Luigi Amoroso (1886–1965): Mathematical Economist, Italian Corporatist

Jan Horst Keppler

Introduction

Luigi Amoroso was the most influential Italian economist of the first half of the twentieth century after Vilfredo Pareto. His writings were not only crucial for the development of economics into an analytical science in Italy itself, but also contained the few examples of Italian economic thought that were noted abroad. His scant notoriety nowadays does not adequately reflect his stature as Italy’s premier representative of mathematical economics after Pareto’s death. Although Pareto had formulated the idea of general economic equilibrium based on the equalization of marginal values, it was left to Amoroso to apply these insights to a large range of economic problems and thus make them intelligible and acceptable to the Italian academic and scientific audience at large. Before Amoroso started publishing in 1909, modern analytical economic thought in the Anglo-Saxon tradition had been confined to idiosyncratic outsiders such as the iconoclast Enrico Barone. By the time Amoroso retired from active teaching in 1959, however, such thought had become the accepted standard for economic theory.

Correspondence may be addressed to Dr. Jan Keppler, International Energy Agency/OECD, 2 rue André Pascal, 75775 Paris Cedex 16, France.

1. Piero Sraffa is, of course, a towering figure of indisputably Italian nationality and temperament. Yet, the theoretical writings for which he justly became famous were firmly part of Britain’s Cambridge tradition. Furthermore, they were received in Italy itself only after a considerable time lag.

For this alone Luigi Amoroso deserves unqualified historical credit. Yet, there is an equally important, if somewhat more controversial side to his long career. In the 1920s and 1930s, Amoroso had become the foremost academic spokesman for fascist economic policy and theory. This freely assumed role placed him in a pivotal position in one of the great debates of the time—the debate over the merits and structure of a corporatist reorganization of a capitalist economy. This debate, ultimately about the optimal degree of state intervention in market economies, was an international phenomenon, yet nowhere else did it assume the critical importance it had in Italy. There, corporatism provided the ideological veil for the contradictions of the fascist regime under Benito Mussolini, which had to reconcile its roots in revolutionary syndicalism with its role as a bulwark against the threat of left-wing forces gaining power in the tumultuous years after World War I. Luigi Amoroso’s 1933 essay, written jointly with the one-time fascist minister of the economy Alberto de’ Stefani, “La logica del sistema corporativo,” was a generally recognized synthesis of the debate on corporatism. It is not without irony that Luigi Amoroso, as Italy’s foremost neoclassical economist, would devote a large part of his writing on economic policy to eulogizing fascism for having overcome “economic liberalism.”

Despite his influential role in the debate over corporatist economics, there are surprisingly few attempts in his writings to synthesize his staunchly Paretian economics with his strong sympathies for a fascist restructuring of the economy. These elements are usually combined purely by juxtaposition, ignoring blatant contradictions. The fact that Amoroso could assume such an authoritative role is a reflection of the internal contradictions within fascist and corporatist economic thought. But his curious avoidance—despite his assertions to the contrary—of letting his political sympathies influence his theoretical thinking allowed Amoroso to continue his theoretical research after the war without further difficulty. He just emphasized the neoclassical economics he had always espoused, reducing his explicit fascist sympathies to a more general anti-leftism.

It would be easy to dismiss Amoroso’s role during the twenty-two years of Italian fascism as having been the result of a lack of any other alternative, a role forced on him by a ruthless and brutal regime, but this interpretation would underestimate the relative intellectual freedom in fascist Italy, especially in matters of economic theory. Liberal economists such as Luigi Einaudi and Francesco Vito not only continued teaching during this period, but also published their advocacy for a free mar-
ket economy quite openly, paying only the faintest lip service to fascist ideology. Luigi Amoroso indeed stands out not only in his stature as a theoretician, but also for the fervor with which he engaged in the debate on the fascist side. Amoroso’s life and work not only deserve attention as important episodes in the modernization of Italian economic thought, but also because they are pertinent to the peculiar interplay between neoclassical economic theory, corporatist ideology, and the fascist political system in the Italy of the first half of the twentieth century.

**Amoroso’s Life**

Luigi Amoroso had what may be called a successful career as an economist. During his long life, which spanned three different economic and political regimes, his career proceeded uninterrupted. Under fascism, Amoroso was able to work out a generally acknowledged synthesis between corporatist economic thinking and early neoclassical theory in collaboration with Mussolini’s one-time minister of economics Alberto de’ Stefani, yet he went on in 1959 to receive the Grand Gold Medal of the University of Bari, with ministers of the young Italian “Repubblica antifascista” applauding and sending congratulations. One purpose of this article is to identify those characteristics of Amoroso’s work that enabled him to carry on his career so successfully under such diverse circumstances. It would not be correct to view the publication of *Principi di economia corporativa* (1938a) and the publication of *Economia di mercato* (1949) as pure acts of opportunism; despite their wildly contradictory titles, the two books actually differ more in emphasis than in substance. It is Amoroso’s peculiar mixture of a highly personal approach to political economy and complete mastery of the mathematical language of neoclassical economics that builds the basis for his success over five decades. In addition, he was an extremely prolific writer; a 1959 bibliography contains 142 items, among them four different full-length textbooks (Amoroso 1959). His work comprises publications in mathematics, statistics, economics, and sociology, but it has its natural focus in mathematical economics, the domain in which he was to achieve national and international recognition.

Luigi Amoroso was born on 26 March 1886 in Naples. He began studying mathematics at the Scuola Normale di Pisa and earned his doctorate in mathematics at the University of Rome in 1907. One year later he became assistant professor of analytical geometry at the same university.
It is not clear what sparked his interest in economics. The only hint is in his 1909, “La teoria dell’equilibrio economico secondo il Prof. Vilfredo Pareto,” tracing the development of the notion of equilibrium from the *Cours d’Économie Politique* to the *Manuel d’Économie Politique*. Pareto was to be a lifelong influence on Amoroso, with whom he not only shared mathematical mastery but also a skeptical view of modern democratic society. In 1910, Amoroso became free lecturer of political economy, and in 1913 of mathematical physics. In 1914, he was called to the University of Bari as professor of statistics, a position he left in 1921 when he received a professorship in Naples, first in mathematical finance, then in political economy. In 1926, he took over the same position at the University of Rome, where he stayed most of his life, only returning during the early fifties to Bari. Amoroso retired with much fanfare in 1959 and returned to his hometown of Naples, where he died in 1965.

Amoroso’s honorary degrees and positions on committees, boards, and the like are too numerous to mention. Among the most prestigious were his nominations as “Consigliere Governativo del Banco di Napoli,” as chairman of the board (amministratore delegato) of the “Assicurazioni d’Italia,” and his membership in the fascist “Consiglio Superiore dell’Educazione Nazionale.” The only blot on this seemingly flawless scientific and social career was the somewhat limited international response to his work. Yet, the reception internationally of other Italian writers, with the exception of Pareto and Sraffa, is virtually nil. Reviewing Amoroso’s work, it becomes apparent that he had a perfect command of French but knew no English, a handicap which confined his reception to the few economists like Edgeworth or Stackelberg who read Italian. Of his two articles published in *Econometrica*, one is a translation of his entry on Pareto in the *Enciclopedia Treccani* (1938b) and the other is a piece on business cycles written in French, “La dynamique de la circulation” (1935b). Nevertheless, those who did read him abroad, like Edgeworth and Stackelberg, spoke of him with great respect. To this day, he remains, justly, most widely known for his work on imperfect markets in “La curva statica di offerta” (1930).

**Early Works**

Amoroso’s early writings already tend to display the peculiar dichotomy that marks his later writing. On one side, Amoroso the mathematician is
fascinated with Pareto's concept of general equilibrium and its assumptions of perfect competition, instantly adjusting markets, the equation of all marginal productivities and utilities, and thus the guarantee of Edgeworth/Pareto optimality. On the other hand, Amoroso the corporatist distrusts the economic and political system that is most often considered the closest real world approximation to the ideal world of liberal capitalism and parliamentary democracy. This distrust was originally nurtured less by genuinely fascist or corporatist ideals than by a way of thinking that grew out of Italian Catholicism. Amoroso abhorred any idea of a confrontational society, let alone the concept of class conflict, which in his writing assumes the characteristics of the result of a socialist conspiracy, not those of a manifestation of objective differences of interest.

At the beginning of his career, having just completed his mathematical studies, Amoroso clearly leaned toward a neutral mathematical approach in the neoclassical tradition. Not coincidentally, his first publication was the article mentioned above on the concept of equilibrium in Pareto's writings.

This article begins with a description of the development of the Paretoian concept "ofelimità" (utility), from a cardinal concept to a purely ordinal index-function. It then continues with a description of economic equilibrium under perfect competition according to Pareto, showing how all marginal utilities for consumers equate, as well as for the producer and marginal productivities. In a short digression on monopolistic and duopolistic market structures, he adopts Pareto's view, later rejected, that each duopolist would seek to optimize his own output independent of the output of his competitor, thus "over determining" the solution and in essence giving up any attempt to solve it. Typically, he thus rejects the problem as not being part of economia pura, but of sociology. "Pure economics tells us that the conditions given in the outline of our problem are incompatible. . . . It is not appropriate to force ourselves further" (Amoroso 1909, 364).²

The article concludes with a description of Pareto optimality as a static equilibrium, where any movement away from the equilibrium configuration entails losses in utility (367). His only critical remark states that the existence of indivisibility and, in consequence, of increasing returns to scale ("presenza di spese generali nella produzione"; 367) in combination with unhindered competition cannot bring about equilibrium.

². All translations are the author's.
With the exception of mentioning this single limitation of the Paretian concept, the article is a compilation of the most important concepts of the revered master. Amoroso, at the beginning of his career, was very much a follower of Pareto's mathematical approach to economics.

In this context, it is interesting to read his 1938 article on Pareto. In this essay on the life and work of the famous French/Italian economist, Amoroso writes 30 years later as the self-assured representative of Italian fascism in the area of economic theory. He still acknowledges Pareto's merit in the construction of an economic equilibrium as the solution to the contrast between "tastes" (the drive to maximize utility) and "obstacles" (the scarcity of available means), in his establishment of the index-function of utility, and in formulating the curve of income distribution. But immediately afterward, he criticizes Pareto for having limited his mathematical analysis entirely to statics and having confined dynamic elements to the sphere of politics and sociology (Amoroso 1938b, 7).

Further reference to his achievements and importance to the science of economics are surprisingly scarce. For instance, Amoroso omits any reference to the influence Pareto had among economists and social scientists of the early twentieth century. For the older Amoroso, Pareto's biggest achievements do not lie in mathematical economics, but in having clung to "mythical fascism" (21), despite a democratic rationalist education. Pareto's life (1848-1923) is very much seen as climaxing in his appointment as a fascist senator and in being offered the ambassadorship to the League of Nations in Geneva. Amoroso focuses on Pareto's critical view of modern society, while criticizing the "democratic olympus" as a new form of intolerant religion, ridiculing freedom of the press, parliamentarism ("a new kind of feudalism"; 17), his hometown, and recent, relatively democratic, Italian history in which only the autocratic imperialist Francesco Crispi receives any credit. Not surprisingly, the end of the article lauds Pareto for having foreseen the "end of the plutocratic demagogic cycle" and closes with the following: "That fascism has become victorious extols him in life and glorifies his memory, like that of a confessor of its faith" (20). Amoroso's piece on his intellectual mentor is treated extensively here because it is symptomatic of his attempt to combine his interest in mathematical economics with his fascist sympathies by way of juxtaposition rather than synthesis. In a revealing passage in the same essay, Amoroso writes that Pareto classified society into "speculators" and "rentiers," the former standing for consumption and change, the latter for saving and continuity. Whatever the justification for such a
classification, Amoroso clearly sides with the rentiers; his original inclinations are quite far from “revolutionary” fascism but rather tend toward a static society based on consent, private property, and limited social responsibility.

This lengthy discussion of the nonmathematical Amoroso should not obscure the fact that his early career was based almost entirely on articles published in mathematical journals and his regularly published lecture notes in the same field. Only slowly do economic themes begin to appear in his publications, which are then comprehensively developed in his first major economic textbook, *Lezioni di economia matematica*, published in 1921. With this book, Amoroso established himself as a follower of Cournot, Gossen, Jevons, Walras, Edgeworth, Pareto, and Fisher and in it professes to draw a sharp distinction between mathematical and political economics (Amoroso 1921, vii–x). Amoroso’s digressions, about which Edgeworth wrote that he was even more fond than was Thucydides (Edgeworth 1922, 404), only very occasionally concern political issues, but consist of seemingly endless mathematical examples. *Lezioni di economia matematica* stands solidly in the neoclassical tradition. There is no reference to any corporatist thinking, and crucial points such as private property, cartelization, disequilibria, and the role of labor are either not addressed or touched on only in passing. At this point Amoroso still believes in a distinction between industries with increasing returns to scale (manufacturing industry) and industries with decreasing returns to scale (agriculture), a notion which he would later dismiss in favor of a general U-shaped average cost curve (Amoroso 1921, 187). He is evidently fascinated by correspondences between the equilibrium concepts in economics and mechanics (461–70). His solution of the duopoly problem is now the Cournot solution, a fact which would lead Edgeworth to extensive criticism in his 1922 book review in the *Economic Journal*. His only deviation from the emerging neoclassical doctrine seems to be his skepticism toward free trade. Without being an outright protectionist, he finds possible justification for tariffs in the infant industry argument as a convenient tool for wealth redistribution and for political motives (322). (This was another point severely criticized by Edgeworth.) His position was paradoxically reversed in the joint article “Lo stato e la vita economica” written with Alberto de Stefani, which was an ardent call for the regulative intervention of the state. Without containing any great novelty, nonetheless *Lezioni di economia matematica* became a well-respected textbook and laid the mathematical basis for Amoroso’s
future publications, such as the arguably most original contribution to mathematical economic theory "La curva statica di offerta."

Claim to Fame

"La curva statica di offerta" (1930) appeared in the *Giornale degli Economisti* and was designed to give a definite answer to the then much discussed problems of partial monopoly and duopoly. During the course of the article, Amoroso derives his formula for equilibrium under monopoly, a solution for a duopoly model, a rejection of the Bertrand/Edgeworth solution and the Pareto solution for oligopolies and an analysis of supply behavior under competition, showing how industry output increases with higher prices as new entrants are able to recover their marginal costs. The last part is also responsible for the article's title. In addition, Amoroso tries to integrate one of the corporatist criticisms of liberal assumptions into a formal mathematical framework. The article stands as one of the few examples in which Amoroso tries to expand the standard neoclassical models of the industry. It also marks the beginning of a period in which Amoroso actively entered the political and ideological debates of his time. The assumption Amoroso tries to tackle—or better to make unnecessary—is perfect competition, characterized by the property that at a given market price every competitor can supply as much output as he wants, until his marginal costs equal the market price. Repeating a current theme in the corporatist critique, he points out that large-scale industrial organization tends to render ridiculous every assumption about perfect competition by concentrating and fusing of the different competitors. Assuming constant factor prices and constant factor mixes for every given output, Amoroso states that "Ricardo's formula (the tendency of price towards marginal cost) is therefore not apt to represent the facts of modern industrial concentration" (Amoroso 1930, 18). (Nowhere does Amoroso cite Ricardo's work, so the attribution of these ideas to Ricardo remains doubtful.) The hypothesis that price is independent of output is now abandoned; price becomes a function of output and Amoroso sets out to determine this function. He begins with the typical problem of how the producer is to maximize profits. He starts with the profit function

\[
I(x) = px - C(x)
\]

with

\[
\partial I/\partial x = p - C'(x) = p - m,
\]  

(1)
where $I$ is total profit, $C$ is the cost function, $x$ is output, $p$ is price, and $m$ is marginal cost. He then replaces it by

$$I' = p + x(\partial p/\partial x) - m$$

(2)
on the assumption that the quantity placed on the market by a given firm has repercussions on the price. Price is seen (implicitly) as a function of quantity.

From the first-order condition for the profit function (implicitly assuming concavity), it follows that profits are maximized when

$$p + x(\partial p/\partial x) - m = 0.$$ 

(2)'

From the demand curve Amoroso develops:

$$\partial p/\partial x = (dp/dX)(\partial X/\partial x),$$

(3)

where $X$ is total industry output and $x$ is the output of the single firm. Since $\partial X/\partial x = 1$ it follows that

$$\partial p/\partial x = dp/dX.$$ 

(3)'

From the usual formula for demand elasticity of the market demand curve, it follows that

$$e = -(dX/X)/(dp/p),$$

(4)

from which it follows that

$$dp/dX = -p/(eX).$$

(4)'

Equation (4)' substituted into (3)' and then into (2)' yields

$$p - (px/eX) - m = 0,$$

(5)

from which follows

$$(p - m)/p = x/eX.$$ 

(5)'

The new formula now links prices, marginal costs, and market power of a given firm. Four years later, A. P. Lerner published an article in the *Review of Economic Studies* which contained an identical formula for the case $x = X$. And although he generously acknowledges his indebtedness to other writers in the field, he does not mention Amoroso. Once again, it is clear that Amoroso was not in the loop of international discussion on oligopoly and monopoly theory (Lerner 1933–35, 169).
Amoroso himself comments on his formula that "for every single firm the percentage deviation between price and marginal cost is directly proportional to the ratio between the output of this firm and total output; and inversely proportional to the demand elasticity" (Amoroso 1930, 10). The appeal of Amoroso's formula lies in its inclusion of the formula for perfect competition and the formula for monopoly as the two extreme cases. For perfect competition, it holds that \( \frac{x}{eX} = 0 \) and thus \( p = m \). For monopoly it holds that \( \frac{x}{eX} = \frac{1}{e} \) and thus \( p = \frac{m}{(1 - 1/e)} \). Amoroso attributes the first formula to David Ricardo and the second one to Antoine Cournot, but for both attributions there seems to exist no immediate correlation in the original works of the two authors. "La curva statica di offerta" does not stop here but continues with an attempt to expand into duopoly theory. Although Amoroso does not develop a duopoly model of his own, he links Cournot's equilibrium model to his newly developed formula combining price, marginal cost, output, and the elasticity of demand in equilibrium relationship. He thus finds an equation for each duopolist:

\[(p - m_1[x])/p = \frac{x}{eX} \tag{1}\]

and

\[(p - m_2[y])/p = \frac{y}{eX}, \tag{2}\]

where \( p \) is the price, \( x \) the output of the first duopolist and \( m_1 \) his marginal cost; \( y \) the output of the second duopolist, \( m_2 \) his marginal cost, \( e \) the elasticity of market demand, and \( X \) industry output, that is, \( X = x + y \). Together with the inverse of the monotonic market demand equation,

\[ p = \partial(X), \tag{3}\]

we have three equations and three unknowns, \( x \), \( y \), and \( p \). The value for the demand elasticity \( e \) is calculated according to

\[ e = -(p/X)(\partial X/\partial p), \]

where \( \partial X/\partial p \) is the derivative of the original demand function. The system consisting of three equations and the three unknowns \( x \), \( y \), and \( p \) is solvable. But Amoroso's success in finding a well-defined equilibrium entails as well the renunciation of any analysis of price formation under oligopolistic competition. He assumes the market price and the output of each competitor are fixed, defined only by marginal cost and demand elasticity in equations (1) and (2). No modeling of strategic interdependence
is undertaken; as formulated by Amoroso, duopoly is just an intermediate case between monopoly and pure competition. Each competitor takes the other's output as given and renounces any kind of conjectural variation. The Cournot equilibrium is not only well defined but also stable, as demonstrated in an ensuing numerical example (Amoroso 1930, 15).

Amoroso misses his original intent—as stated in the introducing remarks—to make a point against liberal economics on the basis of oligopoly theory. This is all the more surprising because the 1930 article was written in his corporatist phase, and the proof of the above marginal cost pricing formula for firms with some degree of market power was definitely meant as a case in point. The rather evident restrictions of the Cournot model concerning the time horizon (instant profit maximizing instead of maximization of the sum of future discounted profits), and the expectations of rival behavior (which are nonexistent, as each rival views each new value of his rival as his last and final one), are indeed addressed by Amoroso, but rather nonchalantly. The solution is given by the concept of the “homo oeconomicus,” who presumably is insensitive to and incapable of any kind of long-term strategic thinking. “It is not the place of the mathematical theory concerning the two monopolists [sic] to foresee what one or the other will do in a certain real world situation—but it is only relevant to surmise what would be convenient for the two to do, if one and the other were both a pure and perfect ‘homo oeconomicus’” (17). “It is finally explicit that both operate for themselves, that they are solely moved by economic motives. Pro tempore, that means they are without plans with far-reaching goals, but concerned exclusively with achieving immediately the most convenient position” (15). A little later he specifies that this “homo oeconomicus” does not make plans for long periods of time, as opposed to the farsighted “homo corporativus.” The interesting implications this would have for oligopoly theory are not addressed and any idea of a struggle between the two rivals is explicitly dismissed: “The concept of winning over a client . . . does not have the right of citizenship in mathematical economics” (17). The concept of one price for all given by “the market” is paramount to Amoroso and any attempt to deliberately vary it by output restrictions or extensions is excluded a priori. Indeed, his colorful example of the two butchers who try to force each other out of the market by the threat of physical force is not part of mathematical economics, or any kind of economics (17).

Despite these inconclusive results, “La curva statica di offerta” resoundingly confirmed Amoroso’s position as the leading economic the-
orist in Italy. The inconclusive state of duopoly theory at large at the time allowed his elegant formula for partial monopoly to appear much more generally relevant than it might seem in hindsight. The fact that Luigi Amoroso was pretending to deal with price-setting duopolists with possibly unstable outcomes while insisting on the unchallengeable supremacy of “king price” points to a larger dichotomy that runs through Amoroso’s work. By nature and training, Amoroso was a theorist of economic equilibrium, by ideological inclination and sociological background he favored very strongly a political system whose legitimacy rested in large part on its claim of being able to overcome economic instability.

**Fascism and Economic Liberalism**

Despite the ambiguous outcome of his major contribution to international scientific debate, Amoroso had proven with “La curva statica di offerta” that he was capable of defining his own standpoint independent of his classical teachers, without abandoning the mathematical tools learned from them. This independence later found expression in a series of articles and speeches like “Critica del sistema capitalista” (1932), “L’etica dell’ economia corporativa,” “Economia e politica,” “La logica del sistema corporativa” (Amoroso and de’ Stefani 1933), “Dal liberalismo al fascismo,” “L’ordine corporativo” (1934), and “Lo stato e la vita economica” (Amoroso and de’ Stefani 1932), and culminates in *Principi di economia corporativa* (1938a). Unfortunately, Amoroso’s further attempts to link his criticism to a theoretical framework remain scarce, his acid critique of the liberal capitalist order is confined to the political and emotional sphere. The article with which he enters into the discussion over the merits and faults of liberal capitalism and corporatism, “Ci che è scienza e ci che è fede nel campo della dottrina economica” (1926) is vivid proof of Amoroso’s inability to achieve a synthesis between his classical training and his fascist sympathies.

This was Amoroso’s original inaugural address when he received the chair in political economy at the University of Rome in 1926. Convincingly, he claims that economists choose a set of assumptions belonging to a particular kind of economic and political system on moral grounds, which then determines the *economia applicata* as a real life phenomenon. But in addition to (and independent of) the economic and political system, each of these sets of assumptions belongs also to a scientific system, the *economia pura*. He discerns three different kinds of systems: “liberal-
ismo" (which "is dead today. Could rise again tomorrow."), "socialismo" ("economicamente parassitario"), and "the nationalist or imperialist or fascist faith" (Amoroso 1926, 376). Interestingly, Amoroso seems to have at that time no more specific ideas concerning fascism than the glory of the fatherland. He even avoids naming fascism specifically as the best of the three economie applicate by claiming historic contingency for each one of them, fascism being no more than the appropriate economic form of the moment. He is, of course, quite wrong in claiming that fascism denies the existence of class conflict (377). Contrary to national socialism, fascism admitted the existence of divergences of interest between capital and labor but tried to organize them in a bilateral monopoly under strict state supervision. The striking element in this article does not lie in his rather hesitant embrace of fascism (especially when compared to his later publications) but in his elaborations on the economia pura. He clearly states that each doctrine entails its own science (372), but the only science he refers to is the neoclassical economic science, which belongs to the liberal order, based as it is on private property, utility maximizing individuals, autonomy of the individual, a stable system of private law, and free competition. These assumptions constitute a pure economy, more precisely the pure economy of the liberal system (372). At no point in the whole speech is reference made to the specific assumptions or forms of the economia pure of socialism or fascism, even if their theoretical existence is explicitly mentioned. This leads to the hypothesis that, for Amoroso, there never actually existed an economia pura, that is, a scientific system of economic theory, outside the neoclassical tradition. There is further confirmation of this hypothesis in his later writings.

One of Amoroso's most widely read articles was "Lo stato e la vita economica" (1932) which was also written in collaboration with Alberto de' Stefani. In the jointly written introduction, the two authors claim that the liberal system is not capable of dealing with the new economic phenomena, mainly because of the process of concentration in industrial production and the labor market. In particular, they proclaim the bankruptcy of the idea that self-regulating forces in the market would bring about maximum output and equilibrium. They argue also for greater autonomy for the consumer and against the creation of artificial demand by advertising and credit expansion. The logical consequence for both authors is increased responsibility for the state: "the system of economic liberalism is radically transforming itself, reinforcing its own contradictions, and revealing its inability to resolve the new theoretical and practical prob-
lems with the self-regulating forces of the system; . . . [the state] is going to control increasingly the economic institutions . . . and to transform the concept of private initiative in a corporatist sense” (221). In one of the two individually written contributions forming part of the complete article, Luigi Amoroso elaborates on some of these points. One of the most impressive sections concerns his explanation of the syndicalization of the labor market and the union movement in the nineteenth century: “It is not only defense of wages. It is the need for certainty for tomorrow, for independence from the game of the business cycle, for hope to participate in the productive process as human beings, not as things. The historical guilt of capitalism lies exactly in having despised this fundamental need of the human soul” (217). This passage is definitely unthinkable in the context of the economic writings by Amoroso only a few years earlier. The difference lies not so much in the fact that in the quoted passage he sides openly with the concerns of the workers, but more generally in that it constitutes the step from *economia pura* to *economia applicata*.

The former mathematician and theoretical economist has now definitely entered into the political discussion. Again one can only deplore the fact that any links between these two activities are scarce. Wherever Amoroso makes any reference to theory, it is in the sense of criticizing economic agents for departing from the assumptions of neoclassical theory. For instance, he criticizes banks for departing from their ideal activity of “equating marginal productivities” and actively engaging in speculation. Corporatism for Amoroso becomes not so much a challenge to classical theory as a means to reconcile under new circumstances private interest and general interest—very much in the sense of Adam Smith’s invisible hand. As an example, consider his thinking on private initiative. “At the basis of the corporative system lies private initiative. . . . But private initiative must manifest itself in harmony with general interest, free from the plutocratic yoke, disciplined, controlled, integrated by the state” (218). In Amoroso’s peculiar interpretation, the corporatist state becomes associated with the competitive markets of general equilibrium, not only (correctly) by intended result, but also (incorrectly) by the employed means of private initiative. Yet, the state becomes the new reference point for any economic activity and, despite Amoroso’s occasional remarks about the role of labor (see above), he definitely stands nearer to the authoritarian nationalism of Alfredo Rocco than to the revolutionary syndicalism of Edmondo Rossoni. Amoroso does not want a different economic order, or a different institutional
framework, but a system based on the utility-maximizing competitor "illuminated by a ray of ideal light" (218). It was Hugh Dalton who called fascism "middle-class liberalism with a spiritual element" (1923, 69). In the case of Amoroso, this definition fits surprisingly well.

Amoroso’s thinking on economics, both mathematical and political alike, finds its comprehensive representation in his magnum opus, the *Principii di economia corporativa* (1938a). The book’s three parts, “La dinamica dei prezzi,” “L’equilibrio economico,” and “La città corporativa,” would correspond in a modern economic textbook to macroeconomics, microeconomics, and a sociological appendix, with the only difference being that the sociological appendix takes up more than a third of the book. With the exception of this appendix, with which it is difficult to agree at best, *Principii di economia corporativa* is an excellently written introduction to neoclassical economics. Changing little of the theoretical content of his earlier *Lezioni*, the material is revised, better explained, and beautifully elaborated; multicolored graphs are added; mathematical examples are collected at the ends of the chapters, and difficult topics such as the mathematical representation of the Pareto equilibrium are omitted.

In “La dinamica dei prezzi,” Amoroso develops a monetary and foreign trade framework entirely along middle of the road lines of neoclassical thinking. Using the Fisher Equation to link price level, velocity of money, and money stock, and giving some empirical evidence for the existence of business cycles, the only two elements that are pertinent here are his positions on trade theory and on inflation. In trade theory, Amoroso now shifts to a complete free trade position, without giving any evidence of what brought about this change from his original thinking in 1921 in the *Lezioni di economia matematica*. It might have been Edgeworth’s criticism, but more probably the collaboration with Alberto de’ Stefani is the explanation. Despite his fascist sympathies, de’ Stefani was an ardent supporter of free trade, to such an extent that Italian industry, interested in tariff protection, actively and, finally successfully, lobbied for his dismissal as minister of economics (Sarti 1971, 54). The point is all the more interesting because from 1936 on Mussolini had initiated a policy of autarchy because of the international embargo after the Ethiopian War. Here again, Amoroso remains the neoclassical economist without noting any contradiction between his economic beliefs and his frequent and openly declared political sympathies. The other point concerns Amoroso’s positive evaluation of inflation. He views inflation as
the promoter of social justice, as favoring new wealth over old wealth and the active over the passive. No reference to Keynes on this point is given, and it remains unclear if Amoroso became a cautious convert to the benefits of deficit spending and monetization, or if his isolated remarks stem from other sources.

Amoroso’s section on microeconomics, “L’Equilibrio economico,” is quite specific and technically elaborate. In a standard supply-and-demand framework, Amoroso sets out to explain the main features of marginalist economic thinking as equating all marginal utilities, marginal productivities, and prices with marginal costs. He states explicitly that he is treating “a synthesis of virtual facts,” that is, an abstraction, but his attempts to integrate economic reality into this synthesis are again very limited. The concept of cost minimization yielding the same results as utility maximization is verbally explained (Amoroso 1938a, 121–22). Average cost curves are U-shaped and are cut by the marginal cost curve at the so-called “punto di fuga” (vanishing point) where \( \frac{dAC}{dQ} = 0 \).

Despite the generally stringent and concise structure of this part of the book, Amoroso always finds space for remarks like the statement that “piaceri spirituali” (spiritual pleasure) does not have a declining marginal utility (135).

The most interesting part of this microeconomic section is Amoroso’s new attempt to relax the assumption of perfect competition. The price is still set by the enigmatic market, and no firm is big enough to have any influence on price, but average costs are different for each firm. This entails the concept of the marginal firm, for which marginal cost is equal to average cost is equal to price. For all other firms, average costs lie below marginal cost and so they receive their “Ricardian rent” (153). Only in the case of “indefinite reproducibility of the most favorable conditions” (156), does every firm become marginal, the “Ricardian rent” vanishes, and the perfect competition assumed in Paretian economics is achieved. Yet, even though he assumes firms with different efficiencies, no firm becomes large enough to challenge “king price” and engage in strategic price setting, thus opening the door to potential economic instabilities. Amoroso’s discussion of Ricardian rent remains vague as to its rightful ownership, that is, whether the owners of the capital, or labor, or consumers have justifiable claims on it. This was clearly a hot topic in an economic system that boasted that it would organize and overcome the conflict of interest between capital and labor. His only remark is that official intervention in wage disputes will guarantee the treatment
of labor as a subject of the economy and not as a commodity (127). Interestingly, in *Economia di mercato* (1948) his position on this point is clear-cut: Ricardian rent is the remuneration to owners of the means of production for taking the risk of price change (147). Part 2, “L'Equilibrio economico,” concludes with a verbal treatment of “General Equilibrium,” based on profit maximizing producers, utility-maximizing consumers, and “respect for mine and thine” (197). Amoroso explains that with no free disposal allowed, markets clear and budget constraints are fulfilled as economic agents try to maximize *pro tempore*. At the same time, he underlines the stationary character of such a system and demands the further development of mathematical economics in integrating dynamic aspects of economic life (204).

In part 3 of the book, “La città corporativa,” style and presentation change completely, and Amoroso tears apart the political system, even though he has thoroughly established and defended its economic theory in the first two parts of the book. Purely economic behavior is now considered scandalous. With the rise of the *plutocrazia*, every correct function of the market is obliterated by huge trusts or speculators. One chapter contains the hypothesization of two historic currents setting Smith, Ricardo, Cournot, Menger, Marshall, Pareto, et al. (the mathematicians) against Malthus, Owen, Fourier, Proudhon, Marx, and Sorel (the metaphysicists). Starting from this dichotomy, Amoroso very undialectically claims that his embrace of fascism and Catholicism is a purely spiritual and emotional experience and has nothing to do with theoretical considerations (256). This develops into praise of antimaterialist thinking (fascist *squadristi* are compared to medieval monks in their spiritual asceticism; 258) and from there it is only a step to the antithesis between spirit and flesh, and heaven and hell. This eulogy of Catholic thinking turns into a violent defamation of Western rational civilization, which is seen as the breeding ground of socialism and “the typically Protestant phenomenon of exploitation” (279), which is the fault of Hobbes and Locke. Fortunately, in Italy, “the more tempered atmosphere of romanità” reigns, which precludes those excesses of liberalism, rationalism, sensualism, and naturalism, which together seem to be responsible for collectivism and ruthless capitalism at the same time. He next points out the “eternal illusion of collectivism,”—collectivists do not understand that exploitation is a natural phenomenon of the struggle for life (284).

The apparent contradictions in Amoroso’s breathless rush through history, sociology, politics, and morals flow into a eulogy of the fascist, cor-
porate state. Private property still provides the necessary basis but now "capital is responsible to the state" (301), which is Amoroso's translation for the everyday practice of St. Thomas's limit on private property as *facultas procurandi ac dispensandi*, (the capacity to provide and dispense) quoted in the text as *spiritus rector*. Corporatism solves class conflict through the "spirit of the law of 1926" (308) and mutual respect for the two categories leads to a corporatist wage corresponding to the normal conditions of life, the productivity of labor, and the possibilities of production (316). It would be too easy to dismiss Amoroso with a benign *de mortuis nihil, nisi bene* so violent are his attacks on Western democracy and socialism alike. Corporatism in general does not excel in logical rigor, but Amoroso's vigor over 150 pages not only breaks down due to blatant contradictions but also lacks any attempt to bring the subject to a level of serious discussion. Mark Blaug is simply wrong when he writes "His *Principii*, has . . . in the 3rd part an economic theory of Fascism, stated in analytical terms" (Blaug and Sturges 1983, 9). Except for some corporatist platitudes, there is nothing helpful there to understanding fascist economics; analytical terms are generally omitted and the remainder is an all-out attack. It seems as though Amoroso were trying to overcome the contradiction between his economic theory and his political sympathy simply by increasing the intensity of the latter. Another reason for this excessive departure from Amoroso's usually measured tone might be that he substituted rhetorical clamor precisely because his corporatist theory lacked substance and his attempt at transforming the neoclassical framework to fit the new exigencies had failed.

It would be unfair at this point not to report an actual attempt by Amoroso to transform and enlarge the neoclassical framework. He had repeatedly asserted that economic science needed to proceed from static considerations to dynamic considerations, which better reflect economic reality. He eventually takes this step himself in his collected lecture notes *Meccanica economica* (1942). With this booklet, he also reverts from the political Amoroso back to the pure mathematician and mathematical economist. Amoroso's political engagement was linked to fascism, and with the decline and eventual end of fascism Amoroso's publication list grew decidedly more technical. It was his dilemma, and not only his, to participate in the debate concerning economics with the authority of a learned representative of the field (which he undoubtedly was), while at the same time his own attachment to fascism was purely emotional. *Meccanica economica* is limited to technical arguments and is, like his
earlier work, an introduction to neoclassical economics. A new element is contained in the chapter “I fondamenti della dinamica economica,” in which Amoroso develops a dynamic utility function of the form $u = u(c, c)$, that is, the rate of change in consumption enters the utility function (Amoroso 1942, 130). From this is derived marginal Lagrangean utility, rather than marginal Paretian utility. This interesting schema suffers from two drawbacks. First, Amoroso gives up the fundamental assumption of non-satiation to make his newly won formula meaningful. To reach a well-defined maximum, Amoroso assumes declining utility for $\dot{c} > 0$, after a certain threshold value of $c$. The presentation of parallel concepts in mechanics and economics is at times excessive. In addition, it seems that Amoroso wants to burden his single formula with the whole of economic dynamics, which it cannot bear.

Amoroso’s final attempt to reconcile the mechanics of economics with metaphysical considerations is laid down in “Economia di mercato” (1949). For anyone acquainted with his previous textbooks, Economia di mercato does not contain any new economic theory. Its most striking feature is a new attempt to combine mathematics with expository presentation. Many of its more than fifty chapters contain mathematical appendices, which are in no way necessary to follow the flow of the book. For example, lengthy discussion of the necessity of interest, abounding with practical and historical examples, is followed by an appendix on compound interest calculation. Amoroso also engages in institutional analysis and, once again, moralistic advice, now exclusively based on conservative Catholic thinking, as represented, for instance, by Pope Pius XII. The book contains a clear pro-capital bias. Speculation is now seen as a dynamic element, in which only the excesses have to be curbed. Most striking is the fact that oligopoly theory is completely omitted. His evaluation of Ricardian rent has already been mentioned (see above). Any divergence of interest between capital and labor is vehemently denied. Economia di mercato abounds in quotations like “thus a policy of defending capital reveals itself as defending labor” (183) or “the workers’ representatives are the least apt persons to make a sane evaluation of all these imponderables [concerning production]” (189). The desirability of state intervention is now reduced to a minimum, and Amoroso’s faith in the self-regulating forces of the market have increased remarkably.

Amoroso’s work should be viewed in light of the heated discussions in Italy at the time over the postwar economic order. Despite its patronizing tone, Economia di mercato is more a partisan book propounding the mer-
its of free markets than an economic textbook. The mathematical theory leads only a minor existence in the various appendices and despite his stress on scientific rigor, the book would lose little of its character if they were omitted. *Economia di mercato* is not his most original achievement, which can be clearly seen from the wholesale lifting of entire passages from previous books. In no way does it contribute to a resolution of the contradictions outlined above.

**Conclusion**

A final evaluation of Luigi Amoroso’s work is not easy. If his tendency to enter into political and moral considerations is disregarded, he was a very able proponent and influential teacher of neoclassical economic thought in Italy in the first half of the twentieth century. If the focus is on his engagement in the debate over political economy, he displays some of the contradictions from which corporatist economic theory suffered in general, albeit in a more pronounced form. Unable or unwilling to reconsider some of the basic propositions of liberal economic thought, such as private property, or the profit-maximizing individual, on other than a purely rhetorical basis, fascist economists saw themselves limited to the theoretical framework with which they had been brought up. Amoroso’s achievements in the promotion of neoclassical economic thought could be evaluated in a less complicated way if he had not insisted on vehemently criticizing the market economy with which he was most comfortable during the years of fascism. Unfortunately, any insight into the dilemma of corporatist economic thought is missing in Amoroso’s work, giving some of his writings on political economy an air of unfounded self-righteousness. A little less rhetorical fervor would have taken away nothing from the respect due to the mathematical economist and teacher and added greatly to sympathy for the man. Amoroso’s criticism of the “mechanical classical” school remains isolated, as he did not try to enlarge on it in his own work, which at no stage shows any sign of including a representation of the unstable and potentially detrimental (in the eyes of the corporatists) tendencies inherent in a free capitalist order. There is no denying that Amoroso was an ardent supporter of fascism. In the end, Amoroso corresponds to the definition of a fascist given by Hugh Dalton: A “middle-class liberal,” who never overcame the contradiction between his own free market instincts and the totalitarian aspirations of a fascist system that he had embraced for its “spiritual element” (Dalton 1923, 69).
References


———. 1934. L'ordine corporativo. Rivista internazionale di scienze sociali 42.


———. 1933. La logica del sistema corporativo. Rivista internazionale di scienze sociali e discipline ausiliarie 3d ser. 41:393–411.


Cournot, Antoine Augustin. [1838] 1980. Recherches sur les Principes Mathéma-