Franco Modigliani and the Socialist State

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[This is a highly provisional preliminary draft. I expect to have a more fully developed, and more satisfactory, version in hand within a month or two. But until then hope that readers will scrupulously respect my request to refrain from quoting this document.]

ABSTRACT *Franco Modigliani was one of the main architects of the neoclassical synthesis between Keynes's principle of effective demand and the orthodox theory of value and distribution. Modigliani, a refugee from Mussolini's fascist regime, received his doctorate from the Graduate Faculty of The New School for Social Research in 1944, with a dissertation that provided an important cornerstone of the postwar neoclassical synthesis. His career bridges two worlds—orthodox economics and the progressive tradition associated with the Graduate Faculty. Early in his career Modigliani published a little-known article on "The Organization and Management of Production in a Socialist Economy." The article was written in Italian; Modigliani never published an English version of it, and indeed never referred to it until the publication of his autobiography shortly before his death. The paper argues the case for socialism, along lines laid out by earlier market socialists like Abba Lerner and Oskar Lange. Modigliani's aim appears to have been to lay out a practical guide to implementing a socialist program that could actually work; such a program would have to make use of the coordinating properties of the price system.*

Introduction

Franco Modigliani played a central role in formulating the postwar Keynesian tradition that dominated macroeconomic thinking until the mid-1970s. His foundational contribution, an elaboration and extension of Hicks's IS–LM model, was written as a doctoral thesis, under the supervision of Jacob Marschak and Abba Lerner, at the

Graduate Faculty of the New School for Social Research. The thesis was published virtually without alteration shortly after its completion (Modigliani, 1944), and it had a profound impact on the teaching of macroeconomics and on policy discourse over the next three decades. The article is a first-rate analytical performance, an impressive achievement for a newly-minted PhD just barely 25 years of age.

Modigliani's next research project culminated in the publication of a little-known article on "The Organization and Management of Production in a Socialist Economy" (1947). The article was written in Italian; Modigliani never published an English version of it—he omitted the essay from the five-volume MIT Press collection of his works, and he appears never to have referred to it until the publication of his autobiography shortly before his death. He began work on it shortly after completing his doctoral degree; in his correspondence he mentions having completed the essay by 1945. The paper which runs to 75 published pages, or a bit over 30,000 words, argues the case for socialism along lines laid out by earlier market socialists like Abba Lerner and Oskar Lange. Modigliani's aim was to lay out a practical guide to implementing a socialist program that could actually work; such a program would have to make use of the coordinating properties of the price system.

The existence of the 1947 paper is no secret. Modigliani discusses it briefly in his autobiography, as we have noted, and it is routinely included on comprehensive lists of his published works. Given Modigliani's prominence among twentieth century economists, the fact that he is not at all associated with the market socialism literature, and the paper's strongly sympathetic stance towards market socialism, it is remarkable that almost no attention has been paid to this early contribution.[1] The paper merits attention not only for these reasons, but also because it is the last significant contribution in the classic market socialism tradition by a major neoclassical economist. The present essay aims to fill this gap. The 1947 paper is, like all of Modigliani's writings, a model of clarity, but it is far too long to describe in close detail. In what follows I shall summarize some of the main features of his argument about socialism, and will assess the distinctive features of his contribution relative to other work on the topic.

Some Contextualizing Remarks

Modigliani wrote the 1947 essay shortly after completing his doctoral studies at the New School for Social Research. As is now well known, the Graduate Faculty, or the University in Exile as it was originally called, had been founded in 1933 as a haven for European social scientists threatened by fascism (Krohn, 1993; on the economists in particular, see Mongiovi, 1997, from which some of the following remarks are drawn). The core of the original faculty were a group of German-speaking economists, including Gerhard Colm, Emil Lederer, Frieda Wunderlich and Eduard Heimann. There were two prominent Italians in the early group, the political scientist Max Ascoli, and the renowned historian Gaetano Salvemini, both of whom Modigliani came to know. Ascoli was instrumental in helping Modigliani to obtain a scholarship in 1939 (Barnett & Solow, p. 2). Salvemini did not stay long—he had moved on to Harvard by 1934—but Modigliani

[1] In his illuminating introduction to a collection of Modigliani's writings and correspondence relating to the Italian economy, Pier Francesco Asso (2007) places the socialism paper in the context of Modigliani's career and intellectual formation, but does not examine the economic arguments in any detail.

established a relationship with him founded on a shared commitment to democratic principles and social justice. Jakob Marschak arrived in 1939; Adolph Lowe in 1941; Abba Lerner in 1942; and Hans Neisser in 1943; all would have an influence on Modigliani.

The German-speaking economists who formed the backbone of the University in Exile in the 1930s and '40s recognized the importance of an interdisciplinary outlook. Their own work prior to and after emigration had focused on economic dynamics, and in particular on how technological change and institutional structures affect economic outcomes. Many of them had held positions in government planning departments prior to emigration, or had conducted research on intersectoral linkages. They were sympathetic to the message of Keynes's *General Theory* (1936), particularly its critique of Say's Law, but they would have been more impressed with the book if Keynes had paid some attention to the crucial issues of technological unemployment and structural dynamics (see Lederer, 1936; Neisser, 1936, 1946).

Ideologically the New School economists tended to be social democrats. Market forces, they knew, cannot ensure humane social outcomes, and they believed that sensible intervention by the State, including some degree of system-level planning, was indispensable. Fascism of course had taught them a painful lesson about the destructive potential of the state, and many of their post-emigration writings reflect a unique sensitivity to the difficulties of balancing the state's role as an agent of progressive reform against its capacity for repression. But they never wavered in their confidence in the ability of sensibly managed State to design institutions that would promote broad-based economic wellbeing. They admired Marx's work for its sociological insights and for its analysis of the structural interconnections among the different elements of an economic system (see for example

Heimann, 1937), but they were generally skeptical about Soviet-style central planning (which in any case had little to do with Marx).

The New School economists of this early period were not antipathetic to neoclassical economics, though they were conscious of its limitations and skeptical of the generality often claimed for its propositions. Neisser, Lederer, Marschak and Lerner were routinely pushing the envelope of the orthodox economics of their day. They advocated not the abandonment of orthodox analytical tools, but the more competent and more imaginative use of those tools. Modigliani thought very highly of both Marschak and Lerner. Of Lerner he wrote, in a letter to Marschak dated July 16, 1943: "There seems to be a good deal of understanding between me and Lerner and genuine friendship is gradually developing with him of which I am very happy. I think more and more that Lerner is an exceptionally good economist and I am often amazed at what he manages to do without using calculus. I have the impression that he is very often too extreme in his theories or rather too 'logically extreme', but this very fact makes discussion with him very fruitful because one always knows what one is talking about." (Modigliani Papers, CO15, Marschak, 1941–1948)

This is the context within which Modigliani wrote both his groundbreaking 1944 *Econometrica* paper and his next project, the long essay on the economics of socialism. In 1937 & 1938, even before completing his baccalaureate studies, Modigliani had written several non-technical—and in retrospect politically naive—short articles which exhibit a clear skepticism towards orthodox liberalism. In one of these papers he makes a practical & moral case for interventionism (in this particular instance, price controls):

> individual egoisms are inadequate to manage the country's affairs in the manner most useful for the collectivity... [T]here is a need for the State to control this

> egoism by limiting and preventing it when, as is always the case in practice, it amounts to the oppression of the weakest by the strongest.
>
> … wherever one finds speculation, that is to say, wherever a price has been fixed not in such a way as to assure the maximum benefit of the collectivity combined with that of the individual, but only the advantage of the individual and the exploitation of the collectivity, then the State has not only the right but also the duty to intervene.

In these early essays we see an energetic intellect driven by a passion to reform society, but mindful of the complexity of actual social phenomena. The socialism paper, which Modigliani began to write almost immediately upon completion of his doctoral thesis, exhibits these same concerns. But he now had a sophisticated grasp of theoretical economics.

In a sense, the socialism paper is a curious follow-up to Modigliani's 1944 paper on liquidity preference and the theory of effective demand. By the late-1940s Keynesianism and the Cold War had taken market socialism off the table for most western economists. The topic had already been thoroughly hashed out before the outbreak of the war. Keynesianism meant that the most damaging defect of the market system—its inability to ensure acceptable levels of employment—had effective and relatively simple remedies; fiscal and monetary policy could be applied to regulate the level of aggregate demand. The market could then be expected to generate reasonably efficient utilization of resources. There was no need for planning or collective ownership of the means of production. Furthermore, postwar tensions with the Soviet Union created a political climate in which made serious non-condemnatory discussion of socialism hazardous to one's career. Bucking the trend, Modigliani thought the topic deserved another look.

Modigliani on Socialism

The 1947 paper is organized into six sections:

I. **Approach to the problem**
II. **The concrete task of the socialist entrepreneur. Comparison with the organization of production in Soviet Russia**
III. **The distribution of Income**
IV. **Problems of Finance**
V. **Other problems relating to the implementation of a socialist system**
VI. **The problem of transition from a system of private enterprise to a socialist system**

At the outset of the paper Modigliani remarks that the economics of socialism—the literature initiated by Enrico Barone's "classic study" on "The Ministry of Production in a Collectivist State" (1908)—is among "the most interesting and promising" developments in economic theory. He indicates in an opening footnote that "The present study is part of an unpublished work whose purpose is to lay out the fundamental principles of the modern economic theory of a socialist state" (1947, p. 441); yet nowhere else in his subsequent work did Modigliani address these issues: the project appears to have been abandoned. The 1947 paper contains few references to the literature, and aside from the paper by Barone, all of the literature cited by Modigliani is on the socialist side of the debate—H. D. Dickinson (1939), Hall (1937), Lange (1936, 1937), Lerner (1937, 1944), Meade (1938) and Pigou (1937). There is no discussion of the arguments against market socialism put forward by Hayek and Mises to challenge the market socialism; nor for that matter does Modigliani mention Marx.

I. Approach to the Problem

The basic conceptual framework is standard welfare economics. Modigliani's analytics draw heavily on Oskar Lange's two-part RES paper on "The Economic Theory of Socialism" (1936 & 1937). But he goes far beyond Lange in discussing the design of institutions. Both of Modigliani's most influential mentors had written on the topic. Prior to his emigration to the United States, Marschak (1924) had written a rebuttal to Ludwig von Mises' claim that no rational coordination of economic activity is possible in a planned economy. Lerner was completing *The Economics of Control* (1944) just when Modigliani was embarking on his own major project on the same topic.

Modigliani opens the analytical argument with a summary of the basic elements of welfare economics, drawn from Hicks (1939) and Lange (1942). The organizing principle is standard welfare economics grounded in the notion of Pareto optimality. A particular situation satisfies the conditions for maximum collective economic wellbeing if no economic agent can be made better off without making some other agent worse off.[2] He goes on to distinguish between two types of economic decisions, which he calls decisions of Type A and Type B. Type A decisions are those in which at least one of the

[2] Modigliani states explicitly that such a position represents a welfare maximum, which is not precisely true. A position of that type is "optimal"—"efficient" is a better way to describe it—in the very narrow sense described by Pareto, but there is no reason to think that it will be consistent with the "maximum" sum of social wellbeing in any meaningful sense of that expression.

available alternatives involves an unambiguous Pareto improvement, so that social welfare can be increased by reallocating resources in such a way that some agents benefit while none are harmed. It follows that “a characteristic of choices of types A is that they are economically determinate” (1947, p. 443). Type B choices, however, involve situations in which “every one of the alternatives improves the position of some but only by worsening that of others. In this case the strictly economic criterion is not sufficient to obtain a decision and it is necessary to make use of extra-economic criteria, be they moral, political, social etc. Therefore Type B choices are “economically neutral”, an odd and perhaps ill-chosen term, by which Modigliani means that economic theory does not allow us to say anything definitive about them. The economist can only indicate his personal preference, and the function of economic theory consists, at most, in determining the economic consequences of each possible choice…” (1947, p. 443).

Type A decisions are apt to be extremely rare, Modigliani notes, since almost all economic adjustments have the effect of benefiting some agents while harming others. But the possibility of compensating the injured parties can enlarge the class of Type A decisions significantly. Here Modigliani rehearses the standard neoclassical argument that a change in which indemnification would leave some parties better off and none worse off meets the criteria for a Type A decision and therefore merits implementation, even if indemnification is not actually made. But, he cautions, this rule ought to be applied with considerable care, “given that the constancy of income and of economic conditions in general is probably a value in itself. It would therefore be preferable not to implement changes that produce considerable redistributions of income, if the gain would supersede the indemnity by a small margin; while if the net gain were considerable, it would be advisable to proceed with the indemnification of the damaged parties” (1947, pp. 444–445).

Modigliani proceeds to set out a system of institutions and rules by which a socialist system will be able establish the “maximum” collective wellbeing compatible with the limited resources available to the community. Among the issues he discusses in careful detail—indeed in fuller detail than any predecessor—are: the task of firm managers under socialism; income distribution, and in particular the question of how to minimize inequality without losing the efficiency gains that emerge when pay differentials channel labor into occupations that have the greatest value to society; the socialization of investment decisions; the promotion of innovation and technical progress; the relation between the program he outlines and the actually existing collectivist system of the Soviet Union (which he deemed an unmitigated failure); the implications of Keynes’s economics for socialist economies; and the budgetary and financial dimensions of the socialist State. I will briefly discuss Modigliani’s treatment of these issues.

II. The Concrete Task of the Socialist Entrepreneur

Modigliani’s aim is to develop a set of practical rules that the managers of socialist enterprises can follow to ensure efficient outcomes. In a private enterprise economy the rule that managers must follow is the simple one of maximizing profits. Modigliani wises to come up with a comparably simple set of principles to guide the management of socialized enterprises. His starting premise is that “the intelligent and efficient use of economic resources to satisfy collective needs [under socialism] is impossible in the absence of a system of prices analogous to that of the capitalist system. For prices furnish the only objective criterion for evaluating the economic needs of the collectivity and for determining the most efficient way to satisfy them" (1947 p. 448). He identifies the conditions, or the "Four Fundamental Rules", that must obtain in order for an economy to achieve "maximum" social welfare:

> (1) Individuals must be permitted to dispose of their incomes as they wish, and prices must be free to adjust to bring quantity demanded into line with the quantity available.
>
> (2) Individuals must be free to choose their own occupations, subject to the requirement that they meet the qualifications for the job; here again, the prices of productive factors must be established "on the basis of the principle that demand be equal to supply."
>
> (3) The techniques of production must be selected with a view to minimizing the total cost of production.
>
> (4) Output should be set at the level that makes price equal to marginal cost. Modigliani notes early in the paper that "the system of private enterprise often fails to secure the employment of all of the available quantity [of every factor]. And indeed cyclical and chronic unemployment is surely the most serious defect of this system" (1947, p. 446).

Modigliani goes on to point out the third and fourth conditions are met only under perfect competition, which he defines as a situation in which no single firm has the ability to influence the price of the good. Since this situation rarely obtains, there is, he concludes, a strong case to be made for the socialization of production.

But Modigliani is emphatically committed to the allocative merits of the price system, and to principle that a well-functioning socialist system must be grounded in neoclassical value theory:

> The usual widely repeated phrases, such as "production for consumption and not for profit" or "the firm must be run for the general interest" are completely devoid of meaning where they are not given concrete form in precise, objective and verifiable rules. The capitalist system functions, albeit with many inefficiencies, because those who direct the firm have a precise task to perform: to maximize the firm's profits.
>
> But if the socialist State, after having socialized its enterprises, offers to the firm's director only a vague ethical principle to guide his actions, the economic machine will either function in an altogether arbitrary manner or it will not function at all.
>
> It is the merit of economic theory to have shown how these nebulous slogans can be translated into concrete principles and rules of action. (1947, pp. 447–448).

In a market economy prices have two functions. The first is an allocative function (to ensure efficiency in the allocation of resources to different productive uses); the second is a distributive function (to determine the incomes of the members of society). In the socialized economy envisioned by Modigliani, prices would perform the same allocative function that they do in a market economy. But the distributive function would be radically diminished.

Decisions about the level at which to operate existing plant should strictly follow the $P = MC$ rule. In contrast to Lerner, Modigliani emphatically rejects the idea that the principle of profit maximization is indispensable to economic efficiency; if the aim of production is to maximize social welfare, profit and loss are irrelevant to production decisions:

> "… losses and profits have a purely historical significance, being the result of past decisions, now uncorrectable, or of certain peculiarities in the conditions of demand or in the technique of production. They are of great importance for decisions [about new investment] but cannot in any way be used as a guide in deciding how to use the existing plant."

The profit rate does not enter into any of the four rules he mentions for collective welfare maximization. On the contrary, he goes on to argue that there are numerous circumstances in which the goal of profit maximization comes into conflict with the collective interest (as when monopoly elements are present), and in these circumstances the improvements in social welfare require that means of production be socialized (1947, p. 448).

In Modigliani's schema, the interest rate is set by the State. This rate will affect the investment decisions of the directors of enterprise; the cost of credit to individuals and privatized firms; and the return on private saving. But Modigliani, curiously, doesn't discuss the criteria that the planning authorities ought to adopt in setting the interest rate.

Lange (1936, 1937) argues that it should be set with a view to the level of investment activity the State wishes to promote, and he acknowledges that there is a welfare cost associated with the possibility that the investment agenda of the State may be inconsistent with the time-preferences of the members of the community. This he deems a small cost relative to the benefits of socialism. Modigliani generally dodges this issue.

Modigliani confronts head-on an issue that is often raised in discussions of the unworkability of socialism—the systems lack of economic dynamism owing to the lack of incentives to innovate. Modigliani writes:

> in a capitalist system there appear annually hundreds of new articles, while old products undergo continual variations in quality, design and presentation. It is necessary therefore that the socialist economic system have at its disposal a mechanism and principles for deciding on opportunities to introduce new products and improve existing ones, without which the life of the socialist community would tend to ossify and to become as monotonous as life in a barracks.
>
> Without doubt, the prospect of large profits and the danger of eventual losses in fact constitute an extremely efficient mechanism for inducing entrepreneurs to be open to new ideas yet cautious in introducing them.
>
> In a socialist system we see instead an oscillation between two opposite and equally grave dangers: on one side, the danger that whomever administers the social wealth, not having the incentive of profit, will shun novelty and become ossified in routine; on the other, the danger that these same administrators, using capital that is not theirs, will embark upon senseless enterprises, wasting the resources of the community. From what we can judge from the experience of modern day bureaucracy, the first danger will be much greater than the second; *indeed, we can say that stasis and routine are the only true danger of a socialist economic system*.

Modigliani's solution is to propose the formation of Research Commissions, one for each branch of industry, charged with the task of promoting innovation. A system of bonus pay would reward innovations that prove successful. Decisions about new investments would be taken by the Research Commissions in Collaboration with a Central Commission for the Coordination of Investment. The latter entity would coordinate the investment plans of the different sectoral Research Commissions. It would also set the interest, taking account of the consistency between the amount of investment the various Research Commissions which to initiate and the amount of liquid capital generated by private saving and depreciation.

Socialism has a particular advantage over private enterprise as regards investment. Neither private firms nor socialized firms can know whether any particular investment project will be successful.

> [But] private firms face an additional economic risk …: the risk deriving from the more or less absolute ignorance of the plans of other entrepreneurs, as well as of fluctuations in demand. Investments that may have appeared lucrative cease to be so if too many entrepreneurs, attracted by the high profits, invest simultaneously or if a general depression drastically reduces demand.
>
> "The lack of coordination in investment, and cyclical fluctuations which are in part a consequence of the former, constitute one of the most serious sources of inefficiency and waste in the private capitalist economy. This inefficiency and waste will be considerably reduced in a socialist system, by making public the actions of every firm.

III. The Distribution of Income

Any rule regarding distribution necessarily involves both Type A and Type B decisions. The Type A aspect of the problem has to do with the channeling of resources into their most efficient uses. Modigliani starts from the principle that each person should have absolute freedom over choice of career: again, his bias against coercion is evident. Some income differentials compensate for the training necessary to enter certain professions, such as medicine, engineering or the law. The rationale for these differentials can be eliminated by ensuring equality of opportunity to all who show an aptitude for these professions. Access should be contingent on ability not the income of one's family. In other cases, higher wages may be necessary to induce people to do risky or unpleasant work; these wage differential are economically justified. Yet other wage differentials arise because workers or reluctant to relocate to areas where there is demand for their skills. In this case the State should have a program to subsidize relocation.

But where no objective economic rationale can identified for an income differential, incomes should be as equal as practicable. Modigliani expresses a clear bias for equality of income: "Between two distributions of income whose effect on collective welfare is not objectively measurable (in the sense described above), *the one that leads to less income inequality* is to be preferred (subjective and economically arbitrary principle)" [emphasis added]. Therefore, any surplus revenues that the socialized firms earn over costs will be allocated to households as a collective dividend, an equal payment per capita. (Here Modigliani differs from Lange.) If the market assigns to an individual a wage in excess of what would be necessary to induce him to perform a particular kind of work, the excess wages may be subject to taxation, with the tax revenues being paid out as part of the social dividend.

IV. Problems of Finance

Modigliani would permit private saving and the accumulation of wealth resulting from it. He surmises that saving will be lower under socialism than under a private enterprise system, because economic life is less precarious. Saving, which involves a sacrifice, therefore should not be penalized. As noted, he has a bias against coercion; hence bequests and gifts should be regulated rather than banned outright to limit "the danger of wide-scale evasion and fraud."

Modigliani advocates management of the State budget and taxation to compensate fluctuations in demand due to hoarding. He favors progressive taxation but acknowledges the possible distortive incentive effects.

V. Other Problems Relating to the Implementation of a Socialist Economic System

This is a catch-all section. Among the topics discussed are: how to determine whether a sector should be socialized or allowed to remain private (a judgment call based on experience); the relation between the socialized and private parts of the economy; the role banks and insurance; and how the privatized sectors ought to be regulated. The most interesting part of this section is Modigliani's discussion of the role of labor unions: they will continue to have a role in mediating other aspects of the labor contract besides the level of wage, and in representing the interests of workers when disputes with management arise.

VI. The Problem of Transition from a System of Private Enterprise to a Socialist System

In this concluding section of his paper, Modigliani considers the political economics involved in transforming a market system to a socialist system like the one he has described in the preceding sections. Echoing (but not citing) the argument of Marx and Engels in The Communist Manifesto, Modigliani acknowledges that:

> in the absence of a system of enterprise and private risk and the income inequality that accompanies it, the enormous economic progress and enormous rise in average income that has characterized the last century and the first

> decades of the present century could not have occurred. Whether this progress justifies the immense suffering, injustice and poverty caused by the private capitalist system is a question that each must decide for himself. But there is no reason at all to deny that private capitalism has produced an awesome, almost miraculous, achievement.

But the system, he contends, is no longer capable of absorbing the enormous savings it is capable of generating; this is a familiar argument that we might expect from a Keynesian of the late 1940s. But Modigliani goes on to make a far more damning claim:

> *the capitalist class has lost the capacity, the boldness and the will to take on new risks*. And this is because it is too focused on the defense of monopoly positions already acquired, as well as because the political, ethical and social climate is becoming ever more hostile to large-scale financial and industrial capitalism. It is precisely because of this last reason that the unemployment problem admits of temporary palliatives, but probably not permanent solutions. For all the concrete measures for eliminating and controlling unemployment, whether they aim at income redistribution or at investment on the part of the State, necessarily end by interfering with private decisions and private profit, further diminishing the courage and the willingness to take on new risks.

Hence, Modigliani concludes that a policy of socialization along the lines described in the paper should be initiated.

Throughout the paper Modigliani stresses the importance of caution in implementing any course of action. This is of a piece with his general temperament, and no doubt of his recognition, inherited from his New School teachers, that socioeconomic systems are complex entities. What actually happens may turn out to be very different from what, even after careful analysis, we expected to happen. We therefore ought to tread carefully and be ready to change course when necessary. But in discussing the transition from a market system to a socialized economy, Modigliani advocates bold action: he is no Fabian. If a decision is taken (presumably by democratic means) to make the transition to a socialized economy, it should be accomplished quickly; for “a failure of courage can only generate, first, economic chaos and then counterrevolution.” He continues, in a passage that reflects his concern for institutional reality:

> It is essential that property relations be *disturbed only once and at one stroke, and that property rights that are not abrogated be reinforced and protected*. Only in this way is it possible to deprive those who are negatively affected of the political strength to react, while ensuring both the political support of everyone else and the efficient functioning of non-socialized property.
>
> “It is necessary to make clear from the start that the move toward socialization is not opposed to private property as such, *but only because and when it is incompatible with the interests of the majority*.
>
> “From the practical point of view, this means that the firms and the property that are destined to become social property must be socialized at a single stroke….

The passage echoes Oskar Lange’s argument for boldness in effecting the transition, and Modigliani closes his essay with a quotation from Lange (1937, p. 136): “… there exists only one economic policy which [the economist] can commend to a socialist government as likely to lead to success. This is a policy of revolutionary courage.”

Conclusion

In his autobiography, Modigliani (2001) mentions his 1947 article, and distances himself from it somewhat. He emphasizes the crucial allocative role he assigned to the price system. Whereas in his 1947 paper he drew a sharp distinction between socialism as he conceived it—a system which made full use of the allocative properties of the price mechanism and gave as much scope to individual choice as possible—with a Soviet-styles command economy, in his later assessment of the paper he conflates market socialism with a command economy. He describes the paper as "an exercise in forcing myself to imagine how production was run efficiently in a socialist economy and how it handled the absence of a market so as to achieve the desired result" (2001, p. 165). This is something of a misrepresentation: at the outset of the 1947 paper he states that the analysis will "show that a socialist system is not only economically possible, but also that such a system would tend to function much better than the system of private enterprise" (1947, p. 441). In retrospect he came to think that his friendship with the Italian physicist Bruno Pontecorvo (who later defected to the Soviet Union) had left him "with some soft spots for socialism" and that perhaps he had "been too enthusiastic" (2001, p. 167). But we ought not to discount the fact that the paper appeared just when the persecution of leftists had begun to gather new momentum in the United States, where Modigliani had decided to make his career. Pursuing that line of research would not have done his career any good at the time, and when the ideas would have been safe to explore—perhaps two decades later—Modigliani had moved on to other issues

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