntary unemployment as a breaching of the reservation wage principle also has the merit of bringing out the fact that unemployment is a phenomenon of disparity, marked by a split between the employed and the unemployed. It exists when total employment is unevenly distributed across agents, and it affects a proportion of the active population — the unemployed — without affecting the employed.

Defining a concept in the correct way is certainly a good first step for a theory, but it is nothing more than that. Unfortunately, constructing models which can demonstrate involuntary unemployment defined in this way has proved to be a daunting task (unless, of course, the assumption of an exogenous wage floor is made). I show in my book that neither Keynes nor the first generation of Keynesian economists achieved this aim.

Actually, the task has proved so daunting that most of the models which arose later on, and which can be considered as having succeeded in demonstrating involuntary unemployment as a breach of the reservation wage principle, did so by ignoring the individual disequilibrium connotation of involuntary unemployment and instead stressing the connotation of frustration. That is, the involuntarily unemployed agents are depicted as jealous of the employed ones, but their unemployment is viewed as the result of a lottery which it was optimising behaviour to enter. If they are victims, they are victims of bad luck.

Let me now come to the underemployment concept which, I claim, cannot be confused with involuntary unemployment. In its most general sense, underemployment means a state where the employment level is sub-maximal. When this broad definition is taken, involuntary unemployment turns out to be a sub-category of underemployment. However, things are clearer if underemployment is understood in a narrower way as meaning any state of sub-maximal employment except involuntary unemployment. Whenever underemployment is defined in this way, it goes along with market clearing. As a result, the idea of individual disequilibrium is excluded from it. Thus, the reservation wage principle is maintained. Nonetheless, underemployment so understood expresses a state of sub-optimality. The underlying idea is that the employment level endogenously reached by the economy is deemed to be inferior in welfare terms with respect to some higher level, attainable only through exogenous action.

Several authors, starting with Haavelmo (1950), have used the involuntary unemployment concept to drive a wedge between the optimal and the effective level of employment. It is true that involuntary unemployment, in the underemployment sense, captures an idea that must certainly have been attractive to Keynes and is still attractive to Keynesian economists: that it is related to a systemic flaw associated with the decentralised nature of the decision making

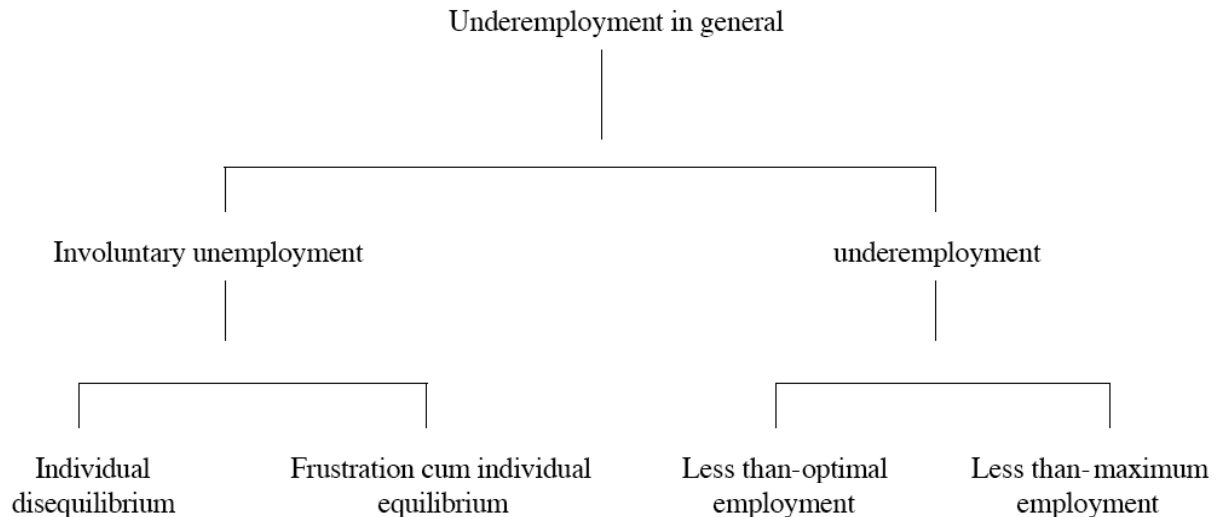
process in capitalist economies rather than to wages being too high. Nonetheless, I find this terminology inappropriate. The involuntary modifier makes sense only in a loose way as referring to some inability to achieve a welfare dominating higher level of employment. Moreover, the co-existence of two different meanings of involuntary unemployment cannot but be a source of confusion since it implies that the same term is used for two distinct occurrences — one in which the reservation wage principle is breached, and another in which no such breaching occurs. Finally, models demonstrating involuntary unemployment in this sense fail to come to grips with the uneven distribution of total employment across agents, deemed to be a central feature of unemployment. In these models, every agent wanting to participate in the labour market does so in an optimising way — no individual disequilibrium is present. It is just that their participation could be increased through exogenous actions. So what is called involuntary unemployment has nothing to do with joblessness — i.e. people who are totally out of work — whereas the initial motivation for the research was to give a theoretical account of this phenomenon. In short, we have arrived at models of involuntary unemployment from which unemployment, strictly understood, is absent! For all these reasons, the underemployment definition of involuntary unemployment is wanting.

A compounding factor is that a sub-maximal level of employment is not necessarily sub-optimal. Hence an additional distinction between two types of underemployment must be made, separating what could be called ‘dominated underemployment’ from ‘efficient underemployment’. The former refers to cases corresponding to the characterisation above, where the existing level of employment is both non-maximal and sub-optimal. Efficient underemployment designates cases where the existing level of employment is non-maximal but optimal — reaching a higher level of employment would not increase agents’ utility. Clearly, only states of dominated underemployment can be of interest to economists wanting to denounce some market failure. However, as will be seen shortly, some models which demonstrated nothing more than efficient underemployment, have been heralded as having made the case for involuntary unemployment.

To conclude, it is of great importance to separate two situations: a state where sub-maximal employment is accompanied with a breaching of the reservation wage principle, on the one hand, and a state of sub-maximal employment respecting the reservation wage principle, on the other. To which of these two situations should the involuntary unemployment label be applied? My personal view is that the first definition is the most apposite, and is the definition that Keynes must have had in mind. As to the sub-distinction between individual disequilibrium and frustration, it must be presumed that, to all intents and purposes, Keynes had the first of these two variants in mind.

If this viewpoint is accepted, models demonstrating involuntary unemployment in any sense other than individual disequilibrium cannot be considered as having fulfilled the first item of Keynes's programme.

Figure 1. The four definitions of involuntary unemployment



4. Full employment, the trouble-making concept

Another source of confusion lies in the notion of full employment, which occurs recurrently in Keynes's *General Theory* as well as in the subsequent literature.

The obvious meaning of this notion is that of the smallest feasible level of unemployment, defined as the total active labour force minus the employed labour force. As unemployment is deemed an evil, any decrease in unemployment it is judged to be good news, even if it is admitted that some irreducible minimum level exists.

Keynes's mistake in the *General Theory* is to have failed to realise that he had used the full employment notion in two different senses in Chapters 2 and 3. A majority of macroeconomists, or at least macroeconomists of the first generation, have repeated this mistake.

In its first meaning, full employment means merely market clearing or equilibrium in the labour market. Its converse is involuntary unemployment in the reservation wage sense. There is no objection to be levelled against introducing full employment so understood in the theoretical discourse, except that it is redundant. If full employment means market clearing why have two terms for a single occurrence?

In its second meaning, full employment means the maximal feasible level of employment. Here, the notion refers to a single, exogenously given, level of employment; an irreducible level of unemployment, frictional unemployment, always exists. Whenever the unemployment rate is above this frictional level, it is assumed that involuntary unemployment exists. Clearly, this definition comes closer to the common-sense meaning of the term.

Keynes claimed that these two definitions amounted to the same thing. I strongly disagree. Let me illustrate the unfortunate consequences of following Keynes in this respect with the example of Modigliani's influential 1944 article in which he recast Hicks's initial model into what was to become the standard version of the IS–LM model.¹ Unlike Keynes, Modigliani had no qualms about the idea that involuntary unemployment might be due to nominal wage rigidity. According to him, the distinctive feature of Keynes's theory is that it contains a particular labour supply schedule featuring a perfectly elastic section up to a kink, after which it becomes upwards sloping. For the sake of simplicity, I shall assume that it becomes vertical at the kink. So, the labour supply curve resembles a reversed image of an L. The employment level corresponding to the kink is called 'full employment'. Whenever the demand for labour intersects the supply schedule on its horizontal section, it is claimed that involuntary unemployment exists.

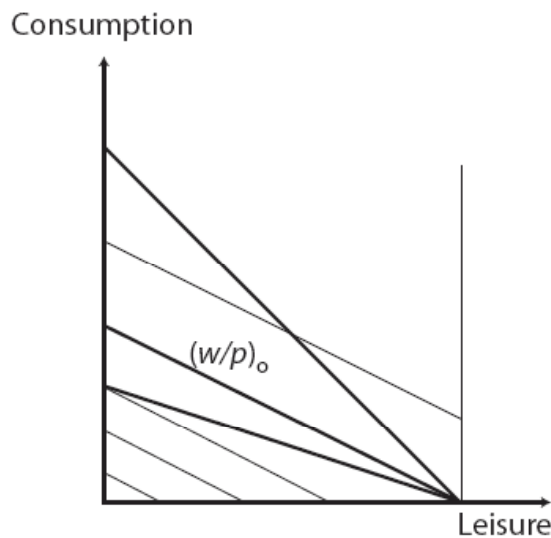
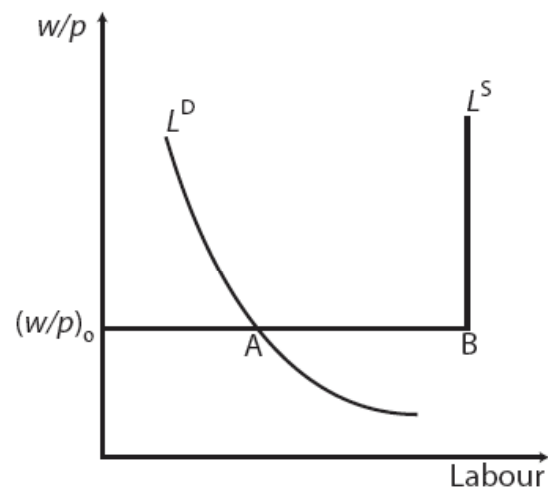
At first, this interpretation looks appealing, if only because it echoes Keynes's remarks about the sociological factors giving the labour market its specificity. However, upon closer scrutiny, it turns out to be flawed, as Figure 2 shows.

The upper graph confirms my claim that the two definitions of full employment do not coincide. According to the market clearing definition, full employment occurs at point A, while according to the maximum definition it is at point B. In other words, Figure 2 shows full employment according to the first definition and a lack of full employment according to the second! Moreover no involuntary unemployment is present if the reservation definition of involuntary unemployment is taken. The supply schedule may well have a special shape, but nonetheless it intersects with the demand schedule.² Thus, according to my definitions, Modigliani's model is concerned with underemployment rather than with involuntary unemployment.

¹ c.f. De Vroey (2000).

² In terms of the distinction made above, Modigliani confuses rigidity as a characteristic of the market supply and rigidity as a characteristic of the functioning of the market.

Figure 2. The reversed-L supply of labour and its choice theoretical foundation



Worse still: using the distinction between dominated and efficient underemployment, we have efficient underemployment, the trivial and uninteresting case. This observation follows from a quick examination of the choice theoretical foundation underlying the mirrored-L supply curve. This reveals that, in the case in point, consumption and leisure are perfect substitutes to the representative labour supplier. His or her indifference ‘curves’ are linear. Unless the expected real wage is equal to the absolute value of the slope of the indifference lines, such cases result in corner solutions. This exception is exactly what happens when the magnitude

of the wage corresponds to the horizontal section of the supply curve: all levels of employment are equivalent to the labour supplier at this wage. Hence, any increase in employment along the horizontal section does not affect utility.

The conclusion to be drawn is that Modigliani's argument rests on a trick. By blurring the two definitions of full employment (one where the lack of full employment is synonymous with involuntary unemployment, and the other where the lack of full employment means merely a non-maximal employment level) the impression is given that involuntary unemployment has been demonstrated. But this is false.

5. Rigidity

In view of the central role played by the opposing notions of flexibility and rigidity in economic analysis, it is surprising how little economists have reflected on their definition.. My aim in this section is to fill this gap and to pursue the implications of a better definition for the theorisation of involuntary unemployment.

First of all, it should always be made clear when discussing rigidity whether the reference is the real world or the fictitious world of theoretical models. Only the latter will be my concern here. This restriction made, I propose to define rigidity as a situation where a price or a wage fails to change when it should, due some external impediment to the formation of equilibrium.³ In turn, flexibility is said to prevail when no such impediment is present. The central point to be kept in mind is that both notions ought to be related to the formation of equilibrium. Sluggishness, stickiness and slow adjustment will be treated as synonymous terms designating situations where a change in a price or a wage is observed, although not to the full extent required for equilibrium. Several qualifications of this definition are needed.

The standard definition

My definition differs from the type of definition to be found in the New Keynesian literature. For example Hahn and Solow give the following definition:

Nominal wage rates are flexible if they rise pretty promptly and rapidly when there is excess demand for labour and fall pretty promptly and rapidly when there is excess supply of labour (Hahn and Solow, 1986: 1).⁴

Here rigidity is associated with the fact that the labour market fails to clear. Hence the claim that efficiency wage models (the case that Hahn and Solow have in mind) display rigidity.

³ Henceforth special attention will be paid to wages.

⁴ Another example in the same vein is from Mankiw's *Macroeconomics* textbook, where wage rigidity is defined as 'the failure of wages to adjust until labour supply equals labour demand' (1997: 129).

But, according to my definition, such a characterisation is misplaced, since nothing in these models impedes the formation of equilibrium. Hence, according to my definition, wages should be considered flexible rather than rigid in these models. The flaw in Hahn and Solow's type of definition is that it mistakenly presumes that only rigidity can explain market rationing. As a result, the absence of market clearing (rather than the existence of an obstacle to equilibrium) is the benchmark for rigidity, thereby allowing rigidity to co-exist with equilibrium, which is odd. If efficiency wage models are characterised as featuring rigidity, then any equilibrium model must be considered alike since, once the equilibrium is attained, values remain unchanged as long as no new shocks arise.

Rigidity as an individual experiment versus rigidity as a market experiment

Another pitfall that must be avoided consists in representing wage rigidity as a specially shaped labour supply curve. This, it will be seen presently, was Modigliani's mistake. Rigidity as understood in my definition refers to a market outcome, and not to a characteristic of its component elements, either the demand or the supply function. Patinkin's distinction between an individual and a market experiment (Patinkin, 1965: 11–12; 387–392) can be evoked here. Rigidity viewed as an individual experiment means that a given agent does not change his or her optimal quantity choice when prices differ. Although this feature expresses itself in a specially shaped supply or demand function, it does not impede the formation of equilibrium; however the opposite is true whenever rigidity is understood as a market experiment.

Time and trade organisation assumptions

Any theoretical discussion as to the nature and impact of rigidity must take into account the assumptions made about time and trade organisation underpinning the theoretical model in which the claim is made. Usually, these models belong either to the Marshallian or the Walrasian traditions. These have in common the assumption that trade takes place within well-delineated trade rounds. In the Walrasian approach the trade round refers to a given tâtonnement process organised by the auctioneer and leading to the formation of a dated temporary equilibrium. In the Marshallian approach, the idea of a trade round is associated with the formation of market equilibrium on a given market day. These two set-ups can be subsumed under John Hicks's 'week' time device where it is assumed that trade occurs on Mondays, the rest of the week serving to implementing the contracts struck on Mondays.

As a result, the notions of flexibility and rigidity must be split according to whether they pertain to a given trade round (i.e. a given Monday) or to a sequence of trade rounds. In other

words, a distinction must be drawn between trade round rigidity and rigidity across trade rounds, the same being true for flexibility.⁵ Strictly speaking, one should never speak simply of rigidity or flexibility, without specifying the time period involved; unfortunately this is a principle that is more honoured in the breach than in the observance.

A further implication is worth noting. As soon as the week device is adopted, the duration of the formation of equilibrium on any Monday is of merely incidental importance. Slow adjustment may result in the attainment of equilibrium late on Monday, but this will have no impact because the implementation of decisions made on Mondays only starts on Tuesdays. Hence it makes no difference whether Monday's equilibrium is attained quickly or slowly, as long as it is attained. On the other hand, were it accepted that the adjustment process could still be unfinished by Monday midnight, the week framework would collapse. Applying Occam's razor, the formation of an equilibrium on Monday should be considered as arising in logical time.

Slow adjustment

Several Keynesian authors have invoked slow adjustment as the cause of involuntary unemployment:

Keynesians believe that goods markets and, especially, labour markets respond only sluggishly to shocks, i.e. that prices and wages do not move quickly to clear markets. (Blinder, [1988] 1997: 111)

I shall argue that Keynesian macroeconomics neither asserts nor requires nominal wage and/or price rigidity. It does assert and require that markets not be instantaneously and continuously cleared by prices. That is a much less restrictive assumption, and much less controversial. (Tobin, [1993] 1997: 136).

In retrospect, the post-war consensus was a consensus about two main beliefs. ... The second main belief was indeed that prices and wages did not adjust very quickly to clear markets. (Blanchard, 1987: 634).

I believe that real wage rigidity — not in the sense that there is no adjustment, but in the sense that the adjustment is slow — is the essence of what is valid in Keynesian economics. (Modigliani in an interview with Feiwel [Feiwel 1989: 570]).

However, these statements should not be accepted at face value. Only a few authors, notably Patinkin (1965) and Leijonhufvud (1968), have really attempted to demonstrate the existence

⁵ The point in time and the inter-temporal cases are not necessarily equivalent. It is possible that rigidity at the trade round level co-exists with flexibility across them. However, the co-existence of trade-round flexibility with across-trade-rounds rigidity looks less plausible.

of a causal link between slow adjustment and market non-clearance — with, as I show in my book, little success. Most models devised by economists who emphasise the slow adjustment claim in their commentaries, are actually based on the exogenous rigid price assumption. This is small wonder if my characterisation of the week device as allowing the functioning of the trade round to be conceived of as taking place in logical time is accepted. In this context, slow adjustment is automatically excluded as far as the operation of Mondays is concerned although it is relevant for the adjustment across weeks. Therefore, slow adjustment cannot be evoked as the cause of involuntary unemployment.

Did Keynes succeed in getting rid of the wage rigidity assumption?

Keynes made the nominal wage rigidity assumption in Chapter 3 of the *General Theory*. While he retained this assumption for most of the book, this, he claimed, was of little consequence since it was eventually to be dropped in Chapter 19. The last issue that I want to consider here is whether Keynes's claim as to his Chapter 19 removal of the wage rigidity assumption is valid.⁶

The question tackled by Keynes in Chapter 19 (1936: 260) is 'what effect on unemployment will a reduction in money wage have?' Unfortunately, this question is ill-framed. A twofold clarification is needed. First, we need to make clear whether this question relates to the real world or the fictitious theoretical universe. As to the issue of whether decreases in nominal wages succeeded in decreasing mass unemployment during the Great Depression, many economists will concur that it did not. But what counts is to generate this result in the theoretical model. Second, as claimed above, it is necessary to separate adjustment as pertaining to a given trade round ('Monday adjustment') and adjustment across trade rounds ('adjustment across Mondays'). The rigidity factor in need of removal in order to substantiate Keynes's claim pertains to the former adjustment process. That is, the alleged removal must consist in a replacement of the 'Monday rigidity' by 'Monday flexibility' assumption. Involuntary unemployment must occur in a given trade round, the point at issue being to demonstrate that it can arise even when there is 'Monday flexibility'.

Against this background, it turns out that Keynes unwittingly resorted to a trick. Outward claims to the contrary notwithstanding, Keynes's reasoning is not concerned with a replacement of rigidity by flexibility within a given trade round. His discussion bears on a different topic, namely the pros and cons of variations over time in an exogenous rigid wage. The issue of how trade round wages are formed is sidestepped. In other words, the question addressed is: 'will employment increase if an exogenous wage floor decreases from t_0 to t_1 , an

⁶ Keynes's motivation is not at issue. It is obvious that he did not like having involuntary unemployment explained by an exogenous rigid wage. The point is to assess whether he was able to implement his objective.

exogenously rigid wage being assumed for each trading round, but possibly a different one at each round?’ Keynes may well have clinched a point in stating that inter-temporally rigid wages are more desirable than inter-temporally flexible wages, but this is hardly tantamount to removing the Monday rigidity assumption, as he claims to have done. So, contrary to what Keynes and several Keynesian authors — especially Patinkin (1987) — have suggested, the rigid wage assumption fails to be removed from the trade round analysis, the proper context in which the appearance of involuntary unemployment must be dealt with.

6. New Keynesian models

My next task is to assess how ‘new’ Keynesians, as opposed to ‘old’ ones such as Modigliani, have fared in achieving Keynes’s programme. The following models have been studied: Azariadis’s implicit contract model (1975), Shapiro and Stiglitz’s efficiency wages or shirking model (1984), three coordination failures models (Diamond’s ([1982] 1991), Howitt’s (1985) and Roberts’s (1987)), and two imperfect competition models (Hart’s ([1982] 1991) and Blanchard and Kiyotaki’s ([1987] 1991)). A summary of my conclusions follows.

Azariadis’s implicit contract model and Shapiro and Stiglitz’s efficiency wage or shirking model

These two models can be considered together because they succeed in demonstrating involuntary unemployment in the reservation wage sense. This is quite a feat, the realisation of which had to wait for several decades after the *General Theory*. Azariadis’ model is however more *ad hoc* than Shapiro and Stiglitz’s. Unfortunately, these models relinquish the individual disequilibrium aim by giving involuntary unemployment the milder meaning of a state where the unemployed are frustrated and jealous of the employed. The unemployed are in a state of individual equilibrium since employment is distributed through a lottery in which agents find it optimal to participate, even at the risk of ending up unemployed.

To cap it all, the success of efficiency wage models in demonstrating involuntary unemployment has a ring of Pyrrhic victory. That is, when, at last, Keynes’s aim of demonstrating involuntary unemployment is achieved, it turns out that this does not serve the purpose that Keynes had in mind! No state-led demand activation is required. Moreover, it should be noted that in best-known efficiency wage model, the shirking model, unemployment is not a problem in need of a solution. Instead it is the solution to a problem, namely shirking.

Coordination failures models

Here a distinction must be made about Diamond's search model and Howitt's transaction costs model, on the one hand, and Roberts's model, on the other. The first two models are closely related since they are based on the idea that an increase in the level of activity makes trade easier. With respect to the achievement of Keynes's programme, they fare alike. On the negative side, they fail to demonstrate involuntary unemployment. On the positive side, they succeed in demonstrating dominated underemployment. Moreover, they are able to meet two other items of Keynes's programme, the demand activation justification and the exoneration of wage rigidity from causing the problem. Wages are perfectly flexible in these models. Roberts's model is different as it departs more radically from Walrasian trade technology. This allows him to demonstrate involuntary unemployment in the reservation wage. Moreover, the individual disequilibrium feature is also present. This remarkable result confirms a claim that I make in the book, namely that the main stumbling block to obtaining an involuntary unemployment result lies in the centralised trade technology assumptions on which both Marshallian and Walrasian models are based. Unfortunately, Roberts's model fails as far as the justification of demand activation is concerned.

Imperfect competition models

Hart's model is a static general equilibrium model with imperfect competition based on a Cournot–Nash conception of equilibrium. While it is highly original as a theoretical contribution, it is hardly successful when it comes to realising Keynes's programme. It fails on most scores, although it is a success as far as the exoneration of wage rigidity is concerned. Hart's model is basically a dominated underemployment model but its justification for demand activation is contrived. Blanchard and Kiyotaki develop a model of monopolistic competition *à la* Chamberlin. Resting on the nominal wage rigidity assumption, it can be viewed as a modern reincarnation of Modigliani's model. Its distinctive advantage is to provide a justification of demand activation policy and a rebuttal of Friedman and Lucas's claim as to the inefficiency of monetary expansion.

Let me now reflect on the similarities and differences between these various models. They can be regrouped as follows. Implicit contract and efficiency wage models should be put in the first class. They succeed in demonstrating involuntary unemployment at the reservation wage (yet without the individual disequilibrium connotation) but are less successful with most of the other items on the programme, except the exoneration of wage rigidity. All the other models, with the exception of Roberts's, wittingly or not, abandon the involuntary unemployment objective in favour of the dominated underemployment aim. In so doing, they

salvage the system failure idea and the demand activation objective. This second group of models can be further sub-divided. On the one hand, we have coordination failures models maintaining the perfect competition framework and privileging the wage flexibility line. On the other, we have the imperfect competition models. Finally, Roberts's model forms a group on its own. It must be credited with having succeeded in achieving Keynes's aim of demonstrating involuntary unemployment, including its individual disequilibrium connotation. Unfortunately, it suffers from two drawbacks. First, it does not fully succeed in achieving Keynes's programme since it fails on the score of justifying demand activation. Second, its success in demonstrating involuntary unemployment turns out to be a one-shot victory: so what if the possibility of involuntary unemployment has been demonstrated? No real research programme ensues.

My investigation leads me to the conclusion that no model fully succeeds in achieving Keynes's programme. Table 1 summarises the successes and failures. While several models succeed with all of except one of the items, none reaches the full score.

How should this result be interpreted? My opinion is that, seven decades after the publication of the *General Theory*, the most plausible explanation is that Keynes's programme is just not feasible. At least one of its elements is always too much.

None of the authors studied have adopted this standpoint with reference to Keynes's programme. If they had, they would have stated that their departure from this programme stems from their realisation that it could not be implemented, and from their feeling the need to replace it by a more feasible programme. If this viewpoint is accepted, my analysis resolves two standard enigmas in the history of Keynesian economics. The first is why Keynesian theories, departing from Keynes's own way of putting issues, have emerged. They did, it can now be asserted, because Keynes's programme was impossible. The second conundrum is why, if Keynes's programme has to be amended, has it not been replaced by a single alternative programme, rallying all Keynesian economists? Why, in other words, are there competing Keynesian theories? Here again, the answer is simple. Once it is admitted that some departure from Keynes's programme is necessary, several alternatives present themselves, according to the points in the programme that are shelved. It is then hardly surprising that different Keynesian theories co-exist. They all have a common lineage in Keynes's programme and there is no reason to argue that one particular departure is superior to another.

7. Is involuntary unemployment worth fighting for?

Beyond doubt, the main difficulty standing in the way of the realisation of Keynes's programme lies in demonstrating involuntary unemployment in the individual disequilibrium

sense. This raises the last issue that I wish to address — should Keynesian economists continue to strive to demonstrate involuntary unemployment in its strong meaning? The point is not that such a demonstration is impossible but rather whether it is the best path to take.

The main motivation behind Keynesian economists' attempts to introduce involuntary unemployment in economic theory is their belief that it is an important fact of life. For example, Shapiro and Stiglitz write

To us, involuntary unemployment is a real and important phenomenon with grave social consequences that needs to be explained and understood (1985: 1217).

This belief is shared by most Keynesian economists. They are convinced that, out there in the real world, something exists which deserves to be called involuntary unemployment, and has the features mentioned above, especially that people are unemployed through no fault of their own. Hence their desire to introduce this concept into the theoretical discourse. But, as my analysis has shown, every time they try to do this, they stumble over daunting obstacles.

What explains the difficulty of constructing a theory of involuntary unemployment? Is it, as argued by Lucas, that the “thing” to be explained doesn't exist, or is it due to some deeply embedded premise of economic theory? My own view tilts towards the latter. Economic theory is concerned with fictitious parables. The premises upon which it is based have the advantage of allowing tractable, rigorous theorising, but the price of this is that important facts of life are excluded from the theoretical universe. Non-chosen outcomes is one of them. The underlying reason lies in the trade technology and information assumptions upon which both the Walrasian and the Marshallian (and the neo-Walrasian and neo-Marshallian) approaches are based. This is a central conclusion of my inquiry: the stumbling block to the introduction of involuntary unemployment lies in the assumptions about trade technology that are usually adopted in economic theory.

Table 1 Have New Keynesian models achieved Keynes' programme?¹

activation	Involuntary unemployment		exonerating wage rigidity	general equilibrium perspective		demand
	<i>tout court</i>	+ individual disequilibrium		<i>tout court</i>	+ perfect competition	
Azariadis	+	—	+	—	...	—
Shapiro/Stiglitz	+	—	+	—	...	—
Diamond	—	...	+	+	+	+
Howitt	—	...	+			+
Roberts	+	+	+	+	+	—
Hart	+	...	+	+	—	—
Blanchard/Kiyotaki	—	...	—	+	—	+

¹ The assessment is either positive (+) or negative (–). (...) indicates that the question is irrelevant (e.g. if a model does not aim at explaining involuntary unemployment in the reservation wage sense, it cannot be considered as aiming at explaining it in its individual disequilibrium dimension).

Foregoing the involuntary unemployment claim may look like a high price to pay, particularly if it is admitted that good reasons exist for believing in its real world relevance. But would its abandonment really be so dramatic? Several arguments suggest that it might not be so.

First of all, the elimination of this concept would only affect the theoretical sphere. Drawing conclusions from this sphere about the real world would be a mistake. No jumps should be made from the world of theory to the real world, or vice-versa. On the one hand, the real world existence of involuntary unemployment should not be denied merely on the grounds that there is no place for this concept in the theoretical discourse. On the other, the fact that solid arguments can be put forward as to its real world existence is not a sufficient condition to give involuntary unemployment theoretical legitimacy. Admittedly, this position makes sense only if it is accepted, as I believe it should be, that a sharp divide must be drawn between the real world and the fictitious theoretical universe. Unfortunately the principle of such a separation is admitted neither by Keynesians nor by the new classicists. The latter have not hesitated to transpose the theoretical non-existence of involuntary unemployment into the real world. The Keynesians' mistake is that they have over-stated their case: while their model only demonstrates either involuntary unemployment in the narrow frustration meaning or dominated underemployment meaning, they behave as if they had succeeded in giving an explanation of involuntary unemployment in its strong meaning.

Second, the reasons for dismissing involuntary unemployment should be taken into account, i.e. both the rationality assumption and the centralised trade technology and information assumptions. These are defensible on the grounds of tractability and the lack of better alternatives. Still, there is nothing to boast about in their adoption. Their only justification is expediency. If involuntary unemployment is deemed to be theoretically unacceptable only on such grounds, there is less reason to make a fuss over its dismissal.

Third, the issue at stake is whether the demonstration of involuntary unemployment should have priority over the other points in Keynes's programme once it is admitted that they are on a collision course. To Keynes, the concept of involuntary unemployment was instrumental in the realisation of a larger cause, namely the denunciation of a system failure and the vindication of state intervention in the economy. If this concept has been an object of controversy, it is mainly because it was a metaphor for the wider judgment to be made on the efficiency of a competitive market system, and of the opportunities for state intervention in it. Wanting to defend the involuntary unemployment concept thus amounted to taking a sceptical stance on the virtues of *laissez faire*. Similarly, opposition to the idea of involuntary unemployment would stem from supporting *laissez faire*. This is the real issue in the dispute.

But this debate does not necessarily need the involuntary unemployment concept. If this point is accepted, it is not necessary, in the present state of economic theory, to stick too firmly to the view that involuntary unemployment is the *sine qua non* of Keynesian theory.

References

- Azariadis, C. (1975), 'Implicit contracts and underemployment equilibria', *Journal of Political Economy*, vol. 83, pp. 1183–2002.
- Blanchard, O. (1987), 'Neoclassical synthesis', *The New Palgrave: A Dictionary of Economics*, Macmillan: London, vol. 3, pp. 634–636.
- Blanchard, O. and N. Kiyotaki ([1987] 1991), 'Monopolistic competition and the effects of aggregate demand', in Mankiw, N. G. and D. Romer (eds.), *New Keynesian Economics, Volume 1, Imperfect Competition and Sticky Prices*, Cambridge (Mass.): The M.I.T. Press, pp. 345–75.
- Blinder, A. ([1988] 1997), 'The fall and rise of Keynesian economics' in Snowdon, B. and H. Vane (eds.) *A Macroeconomics Reader*, London: Routledge, pp. 109–34.
- De Vroey (2000), 'IS–LM 'à la Hicks' versus IS–LM 'à la Modigliani'', *History of Political Economy*, vol. 32, pp. 293–316.
- De Vroey, M. (2004), *Involuntary Unemployment: The Elusive Quest for a Theory*, London: Routledge.
- Diamond, P. ([1982] 1991), 'Aggregate demand management in search equilibrium', in Mankiw, N. G. and D. Romer (eds.), *New Keynesian Economics, Volume 2, Coordination Failures and Real Rigidities*, Cambridge, (Mass.): The M.I.T. Press, pp. 31–46.
- Feiwel, G. R. (1989), "Testimony II: An Interview. Franco Modigliani", in Feiwel ed., *The Economics of Imperfect Competition and Employment. Joan Robinson and Beyond*, Macmillan: London, pp. 569–581.
- Friedman, M. (1968), "The Role of Monetary Policy", *American Economic Review*, vol. 58, pp. 1–17.
- Haavelmo, T. (1950), 'The notion of involuntary economic decisions', *Econometrica*, vol. 18, pp. 1–8.
- Hahn F. and R. Solow (1986), 'Is Wage Flexibility a Good Thing?', in W. Beckerman (ed.), *Wage Rigidity and Unemployment*, Baltimore: John Hopkins University Press, pp. 1–19.
- Hart, O. ([1982] 1991), 'A model of imperfect competition with Keynesian features', in Mankiw, N. G. and D. Romer (eds.), *New Keynesian Economics, Volume 1, Imperfect Competition and Sticky Prices*, Cambridge (Mass.): The M.I.T. Press, pp. 313–344.
- Howitt, P. (1985), 'Transaction costs and the theory of unemployment', *American Economic Review*, vol. 75, pp.88–100.
- Keynes J. M. (1936), *The General Theory of Employment, Interest, and Money*, Macmillan: London.
- Leijonhufvud, A. (1968), *On Keynesian Economics and the Economics of Keynes*, Oxford University Press: Oxford.

- Lindbeck, A. and D. Snower (1988), *The Insider–Outsider Theory of Employment and Unemployment*, Cambridge (Mass.): The M.I.T. Press:
- Lucas, R. E. Jr. ([1978] 1981), ‘Unemployment policy’, in R. E. Jr. Lucas, *Studies in Business Cycle Theory*, Cambridge (Mass.): The M.I.T. Press, pp. 240–247.
- Mankiw, N. G. (1997), *Macroeconomics*, New York: Worth Publishers (third edition).
- Modigliani, F. (1944), ‘Liquidity preference and the theory of interest and money’, *Econometrica*, vol. 12, pp. 44–88.
- Olson, M. (1982), *The Rise and Decline of Nations: Economic Growth, Stagflation and Social Rigidities*, New Haven: Yale University Press.
- Patinkin, D. (1965), *Money, Interest and Prices*, New York: Harper and Row (second edition).
- Patinkin, D. (1987), ‘Keynes, John Maynard’, in Eatwell, J., M. Milgate and P. Newman (eds.), *The New Palgrave: A Dictionary of Economics*, Macmillan: London, vol. 3, pp. 19–41.
- Roberts, J. (1987), ‘An equilibrium model with involuntary unemployment at flexible, competitive prices and wages’, *American Economic Review*, vol. 77, pp. 856–874.
- Shapiro, C. and J. E. Stiglitz (1984), ‘Equilibrium unemployment as a worker discipline device’, *American Economic Review*, vol. 74, pp. 433–444.
- Shapiro, C. and J. Stiglitz (1985), ‘Can Unemployment Be Involuntary? Reply’, *American Economic Review*, vol. 75, pp. 1215–7.
- Tobin, J. ([1993] 1997)) ‘Price flexibility and output stability: an old Keynesian view’ in Snowdon, B. and H. Vane (eds.) *A Macroeconomics Reader*, London: Routledge, pp. 135–155.

Département des Sciences Économiques
de l'Université catholique de Louvain
Institut de Recherches Économiques et Sociales

Place Montesquieu, 3
1348 Louvain-la-Neuve, Belgique