

Rethinking macroeconomics in light of the U.S. financial crisis

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1. Introduction

The recent U.S. financial crisis showed that mainstream economics was unprepared to deal with it. There was a widespread belief in the self-correcting power of markets; in Alan Greenspan's words, "those of us who have looked to the self-interest of lending institutions to protect shareholders' equity, myself included, are in a state of shocked disbelief."¹

For Colander et al. (2009, p. 2), the majority of economists "failed to warn policy makers about the threatening system crisis and ignored the work of those who did."

Most economists not only did not foresee the depth of the current crisis, they did not even consider it possible. I agree with Caballero (2010, p. 85) that "it is almost tautological that severe crises are essentially unpredictable, for otherwise they would not cause such a high degree of distress." But it is one thing not being able to predict the timing of a crisis, and another one not even considering the possibility of the kind of collapse that the subprime mortgage meltdown unleashed. Mainstream macroeconomics failed to envisage even the possibility of a financial crisis like the one that took place in 2008. Even after the crisis started in the early summer of 2007, it took a long time for orthodox economists to admit that what was going on was a serious matter. Even worse, the institutional changes that made the crisis possible were inspired by the neoclassical thought based on the holy trinity of competition, rationality and efficiency. These were the same constituents that the analytical models had used to build the subprime mortgage securitisation pyramid that nearly blew up the financial system in the US.

Undoubtedly, the recent financial crisis has damaged the reputation of macroeconomics. So, it is time to question what has gone wrong with it and try to put it right.

I start this paper in Section 2 by reminding readers of the origin of macroeconomics as a branch of economics; then, I recall the major turn that it experienced under the influence of the "Lucas critique." Section 3 is devoted to the origin and widespread use of real business cycle (RBC) models. In Section 4, I present how the crisis is analysed from the RBC perspective. The conclusion is that the neoclassical business cycle model contributes too little to the understanding of the recent economic crisis. So, it seems necessary to look for an alternative perspective. In Section 5, a claim is made to re-evaluate Keynes' original contribution to economic analysis and return to Keynes' thoughts, which have been ignored or misstated during the past 40 years. The main contributions made by Keynes are also highlighted. Section 6 reconsiders Minsky's long ignored contributions to financial theory. Section 7 contains the main conclusions, which point out the need to rebuild macroeconomics

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This paper has greatly benefited from many helpful comments made by Guillermo Escudé on a previous version. The usual caveats apply.

¹ *New York Times*, 10/23/2008.

as a discipline in which aggregate quantities play an essential role, while prices have only second-order effects.

2. From Keynes to Lucas

Macroeconomics, as it is now understood, namely the systematic study of business fluctuations and stabilisation policy, was founded by John Maynard Keynes as a distinct field of study within economics.

The central contribution of Keynes was to focus attention on the economic aggregates (income, consumption, investment, savings, etc.). In Keynesian macroeconomics, quantities are related to other quantities, while the role of prices is de-emphasised. This was the quintessence of macroeconomics until Phelps (1970) criticised this approach by arguing that it lacked proper microfoundations. Lucas (1976) argued in the same direction, and this “Lucas critique” had devastating effects on the then dominant approach in macroeconomics. Macroeconomic theory took a major turn at that point: rational expectations representative agent models became the only allowable modelling method. The necessity of microfoundations has been taken as a dogma that rejects as non-scientific whichever contribution had a different approach regarding this basic principle.

However, it is natural to ask how a model that assumes away any agent coordination problems can shed light on macroeconomic phenomena that are intrinsically involved with causing such problems. Since in a complex system aggregate behaviour cannot be deduced from an analysis of individuals alone, representative agent models fail to address the most basic questions of macroeconomics.² In Harcourt’s (2004, p. 1) words, “Modelling the economy as a representative agent rules out by assumption one of the fundamental insights of Keynes (and Marx), to wit, the fallacy of composition, that what may be true of the individual taken in isolation is not necessarily true of all individuals taken together.”

Other disciplines such as thermodynamics and chemistry do not claim the need for a micro theory. All biological creatures are made up of particles. This does not mean that the natural place to start in building biology is to start with particle physics. Botanists study certain characteristics of the behaviour of plants without knowing the exact biochemical mechanisms behind them. Zoologists study anthills without having to resort to the individual behaviour of ants. It is well known that relativity theory (macrophysics) and quantum mechanics (microphysics) are mutually inconsistent. They both recognise that the aggregate behaviour of the systems of particles, molecules, cells and social insects cannot be deduced from the characteristics of a “representative” of the population.

In general, microeconomic models usually ignore non-price interactions and consider individuals as isolated entities who take decisions independently of each other. A basic assumption of general equilibrium theory is that the only interactions among economic agents are through the price system. All adjustments are carried out via fully flexible prices, and agents never experience quantity constraints. Assuming that the preferences and thereby the choices of one individual are influenced by others introduces an important element of uncertainty, which conspires against the possibility of arriving at a stable price equilibrium. So, agents’ interactions are discarded at the micro level and, at the same time, to be acceptable, macro models are supposed to be derived from these sorts of micro models. Not surprisingly,

² Colander et al. (2008, p. 2).

the result is that the most important real economic problems are excluded from economic analysis.

3. RBC Theory

Lucas' work started new classical macroeconomics, which was later recast as RBC theory by Kydland and Prescott. It also goes under the names of neoclassical growth theory and dynamic stochastic general equilibrium models.

The RBC research programme stems from the assumption that business cycles can be studied in a framework postulating market clearing and agents' optimising behaviour (Lucas, 1977). The origins of economic cycles lie in exogenous shocks to the fundamentals, rather than being somewhat intrinsic to the economic system. So, there is nothing inherently bad in business cycles: they are the optimal response of rational economic agents to unexpected changes in the economic environment. Consequently, there is no room – nor need – for stabilisation policies implemented by the government.³

Following these ideas, Kydland and Prescott (1980, 1982) developed a framework to analyse business fluctuations based on a representative agent who solves optimisation problems to arrive at competitive equilibria that are always Pareto optimal.

This framework was used by Prescott (1986) to study the business cycles in the US during the post-World War II period. His conclusion was that fluctuations mostly resulted from random changes in the growth rate of business sector productivity. So, he challenged the dominant view that business cycles are caused by monetary and financial disturbances.

The general equilibrium growth model became the workhorse of neoclassical economics. It is the accepted orthodox paradigm for studying most macroeconomic phenomena, including business cycles, tax policy, monetary policy and growth.

As stated above, the original RBC model was calibrated for the post-World War II period. In the 1970s and 1980s, Lucas and Prescott maintained that, because of its exceptional character, an explanation of the Great Depression was beyond the grasp of the equilibrium approach to the business cycle. However, while Lucas stuck to this view, Prescott changed his mind at the end of the 1990s. RBC theory, he argued, has succeeded in its endeavour to elucidate the Great Depression. The authors credited with this breakthrough were Cole and Ohanian (1999). After that, a volume studying 12 great depressions in different countries by employing simple applied dynamic general equilibrium models was published in 2007.⁴ Finally, Ohanian published an analysis of the recent economic crisis.

4. The Economic Crisis from a Neoclassical Perspective

Ohanian (2010) used a general equilibrium business cycle model to analyse the 2007–2009 recession. So, a model that started out being applied to a relatively stable period in the US

³ Pensieroso (2009).

⁴ Kehoe and Prescott (2007).

economy such as 1954–1982 – and for that reason was long considered inapplicable to explain the Great Depression – is now being employed to explain the Great Recession.

What are the conclusions Ohanian arrives at? His main conclusion is that “lower output and income is exclusively due to a large decline in labour input” (Ohanian, 2010, p. 45). According to Ohanian (*ibid.*), “labour input during the 2007–2009 recession in the United States was far below the level consistent with the marginal product of labour.” Given the huge level of unemployment the crisis generated, it is not big news to know that the labour input sharply declined during that period. More surprising is the reason for that decline, according to Ohanian: the marginal rate of substitution between consumption and leisure was very low relative to the marginal product of labour. So, it seems that the crisis was caused by a sudden and mysterious increase in the preference for leisure. American workers suddenly decided to stay at home and watch TV instead of going to work. Of course, you are forced to reach that conclusion if you start assuming that the recession is an equilibrium outcome for agents who maximise their utilities. We are now again in the pre-Keynesian world where unemployment is always a voluntary decision by workers who have an increased preference for leisure compared with work. Worst of all, this does not contribute at all either to our knowledge of the causes, mechanisms and consequences of the Great Recession or to the knowledge of the policies to prevent a phenomenon like this happening again. In fact, as Ohanian himself recognised, neoclassical economists know little about the specific sources and nature of the shocks, why labour market deviations were so large, why productivity deviations seem to play such a small role in the United States in this period, on how to model real-world financial and policy events in order to determine their impact on the economy, and why macroeconomic weakness continued for so long after the worst of the crisis passed (*ibid.*, p. 63). In summary, the neoclassical business cycle model does not contribute to the understanding of the recent economic crisis.

Its main contribution, if any, is the conclusion that you cannot analyse crises as an equilibrium phenomenon. Of course, this may sound rather obvious for the naïve observer; however, for mainstream economists, this statement has been considered almost taboo for more than 30 years.

This seems to justify Colander's assertion that “the dynamic ‘truth’ force pushing for the best idea and method to win out is relatively weak in comparison to other specific institutional forces that have little to do with the truth of the idea or the usefulness of a method in arriving at the truth” (Colander, 2009, p. 6).

In the same direction, physicist Martin Bojowald (2010) stated that if a certain line of research reaches an influential position, either by chance or because of fashion, that position will soon become stronger thanks to money raising and the influence on new contracts to fill vacant positions. So, it generates a cumulative process that sometimes has nothing to do with truth or usefulness.

5. Back to Keynes

I have argued elsewhere (Beker, 2010, p. 19) that “it should be economic illness rather than economic health that is the main object of economists’ efforts.” So, for example, it is of little help to know that Kydland and Prescott's RBC model gives a good approximation of the

events in a stable period of the American economy such as the post-World War II period. What we need first of all are instruments to deal with unstable, turbulent, chaotic times.

As stated above, Keynes founded macroeconomics. It was a reflection of the Great Depression on economic thought. Keynes offered a theory of depression economics that asserted that the market mechanism could not be relied upon to spontaneously recover from a slump. The labour market may fail to clear; so, government intervention might be necessary to reach full employment. A central tenet in Keynes' thought was his stress not only on the possibility of market failure, but also on the idea that unemployed resources could exist as an "equilibrium" state not spontaneously eliminated by the market mechanism.

The anti-Keynesian counter-revolution was triggered in the 1970s by the appearance of chronic inflation as an economic problem. Neoclassical economics was considered to be mainstream economics for a long while; however, its failure now opens the way to rethinking macroeconomics, recovering its original aims and methodology. So, it seems reasonable to go back to the *General Theory* itself as a starting point and recover Keynes' real ideas.

Keynesian analysis was a policy-oriented one. Keynes was writing in the middle of the Great Depression and he was mainly interested in advising decision makers on how to get out of it. His approach was a short run one, which is relevant for policy decisions: in the long run, we are all dead, he remarked in his *Tract on Monetary Reform* (1923, p. 65), where he added that "economists set themselves too easy, too useless a task if in tempestuous seasons they can only tell us that when the storm is long past the ocean is flat again." For example, it is of little use and comfort to know that after 10 years of deflation, full employment would be restored.

The main contribution by Keynes was his concept of *involuntary* unemployment. Voluntary (classical) unemployment is caused because real wages are above the marginal productivity of labour. The solution lies in reducing wages. On the contrary, Keynes defines involuntary unemployment in the following way:

Men are involuntarily unemployed if, in the event of a small rise in the price of wage-goods relatively to the money-wage, both the aggregate supply of labour willing to work for the current money-wage and the aggregate demand for it at that wage would be greater than the existing volume of employment. Keynes (2006, p. 14)

So, involuntary unemployment persists even if real wages are reduced. The level of employment is not defined in the labour market but in the goods market. For Keynes, given the equipment, organisation and technique of an economy, there is a one-to-one relationship between output and employment.

In fact, in the Keynesian model, the aggregate demand function is given by:

$$D(N) = C(N) + I \quad (1)$$

where **N** is the level of employment, **C(N)** is consumption and **I** investment. The equilibrium in the goods market requires excess aggregate demand to be zero at some level of employment:

$$D(N) - S(N, K_0) = 0 \quad (2)$$

where $\mathbf{S}(\mathbf{N}, \mathbf{K}_o)$ is the aggregate supply function. So, employment is determined as the inverse of the excess demand function for given values of investment, namely the exogenous variable:

$$\mathbf{N} = g(\mathbf{I}, \mathbf{K}_o) \quad (3)$$

Given the organisation, equipment and technique of production, the labour demand is a function of the level of investment. In the Keynesian model, the volume of employment is defined in the goods market. In Keynes' words:⁵

The propensity to consume and the rate of new investment determine between them the volume of employment, and the volume of employment is uniquely related to a given level of real wages – not the other way around. (ibid., p. 27, emphasis mine)

Given the level of employment, "the wage is equal to the marginal product of labour" (Keynes (2006, p. 5)). If:

$$\mathbf{Q} = h(\mathbf{N}, \mathbf{K}_o)$$

is the aggregate production function, being:

$$\mathbf{S} = \mathbf{Q} \times \mathbf{p}$$

Then:

$$\mathbf{w}/\mathbf{p} = \mathbf{Q}_N(\mathbf{N}, \mathbf{K}_o) = h_N(\mathbf{I}, \mathbf{K}_o) \quad (4)$$

where \mathbf{w} is the nominal wage and \mathbf{p} the general level of prices; $\mathbf{Q}_N(\mathbf{N}, \mathbf{K}_o)$ is the marginal productivity of labour for a given level of capital \mathbf{K}_o .

In short, the amount of labour employed depends on the amount of output being produced, which depends on the level of investment. The level of employment is not a function of the real wage rate as in the classical model. Rather, the real wage rate is a function of the level of employment or, ultimately, of the level of investment.

For Keynes, it was self-evident that fluctuations in the level of employment were mainly correlated with fluctuations in the level of output. He did not even think he should give an explanation on this.

There are at least two arguments that justify Keynes' approach. Small changes in the real wage rate usually have a second-order effect on firms' profits and they are often offset by the transaction costs of firing or hiring personnel. That is why if there is a small decrease in real wages, the aggregate demand for labour will not change. Only changes in the output can cause first-order changes in employment. So, it makes sense to assume labour demand as solely a function of output. In the real world, a huge decrease in the real wage rate is needed in order to offset the effect on employment of a relatively small decline in output. Such a decrease in wages is usually socially non-feasible and, by contrast, as Keynes himself noted, may have a contractionary effect on output demand and, consequently, on the level of employment.

A second argument is the one developed in Yellen's (1984) efficiency wage theory. If wage cuts harm productivity, then cutting wages may end up raising labour costs. Workers may

⁵ By the way, the following quotation shows how wrong is Colander's (1991, p. 7) interpretation of Keynes, according to which "there is not a one-to-one relationship between the number of workers used in the production process and the output of those workers."

accept a reduction in real wages but this does not warrant a higher level of employment. Firms will not hire them even at a lower wage because any reduction in the wage paid would lower the productivity of all employees already on the job.

Thus, no self-adjusting mechanism in the labour market ensures full employment. In the Keynesian model, it is not true that real wages and the level of employment are determined by the intersection of the labour demand function with the labour supply function. The level of employment and the real wage rate define an equilibrium point on the labour demand schedule. Workers earn a real wage, which equals the marginal productivity of labour,⁶ but it does not necessarily equal the marginal disutility of labour.

The second important contribution by Keynes was to point out that only by chance can the market attain full employment equilibrium. The most likely situation is one of involuntary unemployment, where labour supply exceeds labour demand.

This is the key difference between Keynes and the different versions of the classics (be it classics themselves, neo-classics or new classics): in the Keynesian model, the labour market does not necessarily clear. If excess labour supply reduces real wages, the volume of employment does not increase; in such a case, the volume of employment will be given by a point to the left of the labour demand curve at the new reduced real wage rate.⁷

That is why, for Keynes, it makes sense for workers to resist any wage reduction.

In Keynes' *General Theory*, there is no reference to real wage rigidity. On the contrary, Keynes argues that workers will usually resist a nominal wage reduction but, instead, they will not resist moderate reductions in real wages because of an increase in prices (Keynes, 2006, p. 13). Wage rigidity was introduced by those – like many New Keynesians – who claim that otherwise the labour market would clear and no unemployment could exist at all. But, strictly speaking, unemployment because of rigid wages is the (classical) voluntary kind of unemployment. It has nothing to do with Keynes' definition of involuntary unemployment. A reduction in real wages will reduce/eliminate the kind of unemployment in New Keynesian models. This contradicts Keynes' definition of involuntary unemployment as quoted above. Unemployment in New Keynesian models is not very Keynesian.

For Keynes, the huge fluctuations in employment studied by macroeconomics have to do with fluctuations in the level of output, not with the level of real wages.

Keynes also disregarded the role of prices in eliminating any discrepancy between aggregate demand and supply. Orthodox economists *after* Keynes assumed that prices play the key role in reaching equilibrium in the goods market. Keynes did not. And not because he assumed rigid prices as the New Keynesians interpret. For Keynes, the equilibrium in the goods market is attained when demand (consumption plus investment) equals aggregate supply. If there is a general glut, firms would reduce their supply until the equilibrium is attained.

⁶ This is the main difference between Keynes and Patinkin's definitions of involuntary unemployment. According to the latter, involuntary unemployment appears when producers are forced by insufficient demand to operate in a region in which the marginal product of labour exceeds the real wage rate (Grossman, 1972, pp. 28–9). But Patinkin (1989, p. 323) admitted he could not find a convincing explanation why then firms did not demand more labour.

⁷ In the efficiency wage case, the demand curve for labour would move to the left, reflecting the fall in productivity caused by the decline in real wages.

The argument that a supply glut would press prices down until aggregate demand equals aggregate supply was developed after Keynes by the so-called neoclassical synthesis as a way out of his dismal conclusions. As a matter of fact, neither Keynes nor the classics thought there was a close connection between Say's Law and price flexibility as the modern parlance imagine.⁸ What the classics emphasised was that every act of production is an act of potential demand creation. And this was the argument Keynes refuted. Only after Keynes did the neoclassical synthesis introduce the role of prices through the wealth effect as a way to guarantee the attainment of the full employment equilibrium.

So, it is not surprising that Keynes – interested in rebutting classical theory and particularly Say's Law – did not mention anything on this argument. In fact, it was only in 1943 that Pigou wrote his seminal article on the wealth effect.⁹ Let us have a look at this effect and its assumptions.

The wealth effect and price asymmetry

Keynes never thought that the decline in prices could be a way out of involuntary unemployment. For him, the real balance effect was limited to the money market, the so-called Keynes effect. He admitted that those who believe in a self-adjusting economic system could argue that declining prices and wages would reduce the nominal demand for money and the nominal interest rate, thereby restoring a market economy to full employment. He rejected this argument by pointing out that a decline in prices and wages is analytically equivalent to an increase in money supply and thus subject to the same limitations he pointed out in connection with increasing the money supply as a way to reach full employment.¹⁰ Keynes did not consider the possibility of a real balance effect on the goods market; nobody did before Pigou (1943).

Keynes was a practical-minded economist. In this respect, although he admits wage and price flexibility, he is very sceptical about downwards flexibility. That is why he insists that real wages, in practice, can be lowered only by the increase in wage/good prices, not by the contraction of nominal wages. If so, it is clear why he did not even consider that there could be a significant real balance effect on the goods market capable of leading automatically in a market economy to full employment by a reduction in nominal prices.

Moreover, with reference to the recent economic crisis, Krugman (2008) illustrates how small the real balance effect could be in practice. Before the crisis, the US monetary base was about \$800 billion. Supposing a 20 percent fall in price levels, this would raise the real value of that base by \$160 billion. But the housing bust wiped out something like \$6 trillion of wealth; there is no comparison with the effects of a drastic fall in the aggregate price level, even if it were feasible.

⁸ See Montgomery (2006, p. 128) for a well-developed argument on the classics, Say's Law and price/wage flexibility.

⁹ Pigou (1943).

¹⁰ Mainly, the limitations that the liquidity trap imposes on the reduction in the interest rate and, consequently, on an increase in investment. "If a tolerable level of employment requires a rate of interest much below the average rates which ruled in the nineteenth century, it is most doubtful whether it can be achieved merely by manipulating the quantity of money" (Keynes, 2006, p. 282).

So, although the wealth effect may be of some use in analysing inflationary processes, it is of no practical relevance when dealing with recession and unemployment. This highlights the need for different approaches when analysing an increase in aggregate demand and when analysing a fall in it.

In fact, as pointed out by Dobrynskaya (2008), “the Phillips curve is empirically found to be convex (Alvares Lois, 2000; Latxon, Rose, & Tambakis, 1999, for the USA; Dolado, Maria-Dolores, & Naveira, 2005, for several European countries) implying asymmetric price rigidity, which means that prices are more sticky downwards than upwards. This results in the Phillips curve being steeper for positive changes in inflation than for negative ones. Therefore, as documented by many authors for many countries (e.g. Cover, 1992), positive demand shocks give rise to inflation without affecting output significantly, while negative ones reduce output without affecting inflation.” She continues: “Peltzman (2000) studies over 240 markets for consumer as well as producer goods and finds that asymmetries are pervasive, substantial and durable, and exist in periods of low inflation as well as in periods of high inflation. These asymmetries also apply to price indices (Verbrugge, 1998).”

For the sake of elegance, economics usually assumes symmetric behaviour. But reality is seldom symmetric. In particular, price behaviour is not symmetric. Usually, wages and prices are downwards inflexible and a lot more flexible upwards as illustrated by inflationary and hyperinflationary processes. A variety of evidence suggests that price/wage asymmetries in fact hold in actual economies.¹¹ Empirical research on wage dynamics has highlighted the presence of downward wage rigidities in a large number of countries.¹²

In his 1972 Presidential Address to the American Economic Association (AEA), Tobin argued that nominal prices can rise more easily than they can fall. Ball and Mankiw (1994) use a menu cost model to explore a possible explanation for such asymmetry, while other authors simply assume its existence in their models. In this respect, it may be worthwhile recalling Solow's AEA presidential address reflection: “I remember reading once that it is still not understood how the giraffe manages to pump an adequate blood supply all the way up to its head; but it is hard to imagine that anyone would therefore conclude that giraffes do not have long necks. At least not anyone who had ever been to a zoo.” (Solow, 1980, p. 7). Although it is, of course, desirable to have an acceptable theory to explain price asymmetry, it seems anyway much more reasonable to assume asymmetric rather than symmetric price behaviour, at least for anyone who studies the real-world economy.

The role of investment

The third main contribution by Keynes was to identify the key role that investment plays in determining the level of employment. The level of employment is determined in the goods market at the point of equilibrium between the aggregate supply and demand for goods. Given the consumption function – which is increasing in the level of income – it is the volume of investment that defines the equilibrium.

Keynes identifies investment as the volatile component of aggregate demand. Investment depends on expectations: the marginal efficiency of capital is, for Keynes, the expected rate of profit. These expectations are subject to a high degree of uncertainty. Economic

¹¹ See, for instance, Ball and Mankiw (1994, p. 14) for additional references to the mentioned by Dobrynskaya (2008).

¹² See Dickens et al. (2007) and Babecký et al. (2010).

fluctuations are exaggerated to a degree because decisions are highly dependent on the political and social atmosphere that gives way to waves of optimism or pessimism – the ups and downs of “animal spirits.”

As Skidelsky (2011, p. 2) points out, “Keynes' picture of the economy differs from the classical -as well as the new classical- picture in its stress on the volatility of investment and the weakness of the rate of interest as an equilibrating mechanism.” Thus, fluctuations in investment are responsible for fluctuations in aggregate output and thereby in employment. No mechanism guarantees that the level of investment will be the one that leads to full employment. On the contrary, only by chance it will be that particular one.

The neo-classics' and new classics' stories are that market clearing ensures that supply and demand in both the labour and goods markets reach equilibria, which correspond to full employment.

So, we come to the fourth main contribution of Keynes: markets do not necessarily clear. For Keynes, equilibrium does not necessarily mean market clearing. If we accept the definition of equilibrium as a state of the world where economic forces are balanced in such a way that in the absence of external influences the (equilibrium) values of economic variables will not change, Keynesian involuntary unemployment is an equilibrium state. Of course, this concept differs from the received view that identifies the equilibrium with the concept of market-clearing solutions. Precisely, Keynes' point of view is that there are no forces in the labour market capable of leading it to a clearing solution.

That is why Barro's (1979, p. 54) critique of Keynesian involuntary unemployment as implying a failure of agents to realise perceived gains from trade misunderstands the Keynesian concept. Barro argues that “it would be mutually advantageous for workers and firms to determine levels of employment in an efficient manner.” But Keynesian unemployment is *involuntary* precisely because it is out of the reach of firms and workers to reduce it. Explicitly, Keynes defines it as a situation where a decline in real wages does not alter the level of employment. So, the simple conclusion is that Barro was not discussing Keynes's position but his own personal interpretation of the *General Theory*.

Keynes on savings

One of the more shocking aspects of Keynesian doctrine is Keynes' approach to personal thrift, as a drag on the economy because of the reduction in aggregate demand for produced goods and services.

This has to do with the active role that Keynes ascribes to investment, while savings adjust passively to the volume of the former. So, for Keynes, investment leads the way and determines the volume of output and employment. Keynes makes clear his thoughts on the subject when, criticising under-consumption theories, he points out that “a relatively weak propensity to consume helps to cause unemployment by requiring and *not* receiving the accompaniment of a compensating volume of new investment” (Keynes, 2006, p. 339). A “weak propensity to consume” means a high propensity to save. A higher propensity to save demands a higher volume of investment to reach full employment.

It is true that in the long run output depends upon productive capacity and productive capacity depends upon capital formation, but capital formation does not depend on savings but upon

investment. Only at full employment can the volume of savings be a restriction for the volume of investment. Of course, this is the only case that orthodox economics considers.

Keynes on inflation

The *General Theory's* main concern was unemployment. Its aim was to show why an economy can be stuck in unemployment and how to get out of it. The appearance of chronic inflation as an economic problem in the 1970s triggered the anti-Keynesian revolution. It was argued that demand stimulus to raise employment would always be associated with higher inflation. Keynesian models – it was said – assumed away the problem of inflation as a possible consequence of excessive aggregate demand stimulus.

“Popular folklore has it that he was largely unconcerned with inflation from the start, that his subsequent preoccupation with unemployment led him to ignore it altogether, and that, as a result, he favoured expansionary measures to eliminate unemployment regardless of their inflationary consequences.” (Humphrey, 1981, p. 1)

As a matter of fact, Keynes (2006, p. 271) admitted that wages and prices would rise gradually as employment increases: “(...) we have in fact a condition of prices rising gradually as employment increases” and “an increasing effective demand tends to raise money-wages though not fully in proportion to the rise in the price of wage-goods” (ibid., p. 275).

This was the origin of the idea behind the Phillips curve: there is always a trade-off between alternative levels of unemployment and inflation: the lower the level of unemployment, the higher the level of inflation is. It is up to society to choose the preferred combination of both.

Finally, “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” (ibid., p. 276). So, for Keynes, true inflation sets in after full employment has been reached.

The new classical literature objected that the short-run Phillips curve trade-off could not be exploited because a reputation for doing so would soon lead the public's inflation expectations to change, in a way that would eliminate the apparent gains achieved by the policy. The argument was that the private sector, endowed with rational expectations, would expect the central bank to act in the way that it does, and the expectation of inflationary behaviour would shift the short-run trade-off in an adverse direction. This adverse shift in the employment–inflation trade-off would mean higher levels of inflation for each level of unemployment. So, the long-run Phillips curve would be vertical, which means that there would be no trade-off between inflation and unemployment.

However, the argument is valid only if the central bank follows a naïve policy of inflating at any cost without making any commitment on inflation goals. If it does and the commitment is credible to the private sector, there is no reason for a shift in the Phillips curve.

By contrast, the good empirical fit of traditional Phillips curve equations is an important argument against new classical objections. The fit would not be as good as it is if the Phillips curve were continuously shifting as actual inflation changes.

Anyway, as stated at the beginning of this subsection, the *General Theory* was mainly devoted to the analysis of unemployment. Anyone interested in knowing Keynes' opinion on inflation and the ways to fight it should refer to his writings between 1913 and 1930 when inflation was a major economic problem in Europe.

6. Hyman Minsky's contribution to financial theory

The currently observed turmoil in financial markets has recently brought to prominence the ideas of Hyman Minsky, after a long period of unjust oblivion.

Minsky called himself a "financial Keynesian." His financial theory is a distinguished contribution to the analysis of economic instability. While Keynes identified as a fundamental flaw of the capitalist system the possibility of stable unemployment, Minsky added instability as a normal result of modern financial capitalism. He was convinced that leverage is the Achilles' heel of capitalism. His 1987 analysis of securitisation was a prescient study of its nature and perils: "Securitization lowers the weight of that part of the financing structure that the central bank (Federal Reserve in the United States) is committed to protect. A need by holders of securities ...may mean that a rise in interest rates will lead to a need by holders to make position by selling position, which can lead to a drastic fall in the price of the securities" (Minsky, 2008, p. 3).

He strongly criticised the neoclassical approach: "The neoclassical way of doing economics, which rests upon splitting the financial system off from what is called the real economy, throws no appreciable light on the effect that a financial system has upon the functioning of the economy" (Minsky, 1992b, p. 15).

On the contrary, he thought that the financial system plays a critical role in modern capitalist economies. "Liability structures, which link yesterdays and tomorrows to today, introduce a degree of intertemporal complexity into the economic process beyond that due to the different expected lives of capital assets, the gestation period for investment output and the time it takes to transform a labor force" (ibid., p. 3). Such complexity may generate time series that can be characterised as incoherent, chaotic or ones that exhibit hysteresis (ibid.).

He characterised modern capitalism, especially in the United States, as "money manager capitalism." "The evolution has been from a financial structure where external finance was mainly used for trade to an even greater use of market or institution based external funds to finance the long term capital development of the economy" (Minsky, 1996, p. 11).

He maintained that "the financial panic is made possible by the changes in the financial structure that takes place during the long-swing expansion. As a result, the triggering event for a deep depression need not be specially severe..." (Minsky, 1964, p. 325). Financial instability is fostered by three factors: 1) the rise of debts relative to income; 2) the rise in the price of stock market and real estate assets and 3) the decrease in the relative size of ultimate liquidity (ibid., pp. 325–6).

Minsky held that during expansions, profits accrue disproportionately to firms with the most aggressive financial practices, resulting in an erosion of safety margins. So, over a prolonged period of prosperity, investors take on more and more risk, until lending exceeds what borrowers can pay off from their incoming revenues. When over-indebted investors are forced

to sell even their less-speculative positions to make good on their loans, markets spiral lower and create a severe demand for cash – an event that has come to be known as a “Minsky moment.”

As pointed out by Randall Wray (2011, p. 62) “Minsky’s view is that the transformation of the economy and its financial structure from robust to fragile is due, not to external market factors like government intervention and regulation, but to the ‘normal’ operations and incentives of financial capitalism.”

Minsky’s financial fragility theory classifies the financing of the purchase of large real illiquid investment projects into three categories: hedge finance, speculative finance and Ponzi finance. Ponzi financing is the most fragile financial system and it is the one most likely to lead to a “Minsky moment.”

“The first theorem of the financial instability hypothesis is that the economy has financing regimes under which it is stable, and financing regimes in which it is unstable. The second theorem of the financial instability hypothesis is that over periods of prolonged prosperity, the economy transits from financial relations that make for a stable system to financial relations that make for an unstable system” (Minsky, 1992, pp. 7–8).

“Over a protracted period of good times, capitalist economies tend to move from a financial structure dominated by hedge finance units to a structure in which there is large weight to units engaged in speculative and Ponzi finance” (ibid., p. 8).

He also formulated what he termed his *anti-laissez faire* theorem: “In a world where the internal dynamics imply instability, a semblance of stability can be achieved or sustained by introducing conventions, constraints and interventions into the environment” (Ferri and Minsky, 1991, p. 20). Apt intervention and institutional structures are necessary for market economies to be successful.

The financial instability hypothesis “holds that business cycles of history are compounded out of (i) the internal dynamics of capitalist economies, and (ii) the system of interventions and regulations that are designed to keep the economy operating within reasonable bounds” (Minsky, 1992, p. 8). “To contain the evils that market systems can inflict, capitalist economies developed sets of institutions and authorities, which can be characterized as the equivalent of circuit breakers. These institutions in effect stop the economic processes that breed the incoherence and restart the economy with new initial conditions” (Minsky et al., 1994, p. 6).

Although recognising that Minsky always professed to draw his inspiration from Keynes, Leijonhufvud (2009, p. 742) argues that Minsky’s “upward instability hypothesis stands in stark contrast to the economy’s tendency, in Keynes’ theory, to gravitate to a state of unemployment equilibrium.”

However, de Antoni’s (2008, p. 4) interpretation seems more accurate in that “the two authors might be considered as faces of the same coin looking in opposite directions.” For this author, while Keynes looked at a depressed economy, Minsky looked at a booming economy. Both share a common approach to economics. “A careful reading of their writing suggests that, whilst both of them are at the mercy of waves of optimism and pessimism, Minsky ‘fights’ against the upswing while Keynes ‘fights’ against the downswing” (ibid., p. 25).

As Minsky did not provide a rigorous formal model, his contributions did not reach the pages of leading mainstream journals, although his analyses were far more illuminating than were many of the elegantly mathematical but often useless models that plagued them. Only after the recent crisis has his name been rescued from oblivion.

7. Summary and conclusions

The failure of neoclassical economics opens the way to rethinking macroeconomics. Since its foundation in the 1930s, macroeconomics has developed as a separate branch of economic theory with little connection to microeconomics. Macroeconomics was the realm of aggregate quantities, while prices played a limited or null role in it. Lucas' (1987) programme aimed at bridging that gap. For him, macroeconomics should be embedded in microeconomic theory. "The most interesting recent developments in macroeconomic theory seem to me describable as the reincorporation of aggregative problems such as inflation and the business cycle within the general framework of "microeconomic" theory. If these developments succeed, the term 'macroeconomic' will simply disappear from use and the modifier 'micro' will become superfluous. We will simply speak, as did Smith, Ricardo, Marshall and Walras, of *economic theory*" (pp .107–8). He succeeded but at the cost of making macroeconomics a discipline nearer to science fiction than to a subject that analyses the issues of interest for policymaking.

So, the first conclusion is that macroeconomics has to go back to its roots and recover its original aims and methodology. Of course, for mainstream economists, a denial that prices always clear markets is felt as tantamount to the abandonment of the explanatory paradigm, so that economic analysis is left with little to say. This is the type of economist that 150 years ago Carlyle caricatured as parrots that only knew the words demand and supply.

By contrast, one should bear in mind that up to now there has been no unified theory in physics. Why should there be in economics? Moreover, general relativity theory and quantum mechanics are mutually incompatible. Why should we demand that the Keynesian theory of unemployment be compatible with Walrasian general equilibrium theory? Perhaps, one should be less ambitious with economic theory.

This is especially so if one takes into account that today there are outstanding physicists such as Stephen Hawking who think that it may not be possible to construct a unified theory and that to describe the various aspects of the universe you have to use different theories for different situations. This "is acceptable so long as the theories agree in their predictions whenever they overlap, that is, whenever they can both be applied" (Hawking and Mlodinow, 2010, p. 117). So, perhaps we should not search for a single theory but for a network of theories in economics, too. However, demanding microfoundations for macroeconomic analysis has not proven to be a good idea up to now. If anything, it has led macroeconomics astray.¹³

The first step in rethinking macroeconomics would be to rescue Keynes' original ideas. One of the main Keynesian contributions is the concept of involuntary unemployment as an equilibrium state. The other key contribution of Keynes has been to identify the crucial role of investment in determining the level of output.

¹³ I have also extensively argued this in Beker (2010).

Owing to the asymmetric behaviour of prices and wages, an increase and a fall in aggregate demand require different approaches in macroeconomic theory. While prices adjust rapidly to excess demand, they do not react at all or are much slower to respond in the presence of excess supply. While in the first case price adjustments play a key role, in the other one quantity adjustments prevail. The search for a unified treatment is the reason for the failure of models that have assumed the symmetric behaviour of prices and wages for that purpose. On the contrary, it seems much more reasonable to consider separately, on one hand, the macroeconomics of inflation and, on the other, the macroeconomics of recession and depression.

This would not be a different situation to the one we have today in physics. According to today's prevalent point of view, "it might be that to describe the universe we have to employ different theories in different situations" (Hawking and Mlodinow, 2010, p. 117).

One example of this is physicists' approaches to the Big Bang. General relativity theory predicts its existence. But Einstein's theory breaks down at that point: it cannot be used to predict how the universe began, only how it evolved afterwards. To describe the origin of the universe physicists resort to another theory – quantum theory – because it was a very small-scale phenomenon, the kind of phenomenon governed by quantum theory.

So, the forces at work were different at and after the Big Bang. The same happens when aggregate demand moves up or down: the forces at work are different; thus, we need different models for their treatment.

If so, policies to guide the economy to full employment in one case and to stabilise prices in the other should be different chapters of the research agenda. In this respect, let us recall, for instance, the assertion by Blanchard et al. (2010, p. 9) that "there is a lot we do not know about the effects of fiscal policy, about the optimal composition of fiscal packages, about the use of spending increases versus tax decreases, and the factors that underlie the sustainability of public debts." Broadly speaking, we still know very little regarding how to help the economy recover from a recession. This is not strange if the underlying assumptions in traditional economic theory have been that recessions are highly improbable and that in any case markets can fix them.

While Keynes identified as a fundamental flaw of the capitalist system the possibility of stable unemployment, Minsky added instability as a normal result of modern financial capitalism. Minsky held that during expansions, profits accrue disproportionately to firms with the most aggressive financial practices, resulting in an erosion of safety margins. When overindebted investors are forced to sell even their less-speculative positions, markets spiral lower and create a severe demand for cash – an event that has come to be known as a "Minsky moment."

The currently observed turmoil in financial markets makes it advisable to rescue from unjust oblivion Minsky's illuminating ideas. His contributions together with Keynes' should be a starting point to rebuild macroeconomics on a solid basis.

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