

How much of John Maynard Keynes can we find in Franco Modigliani? *

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1. Premise

The task I undertake in this lecture is not an evaluation of Franco Modigliani's contributions to 'Keynesian economics' – as the term is generally understood in today's literature – but an investigation into how much of Keynes (by which I mean the Keynes of the *General Theory*) we can find in Modigliani's economics contributions.

The former issue would be all too obvious. Professor Solow (2005, p. 11), in his customarily lucid expository style, has already told us that he and Franco¹ “shared the opinion that Keynes was the most important economist of the 20th century, and the *General Theory* the single most important work”. I could not agree more with this statement. But it is the second issue that raises the most intriguing questions.

2. At the roots of 'the Keynesian revolution'

Let me go straight to the origin of the problem. When, in the early 1930s, right in the middle of the Great Depression, Keynes conceived

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¹ I take myself the liberty of using his first name, on the strength of the privilege of an affectionate friendship that started when I met him, as a graduate student, at Harvard University, and lasted for a whole life.

his revolutionary work, something quite extraordinary – we might well say dramatic – had happened in the development of his economic thought. Keynes had been, throughout his career as a University teacher at Cambridge, a ‘monetary’ economist, as we would say today. For more than ten years, he had been lecturing on ‘the pure theory of money’, in strictly orthodox (Marshallian) terms. He had written a very lucid and successful book – *A Tract on Monetary Reform* (1923). He had completed *A Treatise on Money*, on which he had unsparingly bestowed his efforts for eight years. His colleagues had been waiting for this work, which was expected to be the crowning achievement of his career. The work appeared, at last, in two volumes, in October 1930. Quite extraordinarily, only a few months after publication, when he had not even seen all the book reviews, Keynes began to entertain acute doubts about the correctness of the monetary theory he had presented. He promoted the formation of a discussion group among the most brilliant young economists he could bring together in Cambridge. They formed the well known *Cambridge Circus*, led by Richard Kahn and composed by Joan Robinson, Austin Robinson, Piero Sraffa and also by other temporary visiting members, such as, notably, James Meade.

Parallel to the discussions of the *Circus*, a related drama went on unfolding in Keynes’s thought. His course of lectures to Cambridge undergraduates was abruptly cancelled. This appeared to be a temporary, one-year, interruption. But in the following academic year (Autumn 1931), the lectures were *not* resumed. Keynes had apparently come up against a sort of intellectual impasse. Already in the “Preface” (dated April 1932) to the Japanese edition of his *Treatise on Money*, he had admitted that he was dissatisfied with the book. In his mind the *Treatise* had, in fact, already been repudiated. In October 1932, Keynes’s lectures were at last resumed, regularly, but with a complete change of title. The title that had characterised them for many years – “The pure theory of money” – was abandoned and replaced with a new title – “The monetary theory of production” (see Keynes 1979, p. 49). All the accounts left by those attending Keynes’s first lecture concur in confirming that, as Keynes then announced, the change of title was explicitly aimed at conveying a strong message. The change of title meant “a significant change”, “a change of attitude” (see Keynes 1973a, p. 411).

A moment's reflection suffices to realise that something quite extraordinary must have taken place behind the scenes. Keynes had devoted the best years of his mature activity as an economist – almost a decade – to preparing what everybody expected to be his *magnum opus*, in a field, monetary theory, in which he held a worldwide reputation. In less than a year and a half, after publication, he had decided to repudiate the book. Only a great discovery could justify such an abrupt decision, in a man of worldwide fame, at the age of 50! As his close pupils said, the *light* had struck. And he did start writing a new book with extraordinary involvement. The first surviving “Table of contents”, drawn in autumn 1932, bears precisely the title: “The monetary theory of production” – the first title originally conceived for Keynes's new book (see Keynes 1979, p. 49).

From that point on, all efforts were applied to unfolding the new theory. The work went on with an unprecedented wealth of discussions, exchanges and correspondence, with as many economists as Keynes could manage to join in useful discussion, in Cambridge and outside. Inevitably, there were many changes and modifications, following upon endless, excruciating discussions and exchanges of notes and letters. By the autumn of 1934, the title of the book settled down to *The General Theory of Employment, Interest and Money* (Keynes 1973a, p. 423), which was the definitive title under which the great work was published in February 1936. It is about this book that, in a much quoted passage from a letter to George Bernard Shaw, dated January 1, 1935, Keynes (*ibid.*, p. 492) wrote:

“To understand my state of mind, however, you have to know that I believe myself to be writing a book on economic theory which will largely revolutionise – not, I suppose, at once but in the course of the next ten years – the way the world thinks about economic problems”.

In fact, this claim of Keynes's immediately appeared to be fully borne out on publication. In a world unable to work its way out of a persistent and profound slump, the younger generation were looking for something dramatically new and saw in Keynes's work the much awaited answer. As James Meade often put it, his generation was “taken by a spell”. In Samuelson's words (1964, p. 316): “*The General Theory* caught most economists under the age of thirty-five with the unexpected virulence of a disease”.

Keynes's direct pupils at Cambridge were openly talking of a "conversion" of the young generation to the great "Keynesian revolution".

3. Franco Modigliani on his way to Keynes

How did Franco Modigliani fit into this extraordinary intellectual event? When, as a student, he approached economics at university level, he could not have been aware of the discussions that had been going on, and even less of the drama Keynes went through, in Cambridge. Franco was too young to be part of any 'conversion'. There was nothing that he could be converted from. His economics – and in fact almost all the subjects of his university curriculum – were still to be learned. Yet, it is remarkable to realize (see Modigliani 2001), that he had the insight to perceive that something new and of great importance in economics had taken place. In 1937 Franco (still in his late teens, and with hardly any training in economics) was anxiously searching Rome for a copy of Keynes's *General Theory*, but his efforts proved vain. He tried again in Paris (1938-39), with no success. He was only able to get hold of Keynes's masterpiece when he emigrated to the United States (1939) and began to attend lectures and seminars at the New School for Social Research in New York, the 'university in exile', as it was called, owing to its becoming packed with scholars and artists, generally of a very high standard, arriving in the US as refugees from the dictatorial regimes of Europe (mainly Germany, Italy, Spain and Russia).²

² On the present occasion, it is important to recall the fact that this emigration was the consequence of a personal and collective tragedy of extraordinary proportions, due to Mussolini's racial laws. Franco (and his wife Serena) Modigliani only just escaped the fury of those events. They applied for emigration to the US, on earnest advice from, and in conjunction with, Serena's father (Giulio Calabi). They landed in New York on August 28, 1939 (from the liner Normandie, the last to leave France), only a few days before the outbreak of World War Two. Shortly before, Franco had travelled in a great hurry from Paris to Rome in order to discuss (successfully) his thesis at the Law Faculty of the Università di Roma (on 22nd July), then returning precipitously to Paris for immediate departure for New York.

In preparing my notes for the present lecture, I was deeply moved by two documents, made available to me by courtesy of my colleague Daniela Parisi, and tracked down in the Rome University archives by a student of hers, Dario Corbella: one of

I think one can safely affirm that, from those early years onward, the economic studies of Modigliani have remained inextricably linked with the theories of Keynes.

But in what ways? This is the tricky question.

At the New School – as Franco has recently told us (Modigliani 2001, pp. 18 and ff.) – he was able to start a doctoral dissertation under the guidance of Jacob Marschak, who directed his efforts precisely to Keynes’s revolutionary book. The title of the dissertation – “The General Theory of Employment, Interest and Money under the Assumptions of Flexible Prices and Fixed Prices” – immediately reveals the centrality of Keynes’s *General Theory* in his studies and, at the same time, also the particular angle from which Marschak trained his view of Keynes’s theory. It is worth quoting Franco (*ibid.*, p. 19) at length on this point:

“Keynes gave us hope that the mysterious disease that had caused the terrible recession of 1929 might be understood, in order to prevent his return. We were set on fire by these studies. We realized that we had reached a frontier and that, by trying to understand Keynes, we were venturing into new fields, fighting an important battle for the future.

Those months were decisive in my life. Marschak invited me to take part in a seminar organized in New York by Oskar Lange, the noted Polish economist at that time. As well as Lange and Marschak, the participants included leading economists like Tjalling

them was the ‘verbale’ of the discussion of Franco’s thesis; the other was a personal statement that he was compelled to send in (fortunately, when he was already in the US, through an intermediate person, presumably his brother Giorgio). It is dated February 28, 1940, and in it he was asked to state whether: 1) he belonged to “the Jewish race” on his father’s and/or mother’s side; 2) he was a member of the Rome Israelite Community; 3) he professed the Jewish religion. This personal statement (which he turned in with all ‘yes’ answers) was necessary in order to obtain his degree certificate, which he needed to register as a graduate student at the New School for Social Research, New York. He was encouraged and helped, in his admission, by Max Ascoli, the same Italian scholar at the New School that earlier had corresponded with Piero Sraffa, when, in the early 30s and again in 1940 (when Italy entered the war), the latter had himself considered the possibility to go to The New School, with a Rockefeller Foundation Fellowship. In reading these documents, I could not help feeling a shiver going down my spine. How fortunate it was that Franco (and Serena) could cross the Atlantic just a few days before the outbreak of the War. And how fortunate it was that he succeeded in getting hold of his first university degree certificate from the University of Rome (when he had already reached the US!). His whole career as an economist might otherwise never have started!

Koopmans, who was to win the Nobel, and the renowned statistician Abraham Wald”.

We can see here, clearly stated, both the social motivation (mass unemployment) that brought Modigliani to embrace Keynes and the list of his mentors at the New School, by whom his training and thought were shaped. It is clearly from them – notably from Jacob Marschak, as he explicitly acknowledges – that he learnt the basic elements of his economics. Marschak “was a connoisseur of economic theory with a certain bent for mathematical economics and econometrics”, as we are told in Modigliani’s recollections (*ibid.*, p. 19). He shaped Franco’s formation in many ways. He gave him the imprint of viewing economics in terms of formalised models (mathematics therefore became essential reading for the young Modigliani). He stressed the importance of combining theory and empirical testing, and generated in Modigliani a growing interest in the use of econometrics as a device to acquire knowledge of reality and help to shape economic policies.

A few years later, Franco was already able to publish a remarkable article in *Econometrica* (1944) which instantly brought him to the attention of the entire economic profession. The article was a shortened version of his doctoral thesis, which, by the way, was submitted *after* the publication of the article. The latter focused on *liquidity preference*, one of the typically novel concepts in monetary theory coined by Keynes. Interestingly enough, Modigliani (*ibid.*, p. 43) also reveals to us:

“I remember that the inspiration and stimulus for the article stemmed from an argument with Abba Lerner, Marschak’s successor, possessed of a sharp mind, full of imagination”.

In this way, a further personality appears among his influential mentors: Abba Lerner. This is interesting for our purposes, because Lerner was one of the brilliant young economists from the London School of Economics (L.S.E.), whom Richard Kahn, the most direct pupil of Keynes, mentions as an example of the early converts to Keynes, while attending the joint seminars of Cambridge, Oxford and L.S.E. students, when the *General Theory* was still “in the making” (Kahn 1984, p. 183). It is also interesting to notice, as Franco goes on to tell us (Modigliani 2001, p. 43), that his recollections of the exchanges with

Abba Lerner are not only in terms of gratitude for great inspiration and stimuli, but also contain criticism of what Franco considered an extreme interpretation (what Lerner, 1943, defined “functional finance”) of Keynes’s recommendations on fiscal policy. This, I think, is the crucial point at which Franco’s conception of Keynes’s *General Theory* took shape. He formulated it in his doctoral dissertation and published it in his *Econometrica* article. I think Professor Solow is right in thinking that Franco never departed, throughout all his successive formulations, from the way he perceived Keynes’s *General Theory* in those years.

This proposition may be verified with a look at the very last (perhaps the last) of his Keynesian articles (Modigliani 2003), in which, addressing a readership consisting mainly of students, he waxes more openly outspoken. His words of admiration for Keynes are even stronger than before, but the substance of his elaborations remain basically the same as in 1944. The 2003 article is given a revealing title: “The Keynesian gospel according to Modigliani”. This seems an implicit recognition that there may also be some other versions of Keynes’s *Gospel*. But at the same time it also indicates that, up to the end of his life, Franco’s ‘faith’ in the centrality of Keynes economics has remained unshakable.

We have now arrived at a critical point.

4. Teaching Keynes’s *General Theory*

Professor Solow (2005, p. 11) “was a graduate student, six or seven years later than Franco”. For our purposes, I think it may be worth reflecting for a few moments on what he tells us (*ibid.*, pp. 11 and 12):

“We learned about Keynesian economics, not so much from *The General Theory* itself, but from a few key articles that condensed Keynes’s argument into simple, unambiguous mathematical or diagrammatic form [...] the most important were by John Hicks (1937), Oskar Lange (1938) and Franco. [...] Their virtue was that they described the properties of a precisely described ‘model economy’. Each of them pursued just one line of thought – and caught it. In so doing, they simplify”.

This in turn brings Solow further to tell us the way his generation decided to teach Keynes's *General Theory*. He explicitly asks (*ibid.*, p. 11): "Why did we *not* make use of it [*i.e.* of *The General Theory*] directly, and have our students read it?" (italics added). He explains (*ibid.*, p. 12):

"My view is that the *General Theory* is a confusing book, very difficult for students. It contains several different lines of thought that are not brought coherently together. They may even be in some respects mutually inconsistent".

At the end of his paper, Solow enlarges further on this point, making comparison with Charles Darwin's theory of evolution, and claiming that today's Darwinism may be taught in quite a different way from what emerges actually reading his *Origin of Species*.³ It is to be noted that Solow scrupulously warns us that he "do[es] not remember ever discussing this with Franco" (*ibid.*, p. 12).

Curiously enough, I think I have some ground to claim that I did have the opportunity of discussing the matter with Franco, and that my perception of his attitude and convictions about Keynes's *General Theory* has been somewhat different from Solow's.⁴

³ I think Professor Solow is trying to be paradoxical here. Today's Darwinian evolutionism is taught, after an enormous mass of discussions and contributions, a century and a half after Darwin's *The Origin of Species*. The type of Keynesian teaching which Solow is talking about was decided a decade and a half after the publication of the *General Theory*, precisely the time which Keynes expected it would require for his 'revolution' to take shape; in any case, at a time when, at Keynes's own University, Cambridge, a Keynesian School of Economics was in full swing, along Keynes's revolutionary lines (suffice it to recall the works by Richard Kahn, Joan Robinson, Nicholas Kaldor, besides Piero Sraffa). The attitude Professor Solow is mentioning here sounds to me more in line with what led Paul Samuelson to formulate his 'neoclassical synthesis', in which traditional, basically marginalist, economics is taken as the basis for providing a kind of umbrella general enough as to be able to cover *all* economic theories, including also Keynes's theories. Franco may not have explicitly objected to such formulations. But my feeling most definitely is that that was not his approach. Keynes's theories are not an essential component of Samuelson's 'neoclassical synthesis', which in principle could be conceivable even if Keynes innovations had never been proposed. Modigliani's theoretical framework would be inconceivable without Keynes's *General Theory*.

⁴ It is of course far from me the intention to contradict anything said by Bob Solow, who was a close colleague and friend of Franco for decades. My experience from the discussions with him (in the daily exchanges I had, leaving aside the correspondence) was much shorter: it was concentrated in just one academic year. But that was a very special academic year indeed. Franco Modigliani was at Harvard, replacing the most well known populariser of Keynes in the US, Professor Alvin Hansen, in his

5. Modigliani and Keynes

Looking back over the notes regarding my early years of acquaintance with Franco, I have not found any elaboration of a Modigliani's *Keynesianism* as distinct from what he thought Keynes meant. His formulations of Keynes's relations were always in terms of contributions that he genuinely considered Keynes's own contributions. I never felt that Franco was concerned with 'Keynesian' issues independently of whether Keynes affirmed them or not. I think he was a truly convinced Keynesian – in any case, never an 'un-Keynesian'.

I myself never heard him say that *The General Theory* is a "confusing" book, though I did hear him describe it as a "difficult" book. I never heard him claim that he was expounding anything in contradiction with John Maynard Keynes.⁵ If one reads the common "Introduction" that he wrote to the volumes of his *Collected Papers*, one reads him characterising them, from the outset, with the assertion that "the basic theme that has dominated [his] scientific concern [... was ...] that of sorting out the lasting contributions of the Keynesian Revolution" (Modigliani 1980, pp. xi-xii). And turning to the opening section of his "Keynesian gospel" article (Modigliani 2003, p. 3), we read that:

"Keynes's contribution can be summarised as follows: before his work, mass unemployment (in developed countries) was considered

'Keynesian' lectures (due to their reciprocal sabbatical leaves). I happened to be there, just fresh of my graduate studies in Cambridge, England, where I had followed the lectures of the direct pupils of Keynes (Richard Kahn, Joan Robinson and also Nicholas Kaldor, besides Piero Sraffa). The contrast that I found in the way Keynes's theories were presented on the two sides of the Ocean was striking. As one may imagine, I did follow carefully Franco's lectures, and especially his seminars for graduate students. It was not easy for a student like myself to contradict him too often. I was at the same time puzzled and thrilled. For the whole of that year I decided to keep an open mind.

⁵ I remember writing him a letter not so long ago, after reading the Italian version of his autobiography. I pointed out to him that the monetary theory he presented as Keynes's monetary theory did not appear to me at all the one to be found in the *General Theory*. My suggestion was: why did he not call it *Modigliani's* version (or interpretation) of Keynes's, or simply *Modigliani's* monetary theory, elaborated after absorbing Keynes's innovations? When he received my letter he tried for two days to reach me on the 'phone, until he finally tracked me down at Cambridge, England (where I was on one of my visits). His purpose was simply to express me his (totally innocent) surprise. He added that he would send me the English version, which he was in the process of preparing, and consider my comments and suggestions. But then nothing happened.

a random and transitory aberration of the system. Like catching a cold – sometimes it’s light, sometimes a serious problem, but there is no certain remedy, though if you are patient, it will go away. Instead Keynes in the *General Theory* develops a radically different interpretation of unemployment: 1. Offering a systematic explanation of this illness, proving that it is not a random accident, but a physiological response to certain disturbances [...] 2. Teaching how this illness could be cured [...] 3. Proving that, if one fails to understand and apply the appropriate cures, this illness could last for a long time”.

For all practical purposes, this sounds like pure Keynes, not just ‘Keynesianism’. And it is touching to read him (Modigliani 2001, p. 21. See also Modigliani 2003, p. 3) telling his students that

“It is my ambition to draw [them to] fully understand the scope and nature of Keynesian unemployment and come to admire [...] with me the greatness and originality of his [i.e. Keynes’s] contribution”.

It may be instructive to recall that, in the very midst of the sweeping wave of the monetarist counter-revolution, he accepted to give the Mattioli Lectures, in Milan (1977), on the topic *The Debate over Stabilization Policy* (Modigliani 1986). They were an expansion of his *Presidential Address* to the American Economic Association (Modigliani 1977). He strenuously defended the solid grounds underlying Keynes’s policies to stabilise the economy, as against government inactivity and reliance on the spontaneous operation of the market mechanism, in the face of mass unemployment.

His success in propounding the Keynesian policies is unquestionable (though his preferences were mainly for monetary rather than fiscal measures). And the economics profession has, after all, by and large, moved along Franco Modigliani lines. Most macroeconomics textbooks in vogue in the past decades present Keynesian theory much as Franco used to. One may object that they were mainly published in the United States. True; yet, being adopted round the world, they have exerted vast influence. Hence, for the majority – of both students and professionals – Franco Modigliani is considered – in conjunction with J.R. Hicks (1937), from whose IS-LM ‘Keynesian’ model he explicitly started – one of the most successful interpreters of Keynes’s message. And one must admit that the reasons for this suc-

cess are not without grounds. He gave a mathematical formulation of the *General Theory*; with the preoccupation of showing where and how what he considered Keynes's relevant concepts could be presented in simple terms, through some *appropriate* re-arrangements. He estimated the parameters of the resulting macro-economic models for various economic systems. He explained the interaction of monetary and real phenomena. Most of all, his efforts were directed at showing how equilibrium on the goods and money markets could become compatible with persistent mass unemployment. He went on to stress the necessity of implementing appropriate economic policies (both monetary and fiscal) for a well functioning market economy. All this is certainly going in the direction which Modigliani unhesitatingly, and with strong conviction, called the "great Keynesian revolution".

The oddity of it all is that Franco dedicated all the energies he could summon up to making his 'Keynesian' model simply emerge from the replacement of some reformulated equations within an original macroeconomic version of a perfectly orthodox Walrasian theoretical model. Punctiliously and patiently he built it up from the bases of the original economic theory which he quite explicitly acknowledged as being the theory he learnt from his teachers at the New School of Social Research, and in particular from his major mentor, Jacob Marschak. Franco is quite convinced that by so doing he was contributing to absorb Keynes's revolutionary *General Theory* into a 'Classic' theoretical model, founded on what he considered the obvious assumption that people behave rationally. He is thus quite convinced and proud of arriving, in this way, at Keynes's major results without giving up orthodox economic theory. Even better, he is trying to take advantage of all the new results that economic research is continually bringing along in order to enrich his model and keep it up to date.

But at this point we cannot shy away from a major and indeed disconcerting puzzle. If the foundations kept unshaken are those of orthodox Walrasian theory, what grounds are there to claim to be following Keynes's sharp break-away from traditional 'Classical' theory? More specifically, how could one continue to talk – or at least in what sense or to what extent could one continue to talk – of a Keynesian 'revolution'?

6. The part of Keynes's *General Theory* which in Franco Modigliani cannot be found

It may be turn out to be easier at this point to reverse the direction of our enquiry and try to investigate that part of Keynes's elaborations that *cannot* be found in Modigliani's works.

Even on first scrutiny, it immediately becomes evident that, while it is true that Modigliani's work would have been unimaginable without the previous existence of Keynes's *General Theory*, it is also true that there is quite a lot of Keynes's *General Theory* that is not to be found in Modigliani's works. Without going into overmuch detail, let me make a concise list of the major missing concepts.

Keynes proposed a "revolution in economics" aimed not only at economic policy, but also, and in fact more basically, at economic theory. Here the distance between Modigliani and Keynes is huge. At a foundational level, the very method of *The General Theory* is *not* framed in equilibrium analysis – its investigation never starting from the context of an economic system in market clearing positions. In Modigliani, equilibrium analysis is implicit in the Walrasian framework adopted, which is taken for granted. In Keynes's analysis the non-neutrality of money follows naturally from his emphasis on money as a store of value, which allows transfers through time of the demand for investments and for consumption. In Modigliani's analysis, the non-neutrality of money is a restricted phenomenon following essentially from the rigidity of nominal wages.

In Keynes, the "marginal efficiency of capital" is something quite different from the marginal productivity concept of orthodox economics. As Keynes explicitly stressed, his investment function is *not* the same as "anything to be found in Marshall" (Keynes 1973a, p. 549). We should not confuse it with apparently similar concepts emerging from the traditional neoclassical production function. Investments are indeed affected by changes in the rate of interest, but this is only one channel through which they are determined, other significant channels being entrepreneurs' changing expectations, the impact of true uncertainty, investors' "animal spirits".

Again, the concept of effective demand plays an absolutely central role in Keynes's work, much more pervasively than anything connected with the features of the market as an institution. To give a

specific example, Keynes would never consider – not even as a particular hypothesis – the case of a wage cut leading to an increase in the demand for labour. This might appear to be the case when considering an isolated single entrepreneur, for whom it would seem rational to react in the same way as to any other reduction of costs. But this ‘partial equilibrium’ argument falls to ground as soon as the analysis is expanded to consider the entire economic system. The sum of all hypothetical wage cuts for all producers would simply lead to a fall in overall effective demand, and thus to a macro-economic slump. This twofold role of wages, so basic in Keynes’s arguments – as costs for the single entrepreneurs, on the one hand, and as the major source of overall effective demand, on the other – does not emerge to relevance in Modigliani. It is interesting to see that a substantial part of Franco’s doctoral dissertation is devoted to the labour market, with the help of a whole batch of graphical representations (not reproduced in his *Econometrica* article). It can be seen quite distinctively from them that Modigliani’s ‘Keynesian’ results follow almost exclusively from his assumption of an exogenously given fixed nominal wage. No wonder he decided to stick to this assumption with great determination; for it is a kind of *deus ex machina* that solves most of his key problems. In his last (*Keynesian gospel*) article (2003) he justifies his approach by giving long numerical tables, where he presents the historically documented stickiness of wages and prices as a sheer fact of life. Keynes might well have welcomed such a mass of data, but only as part of the beginning; certainly not as a substitute, for his theoretical arguments, which, as such, are developed independently of wage rigidity.

An even more interesting aspect is that Franco’s analysis of the labour market brings him to become involved with the issue of the distribution of income. But he then decides to leave the subject aside entirely. This, in my view, is the single most significant aspect of his doctoral dissertation which he chose to drop altogether when preparing the *Econometrica* publication. Keynes’s preoccupations with the problem of an inequitable income distribution generated by the market economies thus never have an opportunity to show up.

Last, but not least, in *The General Theory* fiscal policies are made to play a pivotal role, as compared with monetary policies. In Modigliani they are relegated to few exceptional (last resort) cases of government intervention. Keynes had even developed a whole complex set of arguments on the subject of a possible socialization of invest-

ments. This is something that in Modigliani does not emerge altogether, even though the issue is something distinct, and far away, from Lerner's extreme conception of "functional finance", which Franco rightly rejected (and, most likely, Keynes would have rejected as well).

These are all important building blocks in Keynes's conception of a "monetary production economy" that make no appearance in Franco Modigliani's works.

In short, we might perhaps basically put it that the two authors – while moving together when tackling the pragmatic purpose of fighting the permanent risk of unemployment – are in fact in diametrically opposite positions when choosing the standpoint from which to look at the whole economic process. Modigliani is always looking at the actual working of market economies from the point of view of what could be a 'normal' equilibrium situation, trying to single out the *exceptions* – even if quite frequent and persistent – that can cause 'illnesses' and troubles, that are to be avoided. Keynes rejects the traditional concept of equilibrium outright and is looking at "the monetary economies of production" as characterised by intrinsic, permanent, tendencies to movements, turbulence and instability.

There is a brilliant passage that Keynes happened to write even before *The General Theory*, which gives a very evocative idea of his approach (1923, p. 88):

"Economists set themselves too easy, too useless a task if in tempestuous seasons they can only tell us that when the storm is over the ocean is flat again".

There is no 'flat ocean' in Keynes's conception, neither before, nor after and even less during the 'storm'. The idea itself of a 'flat ocean' is for him a misleading image suggested by the traditional idea of a stationary economic equilibrium. In a "monetary production economy", the basic terms of reference must be singled out anew, in the motion and continuous transformation of the economic systems. It is this turning upside down the traditional standpoint, firmly based on equilibrium, that marks the characteristic feature of his 'revolution'.

To conclude, we might say, in a nutshell, that what is missing in Modigliani is precisely the whole basic *revolutionary* impetus of Keynes's *General Theory*.

How can all this be explained? How can we reconcile Keynes's fighting attitude of *The General Theory* with the acquiescent (to tradition) approach of Modigliani's 'Keynesian' elaborations?

Only a short while ago, Paul Samuelson (2003) defined Franco Modigliani as the greatest living macro-economist. He meant to be startling, but he touched the right chord and may have given us a clue.

Franco Modigliani picked up the minimum of Keynes's analytical blocks that allowed him to propound (against politicians and monetarist economists alike) the simple Keynesian recipes needed to fight what he considered to be the major failure of the market economies – mass unemployment. This is the one thing he concentrated on. He thought he could do so – not by repudiating, but – by applying, adjusting and re-shaping in *macro-economic* terms, the basic Walrasian theoretical framework he inherited from his great teacher, Jacob Marschak.

The sharp contrast with Keynes lies precisely here. The “revolution in economics” that Keynes intended involved a *break* with traditional theory, no less than the consequent changes in monetary and fiscal policies. Franco followed what he thought was a safer, more widely acceptable approach. He never called Walrasian orthodoxy into question. On the contrary, he worked very hard with the aim of “digesting” – as he repeatedly said – *The General Theory* into the “earlier stream of thinking”. In these terms, he was not a ‘revolutionary’ economist at all. Of course, this way of applying Keynes's *General Theory* implies simplification, as Solow has perceptively pointed out. It implies concentration on one single point, without bothering about the rest. In Modigliani's case, the single point is for practical purposes extremely important, as it concerns no less than the persistent possibility of mass unemployment in market economies. This has compelled Franco Modigliani to bypass Keynes's novel theoretical elaborations and replace them with a few short-cuts. He used two of them most effectively: the assumption of rigid money wages, to which he was compelled to stick very strongly, in spite of innumerable objections, and his absolute reliance on the ‘liquidity trap’ in monetary theory, which allowed him to insert the Keynesian fiscal-policy measures as ‘extreme cases’, when any other measure is failing.

The didactical success of the whole procedure somehow offset, and made up for, the simplified character of the theoretical scheme. Keynes had opened his *General Theory* by warning that “its main

purpose is to deal with difficult questions of theory, and only in the second place with the applications of this theory to practice” (“Preface”, p. v). Modigliani got hold of the applications to practice, at the price of freezing Keynes’s theoretical background.

7. The persisting fascination of Keynes’s “monetary theory of production”

Franco Modigliani’s 1944 *Econometrica* formulations, jointly with J.R. Hicks IS-LM model (Hicks 1937), set the pattern for the way Keynes’s *General Theory* has been adapted and taught to a whole generation of post-war economics students. This may have had the merit (the *great* merit, many economists claim) of contributing, right at the beginning, to bringing Keynes’s unorthodox stand on economic policies to be accepted in the US. Its didactical success has been, and still is, widespread. But we must recognise the fact that this success has remained associated with the most ‘un-Keynesian’ of all economic-theory features – the traditional Walrasian/Marshallian way of economic thinking.⁶

This was not ‘the revolution in economics’ that Keynes had in mind. He had faced the personal drama of squarely rejecting such a way of thinking, at the heavy price of repudiating his *Treatise on Money*, on which he had spent most of his career as an economist. In the Modigliani version of the “Keynesian gospel”, such rejection finds

⁶ It may be instructive to recall that, at a certain point, Hicks became very uneasy about this characterization. A simplified didactical tool, a mere device of exposition, had become so widely widespread as to become misleading – too restrictive a tool for the purpose of accurately conveying Keynes’s complex original message. Hicks kept on re-thinking his theory and slowly moving away from his original IS-LM formulation. In the late 1960s-early 1970s, he courageously took a break-away step. He strongly criticised, and actually, explicitly repudiated his successful little analytical toy (see Hicks 1975 and 1980). To stress his break-away, he went as far as declaring openly that he had ceased to be a neoclassical economist (in his words – 1975, p. 365: “J.R. Hicks, [is] a ‘neoclassical’ economist now deceased”). And in order to underline his change of mind, he even ceased to sign his articles by the name of J.R. Hicks and began to sign them by the name of John Hicks (in his words: “Clearly I need to change my name [...] John Hicks [is] a non-neoclassic who is quite disrespectful towards his ‘uncle’ [J.R.]” (*ibid.*)).

Did Franco ever show any signs in the same direction? Perhaps he never met with the right stimulus, or perhaps he was never faced with an appropriate challenge.

no place. It would make no sense. Franco's purpose was exactly the opposite, namely that of introducing into the traditional theoretical framework all suitable modifications to yield a pragmatic justification of the Keynesian (monetary and fiscal) policies.

No wonder this state of affairs stirred up keen criticism especially from those economists in Cambridge (England), who had been the close pupils and collaborators of Keynes, and who regarded *The General Theory* as the foundation, not just of a half-revolution concerning measures of monetary policy but of an entirely new paradigm – a comprehensive scientific revolution concerning the whole of economic theory. Whether they were right or not obviously does not depend on their strong, emotional, sometimes even unbecoming reactions. It depends on the validity or not of Keynes original message.

Taking a wider perspective, and in spite of all, it seems to me that the great fascination (and theoretical importance) of Keynes's conception of a "monetary theory of production" remains as strong and intact today as it was in the 1930s – perhaps even more so.

His direct pupils in Cambridge (England) – even against incomprehension and hostility (both internal and external) – have not been lacking in profusing efforts to make further headway in, and add further bricks to, the construction of Keynes's cherished theoretical project. One can see many features of Keynes's conception of a "monetary theory of production" in their works, where their critical positions and alternative proposals, *vis-à-vis* the traditional theory, are put forward and asserted with passion. The novel character of the envisaged theory has become almost impossible to trace in today's most popular macro-economics textbooks. Yet it seems to me readily recognizable when framed in Keynes's terms. It is based not only on the phenomena of exchange, but above all on those of production in monetary economies; not merely on the principle of scarcity, but more firmly on that of reproduction and learning; not on static premises, but essentially on dynamic movements, both quantitative and qualitative. In sum: it is a theory in which time proceeds – not along stationary paths, but – "from an irrevocable past to an unknown future", to quote Joan Robinson's so frequently repeated words (see e.g. 1962, p. 26); within a dynamic framework, which is bound to evolve, not only in scale but also, perhaps more importantly, in structure; and in which institutions themselves become an integral part of economic investigation.

This is the direction in which the ‘Keynesian revolution’ has been, and still is, pointing at. On this way, one should not fear to going beyond Franco Modigliani and, when necessary, beyond John Maynard Keynes himself. Those of us who are still convinced of the possibility of resuming the impetus of the original message emanating from Keynes’s *General Theory*, and are convinced of its persistent scientific relevance for the economies of the 21st century, should not hesitate to take stock of one of Franco Modigliani’s most characteristic traits, so well known to all his pupils – his permanently constructive attitude and his extraordinarily all-engaging enthusiasm. I take it that this is precisely what one needs in order to proceed – no longer to ‘digest’ but – to expand and complete what still remains an as yet unaccomplished ‘Keynesian revolution’.

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