Franco Modigliani

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1. Some personal recollections

Franco Modigliani occupies a central role in 20th century economic analysis. For his work on the theories of saving and finance he was awarded the Nobel Prize. He made considerable contributions on innumerable topics, as is borne out by the five volumes of his *Collected Papers*.

His participation in the debate on Italian economic policy answered to the profound need of the man and the economist, who, after analyzing problems, threw into the search for solutions the whole weight of his civic passion, his commitment to the welfare of the community, of those he regarded as his fellow citizens. Discussions, whether with economic policymakers or with young people eager to learn from him, were always lively and directed to conclusions that were analytically well-founded and socially fair.

I first met Franco Modigliani in 1957. During a trip to Italy, the first since the end of the war, he gave a lesson in Piazza Borghese to Professor Travaglini's political economy students.

We had studied Bresciani Turroni, including his attempts to make an empirical analysis of the demand for Egyptian cotton, and were tackling *Value and Capital* (Hicks 1939). I was struck by Franco's description of the way the consumption function was estimated, in the United States, of course. Political economy did not end with sophisticated analyses of isoquants, the income effect and the substitution effect: it was a practical science.

After graduating and spending some time in the Bank of Italy's Economic Research Department on a scholarship, I was encouraged

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by Professor Cutilli to write to a number of American universities in order to specialize in monetary theory and econometrics. In the end I chose Northwestern, because Professor Modigliani taught there, and it was partly thanks to him that I was admitted.

At the beginning of 1962 Franco announced to me that he was moving to the Massachusetts Institute of Technology and suggested I should follow him. I did, without hesitating. Under Paul Samuelson's influence, MIT was already at the forefront of the academic world, for the originality of its research, the quality of its teaching staff and the constant wrestling with practical problems; among the latter, I have pleasure in recalling Kennedy's new economic policy, which was under discussion in the States at the time.

Franco advised me to take Samuelson's course in *Advanced Monetary Theory*, which was also taught by Albert Ando. These were the years of fierce debate between Keynesians and monetarists regarding the role of monetary policy in economic growth and in controlling inflation. Let me recount an anecdote. One day, someone came into the lecture hall with a large pile of xerox copies, which he placed on the table: it was the typescript of Friedman and Schwartz's (1963) *Monetary History*. Professor Samuelson remarked, "Milton, Milton! We set up the Fed to adjust the quantity of money to the needs of the economy". In its simplicity this comment touched on one of the main points of the debate on the importance of the quantity of money. I also attended – how could I fail to – Solow's lectures on economic growth, based on Denison's (1962) *Sources of Economic Growth in the U.S.*; I had confirmation of their topical relevance when discussing total factor productivity in the United States and Europe with colleagues from the Federal Reserve.

Professor Modigliani offered me the opportunity to attend a course in monetary theory *ad personam*. It consisted in a sort of two-man seminar, in which he assigned me reading to complete, which we would then analyze together. *Inter alia*, I was given the instruction that

> "[...] although I do not agree with a word of Milton Friedman's conclusions regarding monetary policy, he is an author you must study, starting with his reformulation of the quantity theory of money".

Our discussions could last hours; if it was late in the afternoon, Professor Modigliani would sometimes take me to his home in Belmont to continue thrashing out various points over dinner; we would talk on into the evening, until his wife Serena remonstrated and told him to drive his student home.

Modigliani (1960) was working on a new version of his 1944 essay "Liquidity preference" to correct a mistake he thought he had made in that article by expressing income and wage variables in nominal instead of real terms. I had also studied Patinkin in depth, and Modigliani explained an aspect that I had not understood: the application of Walras' Law to macroeconomics. He 'skewered' me again on this point some years later with a criticism of the early version of the model of the monetary sector of the Italian economy: I had included one market too many, a redundant one. After some sharp but unfailingly gallant exchanges he acknowledged, however, that I was right about the importance of the concept of monetary base, as distinct from money, as a central bank tool for controlling credit.

Another field of research in which Franco sought to involve me concerned the relationship between demographic structure and formation of savings; we pursued a line of thought initiated by Giorgio Mortara, an author I had also studied for my thesis.

I never had any doubt, thanks also to Guido Carli's encouragement, that I wanted to work for Italy's central bank. In recalling Franco Modigliani, I shall concentrate on some aspects of his thinking that have a major bearing on economic policy. His many important contributions to theory have already been discussed by the other economists of note taking part in this conference.

2. The role of money and the econometric model

The complexity of macroeconomic theory, and of monetary theory in particular, is attested to by the heated controversies that have marked it in the course of time. I have recalled the monetarists and the Keynesians; much earlier there had been the protracted dispute between the Currency School and the Banking School, more recently the debate on the new classical macroeconomics.

The contraposition between distinct strands of thought derives not only from alternative visions of the working of the economy but also from a different emphasis, as a result of a different assessment of their empirical importance, on certain aspects of the phenomena investigated. Antithetical economic policy ideas and suggestions may then emerge. In academic debate the different approaches proceed in parallel; often, the prevalence of one over another is connected with the occurrence of shocks strong enough to cause a change of paradigm.

The Great Depression created a break in the secular progress of economic analysis.

The classical model, dominant until then, proved inadequate in the face of a crisis of catastrophic dimensions. In a speech broadcast by radio on 21 November 1934 with the eloquent title "Poverty in plenty: is the economic system self-adjusting?", Keynes took up the question of the economic system's intrinsic stability and answered it in the negative. While recognizing the validity of much of classical economics, Keynes called himself a 'heretic' and proposed an alternative model. He identified an error in the prevailing theory:

> "There is, I am convinced, a fatal flaw in that part of the orthodox reasoning which deals with the theory of what determines the level of effective demand and the volume of aggregate employment; the flaw being largely due to the failure of the classical doctrine to develop a satisfactory theory of the rate of interest".[1]

In the Keynesian tradition, the problem of the instability of capitalist systems, especially those in which financial intermediation is highly developed, was the subject of a penetrating essay by our friend Fausto Vicarelli, who died so prematurely. How many episodes of instability we have seen in the last ten or fifteen years, characterized by a rapid expansion of global finance. Episodes of instability that caused severe hardship and social malaise in the countries affected by the crises; efforts by all the components of society were necessary to overcome them.

Starting out from *The General Theory* (Keynes 1936) and his rereading of Hicks (1937), Modigliani, in his article of 1944 "Liquidity preference and the theory of interest and money" and in his subsequent paper, "The monetary mechanism and its interaction with real

[1] *The Listener*, reprinted in Keynes (1973, p. 489).

phenomena", published in 1963, analyzed the implications for employment of the downward rigidity of wages. With the money supply constant in nominal terms, a diminution of aggregate demand entails a movement away from the full-employment equilibrium and hence the necessity for an activist monetary policy.

Different aspects of the monetary and economic policy transmission mechanism, which Modigliani analyzed and which he discussed in our Economic Research Department with reference to Italian economic reality, are incorporated in the structure of the Bank's econometric model. Modigliani let us have the benefit of his advice regularly during the 1960s and on numerous occasions in the following decades. We discussed the problems of growth, of employment and of investment, in general and in the Italian economy. The specification and estimation of the individual equations of the econometric model were also carefully considered.

In this setting the lines of a wage policy that was later applied with good results took form with Ezio Tarantelli through studies of the labour market.

The hallmark of the Bank's econometric model was that it combined an extensive part referring to the real economy – employment, wages, investment, prices, effective demand – with a detailed analysis of financial flows. This second part stemmed from the theoretical contributions of Gurley and Shaw (1960), from Tobin's *Manuscript* (available from the late Fifties, later published as Tobin and Golub 1998) and from Copeland's (1969) studies on the flow of funds, a subject empirically developed for the Italian economy by Ercolani and Cotula (1969).

Modigliani was greatly interested in this structure of the model and threw himself into the discussions on the Italian financial system, which also engendered ideas for improving the structure of the markets.

The Bank of Italy has constantly used the econometric model since then as a logical frame of reference and a tool for knowing some fundamental parameters of the Italian economy.

We used the model in intense discussions with the International Monetary Fund in order to design and define the parameters of the policy to stabilize the Italian economy in 1974 in the wake of the first oil crisis. This had caused an enormous imbalance in the external accounts and a surge in inflation, which was followed by a wage explosion due in part to the indexation of wages to prices.

The success of the policy of credit restriction was immediate, thanks also to the resoluteness with which Governor Guido Carli implemented it.

Inappropriate budget policies created new imbalances in the following years. We used the model and its parameters again to define, under Governor Paolo Baffi, the stabilization policy of 1977-78 carried out by the government led by Giulio Andreotti. The budget correction amounted to 5 per cent of GDP. The positive effects on the external accounts came through within a year.

Over a span of thirty years Franco Modigliani's analyses, his diagnosis of the ills of our economy and the suggested cures encompassed manifold subjects, from the labour market to the problems of retirement provision. He was motivated by the desire to penetrate the reality of the Italian economy in order to correct its malfunctions, increase efficiency and expand employment. His interventions, above partisan interests, were always highly appreciated by Governors Carli, Baffi and Ciampi.

3. Modigliani and economic policy

In the 1960s, the dominance of Keynesian economics was uncontested. Milton Friedman proposed an alternative line of thought, but his ideas were not considered, save to dismiss them out of hand. But not by Franco Modigliani.

In the 1970s the collapse of the Bretton Woods monetary order created the conditions for a worldwide inflationary drift. As a result of restrictive monetary policies, there was also a generalized slowdown in economic activity. Inflation refocused attention on Friedman's ideas. In the United States the Federal Reserve had long restricted its monetary action to stabilizing interest rates – the policy of William McChesney Martin. In this way the rise in costs and prices was financed almost automatically. With the policy shift instituted by Paul Volcker in 1979, the Fed focused on controlling the quantity of money. For a short time administrative ceilings were also imposed on lending by Federal Reserve System member banks. Market interest rates soared. Inflation was curbed.

The so-called monetarist counter-revolution, which blamed activist economic policy for destabilizing effects, sought to confine policymakers' actions within the bounds of a set of 'simple rules'. In reality, this prescription reflected the basic postulate of the economy's automatic return to equilibrium, which, as Keynes had underscored, was the keystone of classical economic theory.

In his presidential address to the American Economic Association in September 1976, Modigliani (1977) intervened in the debate between Keynesians and monetarists, with acute arguments defending the need for both fiscal and monetary countercyclical measures.

Modigliani was sceptical about the hypothesis of rational expectations underpinning the alleged ineffectiveness of stabilization policies, because of the conflict with the empirical evidence. Deviations of unemployment from its natural rate were neither transient, nor small. The factors preventing the economy from returning to an equilibrium position within a relatively short time are incomplete information and institutional rigidities. The hypothesis of rational expectations may apply in the long run. Exogenous shocks necessitate stabilization measures. The postwar experience, he said, offered confirmation of this view, but overemphasis on fine-tuning was a mistake.

Modigliani recoiled from partisan thinking and pinpointed the weaknesses of all the different models, including the Keynesian, which he criticized for failing to consider long-term effects. He once confided to me: "For decades we have focused exclusively on flows; in our analysis we need to go back to considering the role of stocks".

The ratio of wealth to disposable income in Italy today is about 8 to 1, the highest among the G-7 countries.

The conclusion that stabilization policies are effective anticipated by a quarter-century the thesis sustained by Robert Lucas in his presidential address in January 2003. Lucas offered a positive judgment on the economic policies of the postwar period based on advances in macroeconomic theory, both Keynesian and monetarist. Countercyclical policies did stabilize the economy and prevent another large-scale depression, but more intensive recourse to these measures would not produce additional welfare gains; such gains can be attained by supply-side policies.

In the classical tradition, Lucas stresses incomplete markets and the existence of rigidities and frictions that impede adjustment.

On these points and on the compatibility of a theory of money and prices with an essentially Keynesian model, Patinkin's analyses in "Price flexibility and full employment" (1948) first and then his *Money, Interest, and Prices* (1965) tie in with specific passages in the last part of the *General Theory* and provide a synthesis that, to my mind, is still valid today.

This was a lesson that served me in the mid-1990s, when I had to impose a highly restrictive monetary policy in Italy to support the exchange rate of the lira and curb inflation. In doing so, I had in mind an idea of the working of the economy in which the level of activity is determined essentially by effective demand.

Perhaps, if monetarists today cannot but call themselves Keynesians, I should be tempted to assert that – as far as stocks and sound analysis are concerned – Keynesians must similarly own to being monetarists.

Economic theory is a great help to central bankers. In practical action, however, we must not forget that the complexity of theory is such that it is not always possible to reach unequivocal conclusions or, as a consequence, unquestionably correct and effective policy prescriptions. One may be confronted with hypotheses that suggest completely different economic policy measures. It is important for policymakers to bear in mind the multiple facets of each problem, so as to choose the model that has the greatest explanatory power. History provides numerous examples of policy errors that were the consequence of an inadequate theoretical apparatus. It is sufficient to recall the monetary policies of the early 1930s and the dysfunctions of the gold exchange standard, which helped to spread the Great Depression, with dire consequences for the world economy.

In the second place, it is necessary to have empirical knowledge of the phenomena to be acted on. We are regularly faced with discussions of topical problems based on abstract models unrelated to the real world. The search for solutions must begin from concrete situations. As Pareto (1906) suggested in his *Manual*, to approach the optimum one must also take account of non-economic factors and constraints. Insufficient understanding of the complex workings of a market economy affects our ability to operate and can produce erroneous solutions.

Expectations play a decisive role in determining economic performance and the transmission of economic policy impulses.

The lesson to be learned from Modigliani in this respect is important: he sought to grasp the essentials of the problems, independently of preconceived notions. Together with Emile Grunberg, he made a major contribution to our understanding of the role of expectations as early as 1954; this issue recurred frequently in his thinking.

Governing an economy – through fiscal policy, monetary policy and structural reforms – is a complicated task. Today, more completely than in the past, we read the various signals coming from the economy, but even so their informational content is incomplete, not sufficient to plot a secure course. Our knowledge, at micro and macro level, of the behavioural functions of economic agents has improved. Yet like all the applied disciplines, economic policy remains an art.

4. Conclusions

The international economy and national economies are dominated today by the phenomenon of globalization.

It is the sign of the times.

Globalization not only transforms economies and finance but it also impinges on social and cultural models; it raises the urgent question, especially at international level, of the institutions required to govern the phenomenon. To cope with the changes and anticipate the future, an approach is needed in which ever greater specialization is combined with elements of humanistic culture. In this context institutions such as the Accademia dei Lincei have a task to perform in the higher reaches of knowledge.

The financial system has gained a sort of primacy and autonomy at global level. Within it are determined the levels and structure of interest rates, exchange rates, the cost of capital – here too Modigliani *docet* – on the equity markets. The global financial system receives impulses from the performance of the major economies and from central banks; by its nature it is always exposed to the risk of instability; its *raison d'être* lies in bringing together the capacity for saving of some sectors with the investment expenditure of others.

In closed systems, the major actors were firms, households and the state; in the global system the imbalances between states and monetary areas come into play.

The international financial system is also tending to adapt the characteristics and scope of its operations to the need to transfer resources from countries and economic areas with current account surpluses to those with deficits. Capital flows to where productivity and, hence, profits and returns are highest and security greatest. Basically, for closed systems – and the world is a closed system – this has already been theorized in the Turnpike Theorem.

But the global system is a sort of free banking regime with no anchor.

The central bank governors are striving to define rules for intermediaries in order to increase stability. Notwithstanding failures along the way, we appear able to succeed in this intent. The Basel rules, continual consultations and banking supervision in the individual countries make a fundamental contribution to stability. Derivatives, this new invention of finance, provide the lubricant; they reduce and redistribute the risks. Sometimes they are transformed into fuel, pushing the system beyond the limits of prudence.

National economies are linked with the global system through trade, but today, much more than in the past, through finance as well. The efficiency and stability of national financial systems and their coordination with the global market are necessary for the vitality and proper working of an economy; they are not sufficient to ensure growth and prosperity.

Policies must in the first place correct macroeconomic imbalances and hence promote the full utilization of productive factors; in open systems, they must foster competitiveness. From a broad perspective, competitiveness is simply the ability of an economy to supply, through its working, an adequate and growing flow of value added. Accordingly, it appears to me that in open systems competitiveness comes to coincide with potential growth.

In Europe, and especially in Italy, the potential growth of GDP has diminished in recent years. The introduction of the euro has not been accompanied by reforms capable of accelerating growth. Monetary stability and low interest rates have brought benefits, but growth still has not ensued.

The Lisbon Agenda, valid in its general formulation, must be applied with the support of the Union and the member states in the individual economies by identifying the instruments for its implementation. To judge by its public statements, the European Commission is working on these issues.

Demographic ageing – to whose implications for government budgets and macroeconomic equilibria, related in turn to those of individuals, Modigliani devoted so much attention – is looming over Europe, Italy and other advanced economies.

The public pension and health systems, conquests of great social value of the past century, must continue to provide their benefits to future generations. A wisely regulated immigration policy can be a resource, as the experience of the most advanced economy demonstrates.

It is a policy that has substantial effects on the social, institutional and legal plane; following thorough analysis based on solid principles, the problems must be addressed in ways that avoid extreme solutions. Our interests must be borne in mind, but also the expectations of those who leave their own country in search of dignified living conditions, the aspiration and right of every human person.

It has been affirmed by a high authority that every person, upon coming into the world, becomes a citizen of the world community, with the right to partake of the goods that the system can offer.

The economy is one aspect of a vaster civil society. Welfare, including economic wellbeing, is attained through analysis, determination, cooperation and enterprise that glimpses new horizons and works and struggles to reach them. Increased employment, the spread of work, is the goal that negates the idea of economics as the 'dismal science'. It is crucial today in Italy to activate all the necessary means to reverse the trends, to catch the updraft of the recovery, to increase the propensity to invest, to trigger an expansionary drive.

The solutions and the proposals must come, albeit in the necessary dialectical process, from the convergence of all the parties, institutional, economic and social.

The prospects of an economy can be seen in the willingness of firms to venture and invest. The formation of capital, essential to raise potential growth, is tending to be dematerialized, to take on the form of knowledge, organization and the ability and quality of men of

Smithian memory. We must recover the commitment to growth of every component of society and confidence in the future.

Practice must be founded on good theory. Economists offer recommendations for which they are competent. Action and synthesis, in the concrete context of civil life, are up to politics.

I think these reflections would not have displeased Franco Modigliani. He would certainly have offered criticisms and observations, suggested additions and changes. Fundamentally, however, it is his moral strength, his passion for the good of his fellow citizens, which he passed on to us with his teachings, that have inspired these reflections.

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