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Prof. Stefano Spalletti
Affiliazione: Università degli Studi di Macerata
E-mail spalletti@unimc.it

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Affiliation: University of Macerata
E-mail: spalletti@unimc.it

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STEFANO SPALLETTI

ECONOMISTS AND EDUCATION. REVIEW OF THE ITALIAN
HISTORY OF ECONOMIC THOUGHT (1815-1905)

UNDER THE AUSPICES OF BOCCONI UNIVERSITY AND THE UNIVERSITY OF MILAN

CEDAM

ECONOMISTS AND EDUCATION. REVIEW OF THE ITALIAN HISTORY OF ECONOMIC THOUGHT (1815-1905)

by
STEFANO SPALLETTI*

1. *Introduction*

The concepts of education and human capital are relatively young research areas in the context of economics, their main development occurring, in fact, in the 2nd half of the 20th century. However, some precursors of this economic theory can be found delving back into the earlier history of economic thought.¹ Nevertheless, research programmes trying to trace the vicissitudes of the relationship between education and economics are somewhat problematic, in particular when attempts are made to show *if* and *in what way* a national style of political economy develops a scientific paradigm.

This paper seeks to identify distinguishing characteristics in political economy which are evidenced by the ways in which scholars approach it. From this point of view it can be said that the English style of economics could often be associated with evaluations of material wealth. On the other hand Italian thought since the 17th century has often adopted a moralistic concept of economics.² It has been pointed out on several occasions that

* Department of Economic Development, University of Macerata, Macerata (Italy). E-mail: spalletti@unimc.it

I would like to thank Pierluigi Porta, Philippe Steiner and Riccardo Faucci for their helpful comments. Any errors remain my own responsibility.

¹ See the classic Kiker (1968), Teixeira (2001) and Spalletti (2000) for perspectives adopting a "retrospect style".

² Recently attention has been called again to the "double style" of Italian political economy: "thought-action" and "economics-moral". See Faucci (2000, p. 16).

materialistic ("reductive") attempts to explain political phenomena did not appear acceptable to some Italian economists. Consequently, on the Italian side the role played by "education", "knowledge" and "will" were widely expanded in their economic research.

Giandomenico Romagnosi's idea of "incivilimento", both with its moral conventions and intellectual development grew alongside his interest in the human being's monetary value, in the moral attitudes and technical skills of the individual and their role in the economic process. Romagnosi came to reject Adam Smith's distinction between productive and unproductive labour. He led the "Italian School" of economics to focus its attention on the connections between material and immaterial factors of wealth, rather than on the materialistic approach that appeared to prevail in British and French political economy.

Together with Romagnosi's legacy, this paper deals with the following issues:

1. Melchiorre Gioja's statement that human actions are the result of "power", "knowledge" and "will" can be seen historically as the main issue when investigating the character of the economics of human capital and education.³ In Italy during the first half of the 19th century, economics was still associated with ethical exigencies. Attention was also focused upon the "neighbourhood effect" of education on social and economic progress. Several economists, especially Gioja and Romagnosi, after Antonio Genovesi and Cesare Beccaria articulated educational ideas, both in the context of social control research and the theory of the creation of the "good citizen".

2. In the middle of the 19th century, the acquired skills of the economic agents began to be qualified as capital in Italian economics. Romagnosi's theory of "incivilimento" led to Carlo Cattaneo's and Angelo Messedaglia's conclusions on economic development. Their perceived need for primary, technical and vocational education as a factor in the growth of wealth, indeed, springs from Gioja's concepts of intelligence, labour and capital.

3. From a theoretical point of view, the value of human capital is a problem that arose from Francesco Ferrara's analysis concerning immaterial products and which led to the controversy on the value of emigrants at the end of the 19th century. The debate headed by Vilfredo Pareto, Alberto Beneduce and Francesco Coletti resulted in some interesting conclusions regarding human capital as a resource in economics.

³ Guidi (2001, pp. 20-21), states that the Italian political economy of the early 19th century reconnected itself to the humanist and Renaissance traditions that focused on the relationship between nature and human beings, considered as being intelligent and virtuous creatures, able to dominate nature for their needs and purposes.

2. *From Gioja's Statements towards a "Theory" of Social Control (1815-1855)*

2a. Adopting a deductive approach, Gioja developed a fairly articulated general theory of capital. In this theory he refers to the existence of fixed capital inherent in man. The accumulated skills – a commonly used definition of human capital – are embodied in human beings. From the moment of birth, until the time when it is possible to obtain an income, human beings consume a certain amount of stock of goods produced by others (the relatives), without paying the respective charge. From this simple observation, which lies at the heart of human capital investment, Gioja concludes that skills and talents, in order to develop, need time as well as unremunerative practice. Such skills can be considered fixed capital the value of which corresponds to the value of the consumption made by the person during the period of his education and training. As well as fixed capital, individual capabilities are subjected to wear and tear: they develop up to a certain stage in life and then begin to decrease and sometimes destroy themselves. In those moments in life man consumes without earning anything.⁴

It is useful to note that the various categories of human capital investments are described by Gioja within the frame of an individual's life-cycle chronology. Earnings are related to the inborn faculties and to the limitations of the economic agents. These are dependent upon difficulties met with in learning a particular trade or profession; upon obstacles of a physical and psychological nature that human beings meet in the process of learning; upon the absence of good health, a factor which may shorten the productive skills of the human workforce over time.⁵ All those elements affect human capital and can influence the productive factor of "cognition". Cognition, or rather, knowledge, is part of the creative power which creates wealth and can be acquired both through education and exercise. However, it can be achieved only with a certain effort and expenditure. For the individual it is profitable to face these costs because:

"if he by himself should acquire the sum of ideas necessary for himself, and if he, himself, has to programme the same movements for his machine, much greater time would be required, as well as a greater consumption of capital".⁶

On the other hand, knowledge as an economic good, is the acquired know-how necessary for any kind of work. It is part of the special fund of already

⁴ Gioja [1815] (1838, vol. I, p. 53).

⁵ Gioja [1815] (1838, vol. I, p. 53).

⁶ Gioja [1815] (1838, vol. I, p. 321). (My translation, here and further on).

accumulated scientific knowledge (“*ammassi scientifici*”) in the broad sense of the word:

“works of the past and present generations are dispersed partly in books of science and art, and partly in the heads of practical persons and experts”.⁷

Such knowledge is handed down from generation to generation but, because of the “*ammassi scientifici*”, it frees the human being from the further efforts and investments that would be needed to rebuild such knowledge. Human capital does not decline with the passing of the generations: its inter-generational component remains unchanged. What is required is merely the cost of obtaining it.

Today, the effort involved in acquiring human capital requires ever more investment, while Gioja, on the contrary, appears to be thinking of a slow and steady decline of acquisitional efforts. This can be explained since in his analysis he makes no distinction between generic and specific human capital: the “*ammassi scientifici*” are seen as a sort of public good that presupposes no exclusion on accessing it. Moreover, according to Gioja, the differential costs of the acquisition of knowledge cannot be translated into higher remuneration:

“comparing, on one hand, the utility and rarity of scientific products, with, on the other, the time or expenditure needed to acquire the skill, we are surprised, because in the general production the part performed by skilled people is much less than their retribution”.⁸

Therefore, a tendency towards a lower levelling out of returns in human capital investment emerges from all this. On the one hand, this may be explained by the starting up of a slow process of institutionalising a free system of education. On the other, Gioja asserts that knowledge is by its very nature a factor of production that undergoes rapid circulation among individuals within an economic system. This factor greatly mitigates the right to its exclusive use by those who have received education and training for work.⁹ The increase in the offer of educated workforces affects the remuneration of labour.

Because of these limitations upon individual returns from investment in human capital, Gioja’s analysis of the earnings structure tends to favour a different viewpoint, while keeping in perfect harmony with the principles of classic economics. Through his research on the value of physical capital

⁷ Gioja [1815] (1838, vol. I, p. 323).

⁸ Gioja [1815] (1838, vol. III, p. 258).

⁹ Gioja [1815] (1838, vol. III, pp. 258-261).

within the frame of market goods, Gioja reached the conclusion that the value of goods reflects, in a certain component, also the value of human capital:

“The capital necessary for the creation of such skills, assume, so to speak, the shape of products”.¹⁰

The value of human capital, therefore, can be found in the value of the products circulating on the market (Gioja, not without a certain of ambiguity, calls such a component the “compound interest of fixed capital”). This can be predominant, “1000 per thousand productive”, or completely nil (for “those who have failed and uselessly consume the [human] capital which was loaned to them”). The cardinal element of this thought, however, shifts the valuation procedure of human capital to the macro level of economic analysis. According to Gioja, therefore, human capital is seen more to affect the annual wealth of a society than the flow of individual income.

2b. Gioja is the author of a piece of work, the “Nuovo prospetto delle scienze economiche” following the viewpoint of the science of administration¹¹. In Italy, after this work, the question of wealth and economic development is enhanced by the contribution of Romagnosi and leads steadily towards the analysis of a complex process of civilising society (“incivilimento”). The process arises from the interaction between institutional elements and economic relationships. They are all linked to form a profound and final unit, similar, figuratively speaking, to a machine that cannot be dismantled without running the risk of destroying it. Romagnosi’s concept of “civilising” is an organic phenomenon where even the visible manifestations of intelligence and human labour become part of the elements that balance satisfaction and economic needs. The action of the intelligence is able to set off multiple “mental and manual outputs”, which justify the view of the presence of a hidden principle of social vitality referred to civility.¹²

The determining value of such action is that the products of human intelligence and labour are not the expression of a generic human activity, but a proof of the existence of a clear economic process. The products of the intelligence are the results of economic power and free trade. This allows us to discern a generic consequentiality between the resort to human resources and the utilitarian analysis of needs and satisfaction. In other words, the

¹⁰ Gioja [1815] (1838, vol. I, p. 54).

¹¹ See Romani (1994, p. 59). For another interpretation, see the classic Barucci (1965).

¹² Romagnosi [1832] (1957, p. 246). One among the best references to Romagnosi was made by Albertoni (1990). On the economic character of “incivilimento” and progress see Porta (1993, pp. 54-59).

action of the intelligence legitimates the presence of the elements founding the relationship between inborn (or acquired) skills and acquired benefit.

According to Romagnosi's thought, knowledge represents a crucial factor of political economy because human "industry" is an instrument of wealth. That is not only the character of his "Del principio del sapere come principale fattore dell'economia politica" (1836), but also the expression that political economy is a science "not only of the stomach and of the hands, but also of the head". An economic science that takes account of intellectual and physical as well as moral faculties, is an *economics of education* and gives an important role to education and educational processes. Romagnosi thus believes that the ability to work is an immediate need of a civilised society. Such an ability must be constructed by the widespread availability of schools for the arts, professions and trades, since vocational education determines "more industry more products, and more wealth both for the individual and for the State". Vocational schools are able to:

"make the best assessments in their respective branches in the shortest possible time and to choose the fastest processes, making the apprentices themselves operate them".¹³

From these convictions, Romagnosi went so far as to formulate a simple yet clear economic principle concerning the public offer of education. On the basis of his calculations, where the main costs are represented by the expenditure on public safety, Romagnosi deduced that with a system of widely spread vocational schools, the State would have saved 11/12 of the costs that it had to meet to combat the rise in pauperisation among the masses.¹⁴ Thus Romagnosi, laid the foundation, in Italian economic science, for a theory of social control based upon the economic calculations of minimum expenditure for the administration of a society. This was a theory already hinted at by Adam Smith, who expressed his preference for an educated society in similar terms.¹⁵

Another Italian, Pellegrino Rossi, in his "Corso di economia politica",¹⁶ tackled the relationship between education and well-being from the same viewpoint:

"without looking at all the aspects of the question, and limiting ourselves to the most important one which is without doubt economics, what profit can a

¹³ Romagnosi (1839, p. 174).

¹⁴ See Romagnosi (1839, p. 174), on the French public educational system.

¹⁵ Smith [1776] (1976, V, ii, f, 61). Cf. Blaug (1975, p. 572).

¹⁶ Rossi (1855), written in 1836 and 1837, but published in *Biblioteca dell'economista* only in 1855.

society hope to derive from an inept, rough population, more given to destruction due to its ignorance and its crude emotions, rather than produce with its intelligence and work?"¹⁷

The principle which comes from this way of perceiving the relationship between economy and education is that education itself tends to accumulate private savings, because it keeps the classical reason of population growth within the limits of subsistence.¹⁸ It is the same preoccupation that Antonio Scialoja felt when he sought to establish as a fundamental principle of the economics of education, the need to avoid "anti-economic" social and individualistic types of behaviour. Desire for personal dignity and economic independence (also caused by religious education) brought education yet more within the reasoning of social control:

"The man who labours, and knows and can do this, is a free man; and someone who through education found the principal means to decrease the number of beggars, and idle people who live at others' expense, is honoured at times and even wanted by the ignorant and superstitious".¹⁹

In Scialoja's view, education in an economic sense, first and foremost, included hygiene and physical education. As regards the former factor, the individual who takes care of his health extends the productive period of his life. As regards the latter, a certain amount of physical exercise increases human strength and adroitness, "and strength and adroitness are two productive elements".²⁰

Rossi, on the other hand, went much further and formulated the principle that now lies at the base of modern thought on the role of available education. He sought, in fact, to demonstrate that the State maintains the right "to impose a certain type of intellectual education" from the economic perspective, since "scientific power", seeking to substitute unspecialised labour ("purely a man's muscular strength"), can well contain the involuntary unemployment rate.²¹

3. *The Rise of Attention to the (Economics) of Education (1855-1893)*

Scialoja assigns a dynamic, augmentative role to human intelligence in the material (and also spiritual) progress of a society, in particular when

¹⁷ Rossi (1855, p. 128).

¹⁸ Rossi (1855, p. 161-163).

¹⁹ Scialoja [1840] (1849, p. 193).

²⁰ Scialoja [1840] (1849, p. 189).

²¹ Rossi (1855, p. 128).

intelligence works in close contact with "will". According to Scialoja, productive activity springs from the will of the economic agent and is, in its turn, an expression of the capacity of judgement arising from the intelligence itself.²² The philosophical union of these two social capabilities tends, however, to be eviscerated "by the tendency of the will to rebel against good sense judgement". In contrast with this type of distortion, education helps to keep the relationship stable by maintaining a level of will consistent with that of intelligence.²³ The binomial will-intelligence thus reveals itself to be increasingly fruitful for economic science. It constitutes the dominant relationship on which the economists, in the tradition of Romagnosi, based their contribution.

The role that Carlo Cattaneo and Angelo Messedaglia assigned to mankind's wealth, to its capital and to the labour that flowed from it, for example, recalls this well-established schema. The two economists were strongly attracted by the function that will and intelligence played in the economic process. Cattaneo, in particular, though conceiving the physics of wealth in the traditional way as a product of nature, labour and capital, did not fail to notice that:

"also according to similar suppositions coming from different nations, concerning those three productive forces, wealth could grow or diminish unequally, solely due to factors of intelligence or will".²⁴

The expressions of intelligence and will that will foster the accumulation of wealth, for Cattaneo, are psychological in nature. They are "subjected to the laws of thought themselves" and open up a field of research which can be defined as "the psychology of wealth". The border between the *physics* and the *psychology of wealth* is delineated through the greater wealth which intelligence and will are able to produce. The English tradition of Adam Smith failed to see the direct productive role of intelligence, while the Italian tradition, particularly with Gioja, at least, had the merit of recognising it. Thus the psychological element of human capital dominates and pervades Cattaneo's theory and leads him to formulate a theory of production in which human intelligence and ability play a central role.²⁵

In the same way, the starting point in Messedaglia's analysis is the role of intelligence. However, given that "the direction of things, as well as generally the intelligent part is man's duty", in his theory of value there are interesting

²² On Scialoja it is useful to see Gioli (1989).

²³ Scialoja [1840] (1849, pp. 190-191).

²⁴ Cattaneo, [1861] (1972, p. 300).

²⁵ Cattaneo, [1861] (1972, p. 302). Cf. Porta (1993, p. 51, 53 and 68).

connections between production and human resources. While admitting that labour is the "the truly active factor", it is the human faculties which represent the "intelligent organ of production". In labour, in fact:

"there are three essential elements: 1) an idea that assigns the scope to be achieved; 2) a direction that guides the work; 3) an external force or, that is, the material work that carries it out".²⁶

In practice, he again uses the connection between intelligence and will, accomplished, in this case, through the material task (labour).

The common, old relationship between the two social capabilities, however, leads the two authors to conclusions which are not entirely coincident. Cattaneo arrives at a formulation of a broad sociological category, the so-called social capital, which goes beyond the purely economic logic of the particular abilities incorporated in individuals. In fact, for him there are "menti associate" (associated minds), that is, a sort of decisional process in which man makes his choices as an individual and as a member of a group in a certain historical and social environment. As it has been observed, the thoughts produced by minds are the fruit and the context of intelligences.²⁷

The analysis made in Messedaglia's works, on the other hand, emphasises a scientific approach which never tires to emphasise the complementarities between different disciplines and the integration of different methods. A corollary of the positivist integration between the social and scientific disciplines is the particular attention he gives to the development of the moral faculty in individuals, of human resources, and, in a wider sense, of the technical and social progress of a society. This concept has a particularly important role in Messedaglia's economic teaching, where ample space is assigned to an analysis of the industrial art – as he defines it – or rather, to that complex mixture of science and technology applied to production. Firms, in Messedaglia's system, produce in relation to the level of the knowledge which they can draw on: "from a man, you can only get what he knows". However, this is not an assertion which only reflects an unquestioning attitude of total faith in science. Messedaglia explains that education has indeed to be specific, because particular abilities are required within the different applications of the science to human labour. Therefore: 1) education becomes specialised, depending on the practical exercise of every profession;

²⁶ Messedaglia (1861-1866, p. 32).

²⁷ Lacaita (2001, p. 107). According to Becattini (2001, pp. 41-44), Cattaneo considers the intuition of the "new possibility" and the capacity to prefigure in one's mind a pathway in order to reach it as intelligence. This type of observation identifies intelligence with scientific and technological progress, even if we may discuss the greater or lesser intensity of such a connection.

2) there is a need for a conscious choice *ex ante* for the individual that specialises himself following a certain form of training, just as any training model of human capital formation requires in terms of rational behaviour.

The analysis of Messedaglia's distribution theory reveals relatively modern analytical categories and methodological procedures, developed in economic literature from the beginning of the 1960s, when interaction between education and economic development began to be studied as *intangible capital*. Messedaglia, nonetheless, after having founded his interpretation of labour centring seminal attention to immateriality, the intelligence and the spirit, became interested in the "theory of the non-economic services as well as of their economic remuneration" in an entirely non productive sense, renouncing an explanation of human capital in terms of investment within the economic process. When he distinguishes the *direct producers* from the *indirect* or *non producers*, he appears to set aside the productive function of engineers, doctors, educators, artists, etc. The "immaterial services" of these economic agents:

"are taken into consideration by the economist only to the extent of the pecuniary value given in exchange for their products which *represents a proportionate subtraction from the common consumption fund of national wealth*".²⁸

The reason for this substantial divergence between the productive moment and the moment of consumption, as far as man's abilities are concerned, is to be ascribed to a concept of distribution where social science goes beyond all limits of the "economics" and draws closer to the sociological sciences and philosophy. Confirming this, Messedaglia keeps his distance from Adam Smith when the latter includes human resources in the calculation of an exclusively economic category, fixed capital:

"Adam Smith regarded them as capital because they represent the resource which was consumed in the training period and because they are required for reproduction. But, as has been observed elsewhere, it is rare that, when a comparison is made between work and capital, the acquired capability be not implicitly considered a part of work. Although human resources can be conceived of as capital, in terms of the material conditions that require their formation, their services are nothing else but labour".²⁹

In other words, Messedaglia adopts a polysemic and a multidiscipline concept of labour, that edges him to erect a sort of barrier between the science of economics, understood as being "physics of wealth", and a wider

²⁸ Messedaglia [1851] (1920, p. 278), *my italics*.

²⁹ Messedaglia (1861-1866, p. 40).

ranging analysis. In "physics of wealth" he is forced to reduce the immaterial to material, and chooses to consider works of human intelligence as services having the right to remuneration as a consequence of acts of consumption. Within the construction of a science of society, where economics, sociology, politics and ethics work together, the limit of the single disciplinary field is by-passed and the products of intelligence are considered on a level with true productive power.

The difficulties in following pioneering and not easily predictable studies in the second half of the 19th century, as well as the "holistic" aptitude shown towards the social sciences, pushed Messedaglia's scientific discourse in differing directions. Of particular note, for example, are his observations about the optimal level of teachers' remuneration, in relation to the efficiency of educational productivity within the university. In this sense, the German model, which gives space to a percentage of remuneration derived directly from private sources, for Messedaglia constitutes a reference system. He also remarks that "pay for education is also the most appreciated". However, Messedaglia does not hide his appreciation:

"for the English workman, used to be self-sufficient, and to have a part that allows him to feel king of his own castle to a certain extent, attending a school completely free of charge could even be repugnant".³⁰

In any case, he never chooses a private system of education. Italian tradition brings him to prefer a public system of education, which nevertheless has to be perfected. Among the main needs, he underlines the necessity to improve the teaching corpus of school and university also thanks to a system of higher remuneration. His attention to education can be compared, in a certain sense, to that of Alessandro Rossi who studied the efficiency of the secondary school system. Carlo Francesco Ferraris also carried out detailed work concerning the demand for school and university education from 1893 to 1912.³¹

4. *From Ferrara's Immaterial Products to the Disagreement on Human Life Valuation (1893-1905)*

For a great deal of the nineteenth century, one of the most debated questions in political economy was the distinction between the materiality

³⁰ Messedaglia [1869] (1920, p. 593).

³¹ Several articles on the subject were published by Ferraris between 1893 and 1912 in the review *Riforma sociale*. See Spalletti (2002), where economists and economic policy of education in Italy are discussed.

and immateriality of wealth. Some German and French economists, particularly Heinrich Storch, Jean-Baptiste Say, Charles Dunoyer and others, dealt with this thorny subject, making a further contribution to the theory. In Italy, it was Ferrara, in 1859, who recapitulated the terms of the question. He stated that the short duration, the non-cumulativeness as well as the peculiar nature of consumption were all characteristics that went hand in hand with immaterial products in their life cycle. It was especially this non-cumulativeness that conflicted with a vision of knowledge incorporated in the investment in human capital. Ferrara rejected the possibility that the wealth of immaterial products could be accumulated: "the vase is forever; the lesson disappears". What remains of the lesson, and therefore of knowledge:

"is the retention in the memory of him who attended it. This is the sole useful effect. But this effect only remains in man as a consumer, in the same way as there remains that of the material goods.[...]. Thus there is always a considerable difference between the clay vase and the oral discourse. The former is accumulative, the latter is not".³²

This type of negation – it can be said – produced effects until it was time to face a "theory of the value of man", in the light of the need to determine the economic value of Italian emigration. It was the sharp increase in emigration phenomena at the end of the 19th century that forced economists to take into consideration the economic implications of the problem.

In order to gain an idea of the scientific level of the debate that arose from the economic analysis of emigration, we have to keep in mind a series of articles published in the *Giornale degli Economisti*. In these the theme of human capital was discussed from the angle of what, at that time, was regarded as the most pressing problem: the need to measure the loss of Italian wealth arising from the phenomenon of emigration. Taken as a pretext, the theory had to be concentrated on the attempt to supply an effective procedure for measuring the economic value of human life.

It was Pareto, in 1893, who made the first attempt at such a calculation, closely following an analytical method based upon a system of continual approximations.³³ On the lines of Engel's method for the valuation of human life, Pareto shows, with a few adjustments to meet the Italian case, that the economic advantages for a country with a negligible infant mortality rate do not appear to be higher than those generated in a nation where children have

³² Ferrara (1859, p. LXIV). In Ferrara only material goods are "accumulated capital", while services are destined to be consumed and disappear in the act of being produced, even if they leave a useful effect. See Augello (1990, p. 185). On Ferrara's rejection of immaterial value see also Faucci (1995, pp. 177-179).

³³ Pareto (1893).

few possibilities of survival. The reason is to be found in the fact that, once a certain "risk" threshold has been passed, the function of the number of people still living tends to remain constant. According to Pareto, a high mortality rate in the first years of life does not critically affect the rise in the total cost of human beings' upbringing. As for children who die very young, the sum of the costs sustained are lower when compared to those needed for young people who die between fifteen and twenty.

This point of view, obviously, is based on the assumption that human beings are not able to produce private wealth until they are at least fifteen years old. It is more important, however, to place the emphasis on those costs deemed necessary for the upbringing and education (general and vocational) of the young ones. From our point of view, we have to underline that Pareto accepted the theory of costs contained in Engel's procedure, even if with some reservations.³⁴ Moreover, he corroborates his conclusions with a certain number of points which, today, can hardly be ignored: above all, the reward for the costs of production of man represents the main element from which we travel in hope of future higher earnings:

"From a comparison between the cost of production (both economic and moral) of man and the advantages that this brings, the motive arises that leads to the increase or decrease of such production (of man)".³⁵

Secondly, in order to start up this type of economic relationship and to make it effective from a logical point of view, Pareto believes family capital must pre-exist in order to face the necessary costs.

For the Italian economic science, Pareto's intervention was the starting point of a quite important debate on the quality and quantity of human resources. On the one hand, while fully accepting the aforesaid results, Beneduce attempted to refine the Engel-Pareto valuation. He re-stated it drawing on the cost estimates for the bringing up of human beings which were elaborated by Enrico Raseri, or rather a sort of yearly "unit

³⁴ Engel identified the economic value of human life at birth, determining it on the basis of the expenditure needed immediately before and after (the more treatment the mother needs during pregnancy, expenses for the delivery, etc.). Exclusively referring to Prussia, this could be estimated to cost 100 marks per year. The cost of the upbringing and education of an individual, later, went up every year by 10% of the initial cost for the first 20 years. From then on, he maintained that man would produce more than he consumed; and this went on until he became old or infirm. From 16 to 20 Pareto presumed that the youth who worked produced as much as he consumed. Following the article in 1893, Pareto re-presented in his *Cours* (1896) Engel's model, referring to Luigi Bodio's tables of mortality rates. See Pareto [1896] (1953, vol. I, p. 182 et seq.).

³⁵ Pareto [1896] (1953, p. 184).

consumption", differing for each social class.³⁶

On the other hand, however, some Italian economists rejected Engel's process. Coletti, in particular, believed that statistically detecting such a complex phenomenon (as is the economic value of human beings) was a very hard task, such as to call into serious discussion the admissibility itself of the procedure. According to Coletti, in the calculation of human capital – and its relative earnings – it was impossible to include such a large number of elements. Some of these were necessarily set aside in the attempt to reduce reality to some empirical measurements (amongst which, for example, the greater predisposition towards labour that often caused the birth of a child in a family). Yet other such elements eluded any type of numerical expression (like the quantification of the care and services given by mothers to their children).³⁷

Looking closely, however, Coletti's critical approach was not based merely upon statistical evidence. This first level of analysis was rapidly overtaken in order to direct the attack on the main hypothesis of Engel's process: Coletti did not consider it enough to measure the value of human capital solely in terms of production costs. Consequently, he could not maintain that:

"the more income is higher than the cost of productivity, the more, economically speaking, men will be satisfied and the country's wealth will increase. The opposite will happen if the cost of men is greater than the value of their productivity".³⁸

According to Coletti, who nevertheless accepted the costs-earnings relationship as regards human capital, the measurement of the earnings in terms of wage lent itself to too many difficulties, since the entity of the wage was determined by the nature of the capitalistic process and by the exchange ratio on which it was based. To link man's worth to the sum of the wage was therefore a mistake.

It is interesting to note that Coletti reached this conclusion from the non-applicability to human capital of the same considerations valid, on the contrary, for material capital. Beneduce considers man to be capital, an instrumental good able to accumulate a certain physio-psychic energy that in some circumstances is soon changed into kinetic energy. On the contrary,

³⁶ Beneduce (1904, pp. 505-509) considers that the interval during which man produces as much as he consumes is even longer (from 12-22 years of age) and establishes 60 years of age as the point beyond which man can no longer be judged as economically active. Raseri's units of consumption are quoted in Beneduce (1904).

³⁷ Coletti (1905, p. 262).

³⁸ Engel, quoted in Pareto [1896] (1953, p. 180).

Coletti believed that one of the greatest errors of Engel's theory, and of whoever had taken it up, is the overlapping between material capital and human capital (the expression that he uses is "capitale personale").³⁹ Between the two categories, in fact, there are differences that, *a priori*, enable a link to be established between man's worth and the cost of his production, unless we are reasoning within the bounds of slave economies, where man is always assimilated in material capital.

Coletti, therefore, did not accept that the value of labour could be directly linked to the value of man, consequently he considered that man's productivity is equal to the production cost of the upbringing and education of the individual. He thinks that the productivity of labour is given by the quantity and intensity with which human labour is used within the single production combinations, in relation to the quantity and intensity of complementary instrumental goods (land, raw materials, technical capital, etc.). The efficiency of human labour used within a specific production combination, cannot be isolated from and discriminated against by other production factors, even if only to measure it: all the factors of production have to be considered as a unitary complex. Therefore, the value of labour cannot be measured, instrumentally speaking, on the basis of the goods with which it is remunerated, that is, on the basis of the wage. In Engel's thought, on the contrary, wages and the value of labour are not seen as two distinct concepts that are formed and developed for different reasons.

Wage, for Coletti, is established on the marketplace through two different interactions: 1) the greater or lesser demand. The value of labour, instead, depends on the supply of workers; 2) the struggle and capacity to resist among working classes and capitalists. The value of labour, instead, depends on the productivity of the same labour within the different production combinations; therefore, it varies depending on the proportions or efficiency also of the other goods with which it is combined. Whenever the economic value of a product cannot be determined, it would be legitimate to think of equalising it to the cost of its production. The existence of a possible overlapping of these two stocks, in Coletti's opinion, must be first examined and demonstrated in relation to the peculiarities of human capital.

5. Two Final Remarks

5a. Following the historical reconstruction outlined here, it is possible to appreciate that the Italian tradition regarded as a positive factor the insertion

³⁹ Coletti (1905, p. 268).

of the problems relative to education and human capital within the paradigm of political economy. Such an operation was successfully brought about by adhering to Romagnosi's concept of "incivilimento". After this contribution was taken into the Italian economic culture, the introduction of education within political economy as an essential part of its scientific paradigm translated into the use of "thought" as a principle of the private as well as the social wealth of the country. Such an opening was initiated, so to speak, embracing epistemology, its methods and validations. Political economy after Cattaneo, was indeed still considered "physics of wealth" which, naturally, included within itself material factors. Nevertheless a different concept of economics necessarily had to keep in mind the contribution of human resources to the development of the sciences: the so called "psychology of wealth".

The scientific scene in the 19th century, along with its positivistic trends, nevertheless considerably influenced the analysis of education and human capital even within the frame of economic science. The contributions of major authors like Rossi and Messedaglia – but also of those minor ones that have not been included in this historical excursus⁴⁰ – on the one hand produced interesting ideas for a modern vision of the complex relationship that exists between economics and education. On the other hand, perhaps they erred on the side of over-optimistic predictions as far as the connection between the broadening of education and the increase in economic development is concerned. Hence the contribution of economists to the problem of education was limited, in the great majority of cases, to a descriptive type of analysis. Moreover, almost every Italian economist in Parliament, who was concerned with educational questions, paid more attention to what was going on in the world of school and university, rather than finding a way to make the system work from a theoretical viewpoint.⁴¹ The lack of a theoretical foundation-stone represents one of the reasons why Italy was so late in allocating increased funds for the educational and vocational system of public schools.

5b. To identify *how* such a category develops within the scientific paradigm, however, remains a very open question, lending itself to more than one possible answer. The analysis carried out in my paper does, however, help to isolate the contribution of Italian economic thought from a twofold

⁴⁰ I refer to Carlo Bosellini and Angelo Marescotti, recently studied by historians of economic thought.

⁴¹ Spalletti (2002, p. 195).

standpoint. On the one side it is possible to identify in some economists a certain predisposition to categorise human beings and their acquired skills as a form of capital (Gioja, Cattaneo, Messedaglia, Pareto and Beneduce), even though there are some exceptions (Coletti and others). On the other, it certainly emerges very clearly that the cost of production and the capitalisation of the earnings of economic agents were the procedures mainly adopted to estimate the cost of the training of human capital (Pareto and Beneduce). This appears to be in line both with the reasons as well as with the procedures with which economists of the past treated human capital.⁴²

It must, though, be added that the analysis of human capital as developed in Italy at the end of the 19th century, contributed to overcoming the sterile debate concerning the materiality or immateriality of wealth. What is more, it helped to eliminate the pedagogical value of education seen from the viewpoint of morals and economics (Scialoja and P. Rossi) and facilitated a certain divorce from the approach according to which education participates in changing the aptitude of the economic agents in relation to labour, rendering them more productive even though not using what has been learnt during their period of training (diffusionism).⁴³ This brings us back to the well known questions concerning the ways in which education contributes to the growth of wealth, an area of research which, even from the point of view of the history of economic thought, still appears to be very fertile.⁴⁴

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⁴² See Beneduce (1905), Pareto (1905) and Kiker (1968, pp. x-xi).

⁴³ Tortella (1990, p. 11 and following pages).

⁴⁴ Concerning the ways in which education can increase the productivity of labour, see Woodhall (1996, particularly paragraph 3).

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ABSTRACT

The paper illustrates the relationship between the idea of human capital and the Italian history of economic thought. Italian tradition frequently adopted a moralising idea of economics in which the role played by “education”, “knowledge” and “will” was broadly expanded. It is possible to identify, in some economists, a known but not analytically specified predisposition to categorise human beings and their acquired skills as a form of capital (Gioja, Cattaneo, Messedaglia, Pareto and Beneduce), even though there are some exceptions (Coletti).

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