

ECONOMIC STUDIES IN BOLOGNA:
A: HISTORICAL INTRODUCTION

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Gennaio 1988

N. 41

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Interest in economic issues at Bologna goes back to the earliest period of University history. It is among law scholars that economic life became a subject for intellectual inquiry. The great themes of medieval economic tradition, such as the foundations of property and exchange, price determination and practices, the nature of monetary obligations and the justification of interest on loans, were all examined by law scholars at least since the beginning of the twelfth century (Irnerius, Gratian). Their work, and particularly Gratian's contribution to canon law (Gratianus, 1471; ms 1st half of the 12th century), had an important influence on scholastic writings and was largely incorporated in the economic thought of St. Thomas Aquinas.

The ethical and legal outlook of early economic writings gave way to more practical considerations as the development of trade brought about the need of a more efficient organization of production and exchange. This need is reflected in the early literature on farm management and agrarian technology, to which a pioneering contribution was given by the Bologna scholar Pietro de Crescenzi (1230-1310). The same need is also reflected in the development of accounting and commercial arithmetic. Luca Pacioli, who lectured mathematics at Bologna at the beginning of the sixteenth century, presented an early treatment of mathematics applied to economic problems in his Summa de Arithmetica, Geometria, Proportioni et Proportionalità (Pacioli, 1494).

* This paper is part of a research project which is being carried out at the Department of Economics of the University of Bologna.

This work deals with commercial and banking practice, currency exchanges, games. Here an early treatment of probability and double-entry bookkeeping can be found.

In the following century Geminiano Montanari, who taught mathematics and astronomy at Bologna from 1664 to 1678 after graduating in law from Salzburg, examined the foundations of a monetary economy and the principles on which the value of commodities is based. Montanari's contribution is remarkable for his distinction between two sources of variation in the price of any commodity, the change in the value of the measuring standard (money) and the circumstances influencing the demand and supply for that commodity. He stressed the role of utility in determining market equilibrium and considered utility to be dependent on the relationship between the available quantity of a commodity and the desire for it. He also anticipated the use of physical analogy in economic analysis by remarking that the influence of trade on market price recalls the physical principles that bring about the equilibrium of liquids (See Montanari, 1750 and 1759). Montanari's work probably had an influence on the monetary theory of Giovanni Ceva, an engineer from Lombardy who had important contacts with the scientific circles of Bologna and was one of the earliest writers in the field of mathematical economics (Ceva, 1711).

In the course of the eighteenth century interest shifted to the issue of the mathematical formulation of human feelings and beliefs, following Zanotti's criticism of Maupertuis' Essai de philosophie morale. The Venetian economist Giammaria Ortes, who studied in Bologna and was in close contact with Zanotti and the circle of the Bolognese Istituto delle Scienze, defended Maupertuis' thesis and argued for a rigorous treatment of economic actions based on the principle of sufficient reason (See Ortes, 1774). A similar position was maintained by Giambattista Vasco in his work on money and insurance. Vasco, who lectured in Bologna in the 1750's, argued that a careful balance of possible outcomes can provide a rational basis to decision making

(Vasco, 1772). He also presented a probabilistic approach to the issue of insurance (Vasco, 1787).

This intellectual tradition had considerable influence on Luigi Valeriani, who held the first chair of economics ('Economia pubblica') in the University of Bologna between 1801 and 1828. Valeriani's work is characterized by the attempt to reconcile the subjectivist approach to economic issues inherited from eighteenth century Bologna with the consideration of those 'natural' features of the economic system on which attention had been drawn by Adam Smith. Valeriani's essay Del prezzo delle cose tutte mercatabili (Bologna, 1806) and his subsequent writings present an interesting attempt to formulate a theory of natural price determination based on demand and supply rather than on cost of production. They also outline an 'objective' theory of demand founded on the relationship between human needs and the characteristics of goods rather than based on utilitarian considerations. Valeriani also rejects the utilitarian calculus of eighteenth century moral philosophers and proposes the consideration of human behaviour within a probabilistic framework in which pleasure and pain are replaced by 'hope' and 'fear' (see Valeriani, 1810). His approach exerted considerable influence on Continental economic thought in the course of the nineteenth century, both directly and through the work of his pupil Pellegrino Rossi, who became professor of economics at the Collège de France in Paris (see Cossa, 1878). Certain themes of Valeriani's research may even be found as far from Italy as in Russia, where Dmitriev makes reference to his theory of price determination (Dmitriev, 1904) whereas Ziber formulates a similar theory of the demand for goods (Ziber, 1871).

The teaching of economics in Bologna was interrupted between Valeriani's death in 1828 and the appointment of Angelo Marescotti in 1859. But various themes of Valeriani's work may be found in the writings of Marco Minghetti, an economist from Bologna who had been studying in Paris with Rossi. Minghetti's volume Della economia pubblica

e delle sue attinenze colla morale e col diritto (Minghetti, 1859) is an attempt to assess the foundations of economic knowledge by examining how economics could be distinguished from and related to neighbouring subjects such as ethics and law. Here Minghetti examines what might be called the 'descriptive duality' of economic actions by going back to the distinction between 'art' and 'science' in economics, a theme that had also been carefully considered by Valeriani in his inaugural lecture (Valeriani, 1804). This approach induces Minghetti to reject the extreme subjectivism of certain contemporary theories (such as that of Francesco Ferrara) and makes his general standpoint similar to Mill's.

In the second half of the nineteenth century the difficult balance between 'subjectivist' and 'objectivist' approaches which had been maintained by Valeriani and his school gives way to a more open acceptance of classical political economy and of the labour theory of value in the work of Marescotti (See Marescotti, 1856-57 and 1880). Marescotti's teaching had considerable influence on the younger generation of economists and his blend of classical economic theory and historical methodology can also be found in the writings of his pupil Achille Loria, who graduated at the Bologna Law Faculty after submitting a dissertation on 'Land property and its relationship to law and economics' in the academic year 1876-77.

Economics teaching turned to a particular form of praxeology with Marescotti's successor, Tullio Martello, a pupil of Francesco Ferrara. In his published works (see Martello, 1882, 1883, 1893) and in his unpublished lecture notes he maintained that it is possible to derive the theory of value from a general theory of human action in which labour and 'difficulties of attainment' have a central position. Martello developed Ferrara's theory of the reproduction cost into a theory of the substitution cost, which takes the former to its ultimate consequences, as Pareto explicitly recognized (Pareto, 1896-97, par. 80). In Martello's view, the 'cost of substitution' is the core of economic doctrine and can be considered the true basis of 'all moral

actions of man' (Martello, 1883, p. 537).

Martello's long tenure of the chair (from 1884 to 1916) coincided with a considerable expansion in the range and variety of economic research at Bologna.

This was partly a result of the expansion of the teaching of economics and related subjects at the Law Faculty. For Statistics was included in the Law curriculum and Public Finance was introduced in the curriculum of the Scuola libera di Scienze Politiche annexed to the Law Faculty (see Mantovani-Orsetti, 1901). This brought about the appointment of a relatively large number of untenured lecturers in all these subjects at the Law Faculty. Apart from Martello, research in value theory was carried out by Giulio Vita, who examined how classical value theory must be revised in the case of non producible commodities or of commodities requiring non producible inputs (Vita, 1878). Antonio Graziadei, the future Marxian scholar, considered in his degree dissertation submitted in 1895 the relationship between 'technical capital' and 'the classical-socialist value theory'. In this work he examined the exceptions to the classical labour theory of value brought about by different proportions between fixed and circulating capital in different industries if the tendency toward a uniform rate of profit is assumed (Graziadei, 1895). Domenico Berardi followed Martello's teaching in opposing the marginal utility theory of value and in defending Ferrara's theory of reproduction cost against Loria's criticism (Berardi, 1901 and 1906).

The relationship between pricing and income distribution was examined in the early works of Gustavo Del Vecchio, who graduated at the Law Faculty in the academic year 1903-4 and was to take up the economics chair in the 1920's. In his first published work (Del Vecchio, 1904) Del Vecchio stressed the need of considering both subjective and objective factors in the explanation of economic phenomena. This methodological standpoint, which can be considered as a development of Martello's praxeology, led Del Vecchio to attempt in his Prodotto netto e monopolio

(Del Vecchio, 1905) the formulation of a pure theory of income distribution based on Ferrara's interpretation of Ricardo's theory of rent. Few years later, Del Vecchio presented a general equilibrium formulation of the theory of money (Del Vecchio, 1909). But in his work on the theory of interest (Del Vecchio, 1915) he was ready to admit the limitations of methodological individualism by considering saving behaviour to be related to social and historical factors rather than to the rate of interest and to individual's preference of present over future consumption.

Guido Sensini, a contemporary of Del Vecchio, was the most uncompromising follower of Pareto at Bologna. He attempted the formulation of a Paretian theory of rent based on the relative difficulty of investing savings into particular forms of capital. In his theory, rent is associated with the transition phase from one long-run equilibrium to another (Sensini, 1912).

Public finance was another important area of research. Federico Flora, the Public Finance professor, is particularly noteworthy for his work on the shifting and incidence of taxation (Flora, 1893).

However, the most characteristic contributions of Bologna scholars in this field show special attention to the political and sociological aspects of finance. Amilcare Puviani (1854-1907), Alberto Zorli (1854-1939) and Guido Sensini (1879-1958) stressed the non-contractualist character of fiscal decisions and made use of results obtained in contemporary Italian literature on political élites (Mosca, Pareto). Puviani spent in Bologna, as a young lecturer, the formative years leading to his outstanding contribution on 'fiscal illusion', in which he maintained that governments try to induce wrong beliefs about the burden of taxes and the benefits of public expenditure, by hiding the actual amount of the former and magnifying the latter (see Puviani, 1887 and 1903). Zorli proposed a link between fiscal changes and

the attitude of the ruling classes in his "Teoria psicologica della finanza pubblica" (Zorli, 1890). He also attempted to derive from the theory of public finance a general theory of economic relationships (see Zorli, 1902). Sensini adopted Pareto's sociological theory and formulated the hypothesis that fiscal phenomena reflect in the first place the struggle among political élites and only in the second place economic considerations such as the minimization of sacrifice and the maximization of welfare (Sensini, 1917). In Sensini's view, the pure theory of finance ought to deal with the latter aspect only and should be formulated within a general equilibrium framework.

Martello's period is also characterized by growing interest in statistics and applied economics. In this respect the teaching of Giovan Battista Salvioni, who held for many years the chair of Statistics at the Law Faculty, was particularly influential (see Salvioni, 1883). Two pupils of him made outstanding contributions in the field of applied economics. Gustavo Del Vecchio published in 1912 a pioneering essay on the income-consumption relationship in which he originally developed Engel's contribution on workers' consumption patterns (Del Vecchio, 1912). Corrado Gini was also educated under Salvioni's guidance at Bologna, where he studied law, mathematics, economics and biology. In his degree dissertation, Gini examined the sex distribution of human births (See also Gini, 1908). In an appendix to that work he also assessed the usefulness of probability calculus in statistical investigations. In his period at Bologna as a student and as a young lecturer Gini laid the foundations of his early contributions on the theory of dispersion, the concentration rate in the distribution of personal incomes and national accounting.

After Martello's retirement in 1916 there was a slow withdrawal from the extreme form of 'praxeological purism' which had characterized his teaching and the intellectual tradition of Ferrara.

This tendency is already apparent with Umberto Ricci, who was professor of economics at Bologna from 1921 to 1924. On his arrival in Bologna, Ricci had already established a reputation as a theoretician interested in the Walras-Pareto school but was also aware of the need to overcome the abstract character of Pareto's 'pure economics'. This attitude is shown in his work on capital theory (Ricci, 1910), in which he rejected Pareto's definition of capital goods as goods that are slowly consumed, and advocated the need to maintain the classical distinction between consumption goods and capital goods. He also made distinguished contributions to the microeconomic treatment of demand and supply ('cobweb' theory), to the theory of savings and to applied economics.

Ricci's successor, Costantino Bresciani-Turroni, was in Bologna for one year only. However, his intellectual character contributed to a further distancing from Martello's teaching. For Bresciani-Turroni had been a student of Loria at Padua and had spent three years in Berlin attending the courses of leading economists of the German historical school such as Wagner and Schmoller. In the meantime, he had also been a student of Bortkiewicz and had received a careful training in statistical techniques, which he used in order to criticize Pareto's work on the distribution of personal incomes (Bresciani-Turroni, 1905). In that work, Bresciani-Turroni maintains that the concentration of personal incomes depends on the economic environment and on the phase of the economic cycle which is being considered. Shortly before his appointment in Bologna he had been appointed Italian representative in the Berlin branch of the German Reparations Commission. In that capacity, he had started collecting the material which he was to use in the preparation of his best known work on German inflation (Bresciani-Turroni, 1931).

In 1926 Bresciani-Turroni left Bologna for Milano and Gustavo Del Vecchio was appointed to the Bologna chair. This period of

Del Vecchio's research was occupied with work on profit, risk and uncertainty in their relationship with economic dynamics (Del Vecchio, 1928), on crisis theory and on the foundations of monetary theory (Del Vecchio, 1930). This latter work was commissioned to Del Vecchio by Schumpeter and contains the mature formulation of Del Vecchio's ideas about the relationship between the value of money and the time structure of payments.

In the 1930's Del Vecchio was involved in the early activities of the Econometric Society, of which he was made a Councillor. He also organized the fourth European meeting of that Society at Stresa (1934) together with Bowley, Schumpeter, Wilson and Zawadzki.

In the course of the 1930's Bologna was also the place of important work in the field of mathematical statistics and of its application to economic dynamics. Research in this field was carried out by Felice Vinci, professor of Statistics at the Law Faculty and also lecturer in the new Faculty of Economics and Commerce. Vinci's research was part of the trend toward quantitative economics that was behind the foundation of the Econometric Society, of which he also was a Councillor. His work is based on the idea that abstract economic theory may only deal with normative issues and that rigorous inductive study of economic phenomena is a necessary condition for scientific economics (see Vinci, 1940). Vinci considered a generalized form of the logistic curve and applied it to the study of population dynamics. He was also interested in the general methodology of inductive economic dynamics and advocated the use of sophisticated tools of mathematics and mathematical statistics (Vinci, 1934).

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