

# PSYCHOANALYTIC VS NEOCLASSICAL ECONOMICS MODEL OF THE MIND

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## ABSTRACT

Neoclassical Economics assumes that *economic agents* are *independent* and *optimizing*. The achievements of Psychoanalysis concerning the development of mind and human interactions, on the contrary, indicate that considering an individual as independent and optimizing is incorrect, as everyone, since birth, is mentally interconnected with other agents. In this research we firstly deal with and criticize the Neoclassical economics concepts of Independence and Optimization; then, on the basis of the psychoanalytic model of the mind, we draw a new definition of Competition.

**Keywords:** neoclassical economics, psychoanalysis, model of the mind, individual independence, optimization, group

## FOREWORD

According to literature (Schumpeter, 1990; Samuelson, 2009; Varian, 1990; Roncaglia, 2011), in this article we name Neoclassical economics the economic theories based on the hypotheses that economic choices and actions are that *optimizing* and implemented by *independent* economic agents: workers, entrepreneurs, capital and land owners.<sup>1</sup> On the basis of these two assumptions - independence and optimization - Neoclassical economics has created different visions of markets and the relationships between economic agents, whose main representatives, among others, are Vilfredo Pareto (1919; 2006) and Friedrich von Hayek (1952; 1982; 1994). On the contrary, concerning the development of mind and human interactions, the achievements of Psychoanalysis and Neuroscience indicate that considering an individual as independent is *incorrect*, as everyone, *since birth*, is mentally interconnected

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<sup>1</sup> Marginalism (Backhouse, 2002, p. 269) or Subjective theory of value (Roncaglia, 2011, p. 278), in this context, can be considered as overlapping names (Screpanti and Zamagni, 2004).

with other agents (Bion, 1971; 1995; 2016; Anzieu, Martin 2010; Carli et alii, 1998; Schmidt, 2013; Mancia, 2006; Damasio, 1995, 2010). Moreover, human action is guided by *repeated behavioral patterns*, based on *mind interactions* and *social signals* (Eco, 2016, pp. 21-23), instead of *optimizing purposes* (Jervis, 2001, p. 25). The main theoretical difference between these two approaches<sup>2</sup> lies, therefore, in the concept of mind-reality separation, which still characterizes Neoclassical economics, instead of the concept of a mind born by means of child-caregiver internalized interactions, as acquired by contemporary Psychoanalysis (Klein, 1978; Auchincloss, 2015; Mahler et alii, 1975; Bowlby, 1980; Bion, 2013; 1973; Kernberg, 1980; Winnicott, 2005) and Neuroscience (Damasio, 1995; 2010; Mancia 2006). If the latter model of the mind is adopted, as explained below, the economic agent's independence and optimization could be overcome and, as a matter of fact, a different definition for the concept of *competition* can arise.

In the next paragraphs we will firstly deal with the controversial concepts of independence and optimization; then, on the basis of a different model of the mind, we will draw a new definition of Competition. The new concept of Competition, as we will explain, particularly emerges when dealing with *real markets* that produce resources (commodities), not being limited to the redistribution of existing resources (as in financial markets, for example).

## 1. INDEPENDENCE AS ESSENTIAL BUT NONEXISTENT

Concerning *independence*,<sup>3</sup> Neoclassical economics states that individuals are *mutually independent*<sup>4</sup> because the interactions between economic agents are limited to *transactions* while commodities prices change over time in a way that each single agent can't determine - *perfect competition* (Pareto, 2006, p.141) – <sup>5</sup> or some agent can determine - *imperfect competition* (Chamberlain, 1962) – but always independently from every other agent.

About this, we think that independence could be named *psychological distinction*, because, according to neoclassical economists, independence indeed relies on an interconnection, but a particular kind of interconnection according to which each economic agent perceives and decides in a separate way from every other economic agent (Hayek, 1952, chapter 1; 1982, I, chapters 2 and 5; Pareto, 1919; 2006).

Moreover, if we assume the Neoclassical economics point of view which states that *utility* and *profit maximizations* are the main aims of individuals (Jevons, 1888; Menger, 1976; Walras, 2006), and that they can only be achieved in *general economic equilibrium* conditions (Varian, 1990), we find *independence* as a necessary theoretical *device*. This is

<sup>2</sup> These different approaches mirror what happened in the field of Philosophy, between Hermeneutics and Metaphysics, in the twentieth century. We refer to the line of thinking that started with Franz Brentano (Brentano, 1995) and continued with Edmund Husserl (1973; 2002), Martin Heidegger (1996) and Hans-Georg Gadamer (2013) and the critics to Metaphysics and the *Kantian* way of thinking. A detailed and precious overview can be traced in Ferraris (2008).

<sup>3</sup> What economists name *Independence*, according to Bruno de Finetti should be named *Indifference*: "L'indipendenza significa dunque che ogni arricchimento d'esperienza in base a nuove prove ci lascia indifferenti nella valutazione di probabilità successive; sarebbe forse più appropriato, pertanto, dire 'indifferenza'" (de Finetti, 1934, p. 200).

<sup>4</sup> Independence is fundamental for the efficiency of competition represented by General economic equilibrium, that can be achieved, in fact, only if economic agents are independent (Pareto, 1919, chapters 4 e 5).

<sup>5</sup> J.A. Schumpeter wrote that it is a *strategy exclusion principle* (2006, pp. 918).

because *general economic equilibrium* is grounded on *competition*, which is grounded in turn on the independence of individuals. Furthermore, according to Hayek (1982, vol. II, chapter 10), independence is strictly connected with *freedom*, because every human organization which pursues any *aim*, is oppressive inasmuch not grounded upon the natural human condition of independent individual aim. Individual independence shortage is sure enough an unnatural condition because at least every individual knows her/his own needs and ends, and every lack of independence establishes a “road to serfdom” (Hayek, 1994).

On the contrary, Psychoanalysis insists that the human mind comes to life from *interactions* with other minds (Bion, 2013, p. 301; Jervis, 2001, p. 85) and even the term “*individual mind*” could be considered as an oxymoron (Mitchell, 2014, p. 57) given that “the internal and external world are perpetually regenerating and transforming themselves and each other” (Ibidem) (Kernberg, 1980, p. 24; Merleau-Ponty, 1965, p. 523; 2015, p. 194, 201).

Everyone is strictly connected with other agents since birth (Auchincloss, 2015, p. 198) and most of the faculties of the human mind are regarded as originating via a self-organising child-caregiver relational matrix. This means that independence is not a choice, but a chimera. The pertaining psychoanalytic explanation is in the following paragraph.

## 2. PSYCHOANALYSIS: AN INTERACTIVE MODEL OF THE MIND

The backbone of psychoanalysis has been developed by three pioneers, Sigmund Freud (1953), Melanie Klein (1946) and Wilfred R. Bion (1962, pp. 110 ff). The concept of independence of mind, in this scientific field, was completely overcome in the first years of last century. Sigmund Freud, in the first topology of the mind, showed that each internal drive or instinct had a source, an aim and was directed towards an object (external world). In certain cases, an internal impulse to do or to feel something, could be perceived as intolerable according to the system of values and beliefs of that person and/or culture. On those occasions, S. Freud spoke about “repression,” that is an internal force - a “defence mechanism” - through which the mind protects itself against unpleasant feelings and, at least at the beginning, generated the “unconscious.” In the second topology of the mind, S. Freud underlined the influences of the external world over its development by means of an internal aspect of the mind called “Super-Ego”: a moral instance of fundamental importance in promoting a first distinction between the concept of good and bad derived from cultural, social and parental values and beliefs. The central instance of the mind, the “Ego,” according to Freud, was constantly in a dreadful tension between the moral instance (i.e., “Super-ego”) and very powerful irrational impulses or emotions (i.e., “Id”). As such, every behaviour was the result or compromise derived from that tension. There is a very renowned quote by Sigmund Freud written in “A Difficulty in the Path of Psycho-Analysis,” 1917: “The ego is not master in its own house,” through which he emphasised the role of emotions, especially the most primitive and irrational, in ruling decision making. Currently, this perspective, based on the acknowledgment of the interaction between external and internal influences in shaping the development of the mind is, with different names, broadly accepted in the scientific literature and spread across all the major psychological schools. While Freud’s ideas concerning children mostly came from working with adult patients, Melanie Klein was innovative in working directly with children, often as young as two years old. Klein saw

children's play as their primary mode of emotional communication and this is the reason why she can be regarded as the main pioneer of child psychoanalysis. Melanie Klein showed how the "Super-Ego," the moral internal instance of the mind derived from the external world was intimately linked with the other two (i.e., the "Ego" and the "Id"), and of crucial importance in the development of the mind as-a-whole. Particularly, by working with children, she concluded that the "Super-Ego" was present from birth and not from the age of five as S. Freud thought. Furthermore, in many of her contributions, she accurately described the mechanisms between the child and its caregiver through which the mind develops: "Early Stages of the Oedipus Conflict," 1928; "Mourning and its relation to manic-depressive states," 1940; "Notes on schizoid mechanisms," 1946, among others. Taking M. Klein's contributions as-a-whole, it is evident that the role of a good interaction between the child and its caregiver, as well as between the internal and external world, is vital in the development of the mind.

During the 1950s and 1960s, Wilfred R. Bion transformed and developed Melanie Klein's view of the child's mind into a proper theory of thinking. Wilfred R. Bion illustrated how the development of thought was dependent upon a good infant-caregiver relationship and how its dysfunctions can lead to thought impairment. To sum up the development of thought according to W. Bion we can make the following example. When the child is hungry, it experiences a certain degree of frustration and pain in the body that, whilst normal for adults, for a baby represents a completely unknown experience close to a deep fear of dying. This bodily experience is transformed into a desperate cry and the caregiver is flooded by many visual and auditory signals. The good caregiver transforms them into a request of food and feeds the little baby. The baby learns and internalises the possibility of tolerating the bodily frustration and pain, transforming them into an internal experience that, in adulthood, will go by the name of "hunger." Clearly, the same experience can be widened and applied to a "hunger" for love, a "hunger" for professional achievements, a "hunger" for athletic successes. The capacity of tolerating a certain degree of frustration and pain is the ground on which, according to Wilfred Bion, thought grows, independently from the field of application. Conversely, a caregiver incapable of tolerating the anxiety derived from those desperate visual and auditory signals fails to return to the infant an alleviated picture of its own internal unpleasant feelings. An unknown anxiety will remain in the baby's mind, impairing the capacity to think.

Empirically, the interaction between a healthy development and the infant-caregiver relationship was firstly verified by René Spitz (1965) with his observations on hospitalized and deprived infants. He studied institutionalized children in orphanages and hospitals specifically. The institutions were of poor quality and the staff rarely interacted with children. A third of institutionalized children died before the age of 1 year. The remainder failed to thrive and showed signs of depression. These symptoms reversed if the period of maternal deprivation was less than three months but not if it was longer. Spitz compared children living in an orphanage with others living in a penal institution where they were cared for by their mothers. Although physical conditions in the orphanage were better, the children's mental health conditions were inferior. Within two years, 37% of the children in orphanage were dead whereas 5 years later all the children in the penal institution were still alive. The fundamental importance of a good infant-caregiver relation in the early development of the mind has been extensively empirically confirmed by further experiments developed within

the line of research called “infant research”, with pioneering contributions made by John Bowlby, Daniel Stern, Mary Ainsworth and Mary Main among others.

### 3. MIND-ENVIRONMENT DISTINCTION AND OPTIMIZATION

Friedrich von Hayek, on the contrary, maintained that the environment would be only an *external* entity and, even though he believed in a limited possibility of its knowability, he sees the human brain as an organ aimed solely at reproducing the external world (Hayek, 1952, chapter 5; 1937, pp. 33-54). Even Vilfredo Pareto believed in the existence of a world that is *external* to human beings and that we can only know an *ideal* phenomenon and only get closer and closer to a concrete phenomenon that, however, “we don't know, and will never know” (Pareto, 2006, p. 141). Concerning competition, however, Pareto saw it as an ideal system towards which we should tend, through a progressive reduction of market imperfections, whereas Hayek believed in the impossibility of their reduction, looking at free competition (Hayek, 1940, pp. 125-149) as the appropriate relational form for irremediably isolated individuals. On the contrary, if relational mind and repeated behavioural patterns are assumed, we can think of individuals as physically independent but *psychologically reciprocally dependent* (Napolitani, 2006, p. 65).

Concerning the concept of *optimization*, on the other hand, we can say that it derives from the fact that every economic agent is believed to act to “obtain a maximum satisfaction” (Neumann, Morgenstern, 1953, p. 10) and being *coherent* (Samuelson, 1938) in the choice process. In this way, the economic theory states that economic agents are *optimizers* because guided by *one purpose* in *every coherent choice process*. In the scientific literature the emphasis has been placed on whether the choice process can be considered *coherent* (Kahneman, Tversky, 1979, pp. 263-291) - especially in the short run (Kahneman, 2011) - and the human mind “*rational*” (Simon, 1959, pp. 253-283) but less attention was so far given to the inexistence of such a thing as a *purpose* that would guide the economic agent's behavior in a choice process. Because of the backdating of the relational attitude of the mind to its constitutive moment, human action is regarded as being guided by means of *repeated behavioral patterns* and *social signals*, which lead to the exclusion of an optimization principle, intended as a purpose which would drive economic agents in economic behaviours (Jervis, 2001, p. 25; Bateson, 1997, pp. 303 ff.; 1984, pp. 123 ff.). Human behaviour is instead constituted by patterns acquired and developed since birth and inborn relational attitudes, even considering individual differences between human beings.

### 4. CLUSTERED DIFFERENCES AND THE NEW COMPETITION CONCEPT

Looking at the backdating of the mind's interactions with the world to the moment of birth and their substantial importance in the development of the human mind during each individual life, we can see that these scientific acquisitions haven't been properly evaluated in the Neoclassical economics field. This leads to some important implications for the crucial concept of *Competition*. Competition, in this theory, in fact, is based on the isolation of individuals who compete in the markets in order to optimize the allocation of resources. It is so, because Neoclassical economics is grounded on “individuals” instead of such a thing as

“other than individuals”. Nevertheless, we have to pay more attention to the fact that even Neoclassical economics considers that there are interests and actions which have to be grouped, stylized and represented in the well known demand-supply schemes; and that Leòn Walras first, and Vilfredo Pareto then, built their *pure economics* (Walras, 2006) concerning four characters - workers, landowners, capital owners, entrepreneurs -, exactly grouping individual behaviours in these four categories.

In any case, on the basis of the model of the mind outlined by the psychoanalytic literature (i.e., considering an inborn relational essence of the mind), and given that individuals internalize their interactions (Auchincloss, 2015, chapter 1) as well as social signals (Bateson, 1984; Schmidt, 2013; Eco, 2013) in order to understand and act in the reality they belong to (Lewin, 1939), it has to be considered that human beings are constantly part of clusters, a *cluster* being defined as *a set of variables contiguous with respect to a property* (Piccolo, 2000, p. 767).

According to this approach, Competition can hardly be considered as the market main phenomenon, constituted by individuals who *separately* compete for the *same resources*, and should rather be considered as a generally *negligible epiphenomenon*, only observable within each Cluster.<sup>6</sup> Individuals belong to the same cluster when their *different economic behaviors* are not so relevant in the determination of the *different resources* they compete for. This is because economic production does not produce *money* - intended as the means of exchange; a general equivalent commodity - but produces concrete commodities that enter in individual consumer baskets; and these baskets are different for every cluster individuals belong to. For example, luxury and non-luxury commodities or different dietary consumption are closely related to different incomes, professions and investment priorities.

Moreover, while resources are only redistributed between individuals when gains and losses occur in speculative investments (especially in financial markets), in real economy markets additional resources (economic growth) and/or different resources (economic development) are produced and this necessarily determines a proceeding differentiation of the resources.

Hence, the cluster dependency of consumption baskets, other than economic growth and development, determine that individuals can't be considered as always competing against each other for the *same* resources and all having the *same* interests, as stated by the Neoclassical paradigm (Screpanti and Zamagni, 2004, pp. 183 ff; Caruso, 2012, pp 7 ff.). On the contrary, according to our vision, when two clusters compete against each other, they represent *different* and *grouped* interests, the *result* of - cultural, psychological, social - in one word, *cluster* differences. The interest in one kind of music or another, different food tastes, the way houses are built, etc., are not free choices made by individuals but depends on the different relationships individuals were born and grew up in, that is the *cluster* they belong to.

It's important to specify that a *cluster* is not necessarily a *social class* since clusters are constituted by variables that point and group the human behaviours together and by a number of grouped individuals that rises to a level that is relevant according to a certain observer and/or a research plan. This means that, within a cluster, the individual behaviours are *correlated* instead of *independent* and that any *different* cluster that competes in the markets

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<sup>6</sup> Leòn Walras considered something like this when he conceived extra-profit as the profit an entrepreneur gains when markets are not in equilibrium. Profits can be distributed unequally between entrepreneurs, determining both extra-profits and losses in the context of the same total profit and the self perception of entrepreneurs as entrepreneurs.

is the representative of a *different* interest, so that different clusters don't represent the *same* interest competing against each other for the same (scarce) resources. Therefore, Competition assumes a different meaning: it is a cluster endeavour for the defence of any particular cluster interest; not a struggle between individuals having the same interests. The latter represents the current (epiphenomenal) notion of competition - we can name it “competition within cluster”, based on the *independency* between individual behaviours in standard conditions of markets (Fisher 2006).<sup>7</sup> Moreover, reasoning in terms of *clusters* instead of *individuals* doesn't change only the *dimension* of the *economic agents*. It changes the *nature* of Economics, that becomes the study of the interaction between different economic agents (clusters) representing different interests, instead of the study of the mere competition of isolated individuals with identical aims.

## AN OPEN CONCLUSION

According to the scientific model of the mind highlighted in this work, the notion of independence and optimization, as qualities that affect and distinguish the economic behavior, have to be overcome. Likewise, competition can't be considered as the theoretical device that explains the essence of the individual economic behavior and the target of the economic efficiency to achieve, since it is grounded on isolated and optimizing individuals instead of connected and non-optimizing clusters. Furthermore, *competition* in psychology is interpreted as a form of basic interaction, grounded on Bion's concepts of the link “Hate” – when there are, in fact, conflicting interests between clusters. The other two links are “Love” – when the interests are converging, or “Knowledge” – when clusters collaborate for the achievement of a shared task (Bion, 2009, pp. 77 ff).

Overall, the epistemological transition we proposed, can be summarized by promoting, in Economics, the passage from a concept of markets based on “disorganized complexity” to those based on “organized complexity.”

When Claude Shannon's landmark 1948 articles on communication theory were republished in 1949 as *The Mathematical Theory of Communication*, the book also republished a much shorter article authored by Warren Weaver, which discusses the implications of Shannon's more technical work for a general audience. With Claude Shannon he was one of the founders of the theory of information, the science that studies the quantification, storage, and communication of information. Weaver, in the paper “Science and Complexity” (1948), divided the scientific disciplines into three main areas (Figure 1).

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<sup>7</sup> Paul A. Samuelson (1970, p. 425), on the contrary, maintained that Capitalism dynamics as a whole could be influenced by a cluster struggle. In particular, he argued this with regard to Marxian class struggle concept.

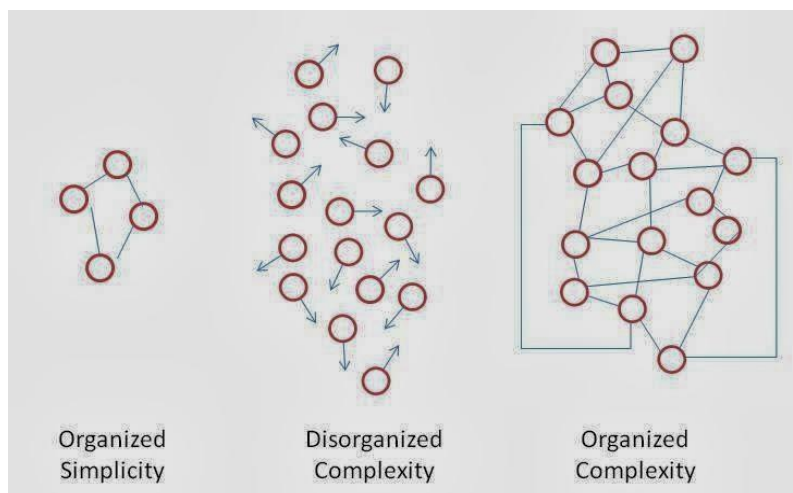


Figure 1. Weaver, W. (1948). Science and Complexity. *American Scientist*, 36, 536-549.

The picture well represents the functioning within and between each economic cluster according to our proposal based on the epistemological transition from isolated and optimizing individuals to connected and non-optimizing cluster, that is, from “Disorganized Complexity” to “Organized Complexity.”

The first is called “Organized Simplicity,” in which the system’s behaviour is relatively stable and recurrent (e.g., theory of universal gravitation) and is composed of relatively few objects. In this case, we can investigate it by using complex and very sophisticated mathematical tools such as differential equations. The more the system behaves in a relatively stable and recurrent way and the fewer objects it comprises, the more we can investigate it by using sophisticated mathematical tools. The second scientific area is called “Disorganized Complexity,” in which the system comprises a huge number of objects, but they have no interactions at all or can be considered as isolated (i.e., thermodynamics, in which the molecules of a given gas within certain boundary conditions have random interactions). In this case we can investigate it by reducing the system’s dimensions into few order parameters like, in the case of thermodynamics, pressure, volume and temperature. By considering these three parameters and their interactions it is possible to study the behaviour of the entire system (e.g., of all gases far from the melting point). This is due to the huge number of independent objects and on their random interactions that allow the means of those main parameters to be very accurate in describing the system as-a-whole. The third scientific area, which includes, among others, psychology, sociology and biology, is called “Organized Complexity” and is characterised by a system comprising a huge number of objects with deep interactions between them that influence the configuration of the whole system. Additionally, to further complexify this scientific area, the interactions between those elements are evolving over time and in a constant relationship with the environmental conditions, that is, always modifying and being modified by the network they pertain to (i.e., what we called a “cluster” in economics).

Neoclassical Economics traditionally relied on the hypothesis that economic choices and actions are those *optimizing* and implemented by *independent* economic agents. This scientific picture refers to the “Disorganized Complexity” area, grounding Economics in the heritage of classical statistical mechanics. Nevertheless, as we discussed above, given that



economic investments are an activity carried out by human beings, it should be more appropriate to rely on a model that takes the interactions between agents into account. In order to do so, we are forced to promote a new way of investigating the economics' behavior: the transition of the scientific focus from single agents to clusters representing economic ensembles with minimum intra behavioural variability (same interests within clusters) and maximum extra behavioural variability (different interests between clusters).

Finally, studying the interactions between the largest clusters in a specific market's area could promote a new and fertile line of research to shed light on its functioning.

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## REFERENCES

- Anzieu, D., Martin, J. Y. (2010). *Dinamica dei piccoli gruppi*. Roma: Borla.
- Auchincloss, E. L. (2015). *The Psychoanalytic Model of the Mind*. Washington, DC: American Psychiatric Publishing.
- Backhouse, R. E. (2002). *The Penguin History of Economics*. London: Penguin Books.
- Bateson, G. (1984). *Mente e natura*. Milano: Adelphi.
- Bateson, G. (1997). *Verso un'ecologia della mente*. Milano: Adelphi
- Bion, W. R. (1962). *A theory of thinking* (p. 110). London: Routledge.
- Bion, W. R. (1962). *A theory of thinking*, London: Routledge.
- Bion, W. R. (1971). *Esperienze nei gruppi*. Roma: Armando Editore.
- Bion, W. R. (1973). *Elementi della psicoanalisi*. Roma: Armando Editore.
- Bion, W. R. (1995). *Il pensare: una teoria*. In Bott Spillius, E. (ed.), *Melanie Klein, Vol 1*. Roma: Astrolabio.
- Bion, W. R. (2009). *Apprendere dall'esperienza*. Roma: Armando Editore.
- Bion, W. R. (2013). "The Psycho-analytic study of thinking," *The Psychoanalytic Quarterly*, LXXXII, 2.
- Bion, W. R. (2016). *Riflettendoci meglio* (Second Thoughts). Roma: Astrolabio.
- Bowlby, J. (1980). *Attachment and Loss, I-III*, London: Basic Books.
- Brentano, F. (1995). *Psychology from an empirical standpoint*. New York: Routledge.
- Carli, R., et alii. (1998). *Il gruppo in psicologia clinica*. Roma: Carocci.
- Caruso S., *Homo oeconomicus*, Firenze University Press, Firenze, 2012
- Chamberlain, E. (1962). *The Theory of Monopolistic Competition*. Harvard: University Press.
- Damasio A. (1995). *Descartes' error. Emotion, Reason and the Human Brain*. New York: Avonbooks.
- Damasio A. (2010). *Self Comes to Mind. Constructing the Conscious Brain*. New York: Pantheon Books.
- de Finetti, B. (1934). *Indipendenza stocastica ed equivalenza stocastica*. Roma: SIPS.
- Eco, U. (2016). *Trattato di semiotica generale*. Milano: La nave di Teseo.
- Ferraris, M. (2008). *Storia dell'ermeneutica*. Milano: Bompiani.
- Fisher, I. (2006). *La teoria dell'interesse*. Milano: Milano Finanza editori.

- Fisher, R. A. (1936). The use of multiple measurements in taxonomic problems. *Annals of human genetics*, 7(2), 179-188.
- Freud, S. (1953). *Three essays on the theory of sexuality*. Teoksessa J. Strachey, Ed. and trans.) The standard edition of the complete psychological works of Sigmund Freud, vol. 7.
- Freud, S. (1961). *The resistances to psycho-analysis*. In *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, Volume XIX (1923-1925): The Ego and the Id and Other Works (pp. 211-224).
- Freud, S. (1961). The resistances to psycho-analysis. In *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, Volume XIX (1923-1925): The Ego and the Id and Other Works (pp. 211-224).
- Gadamer, H. G. (2013), *Truth and Method*, New York-London: Bloomsbury Publishing.
- Giuliani, A. (2015). Why Systems Biology Can Promote a New Way of Thinking. In *Systems and Synthetic Biology* (pp. 25-41). Springer Netherlands.
- Hadamard, J. (1898). Les surfaces à courbures opposées et leurs lignes géodésique. *J. Math. pures appl.*, 4, 27-73.
- Haken, H. (1983). *Synergetics: An introduction. Non equilibrium phase transitions and self-organization in physics, chemistry and biology*, 3<sup>rd</sup> rev. enl. ed.
- Hayek, F. A. (1994). *The Road to Serfdom*. Chicago: University of Chicago Press.
- Hayek, F. A. (1937). "Economics and Knowledge," "*Economica*," n.s., IV, n. 13.
- Hayek, F. A. (1940). "Socialist Calculation: The Competitive 'Solution'," "*Economica*", n.s., VII.
- Hayek, F. A. (1952). *The Sensory Order*. London: Routledge & Kegan Paul.
- Hayek, F. A. (1982). *Law, Legislation and Liberty*, I-III. London New York: Routledge.
- Heidegger, M. (1996). *Being and Time*. New York: State University of New York Press.
- Husserl, E. (1973). *Experience and Judgement*, London: Routledge.
- Husserl, E. (2002). *Idee per una fenomenologia pura e per una filosofia fenomenologica*. Torino: Einaudi.
- Jervis, G. (2001). *Psicologia dinamica*. Bologna: il Mulino.
- Jevons, S. H. (1888). *The Theory of Political Economy*. London: MacMillan.
- Kahneman, D. (2011). *Thinking, fast and slow*. Macmillan.
- Kahneman, D., Tversky, A. (1979), "Prospect Theory: an analysis of decision under risk," "*Econometrica*", No. 47.
- Kernberg, O. (1980). *Internal World and External Reality*, New York-London: Aronson.
- Klein, M. (1946). Notes on some schizoid mechanisms. *The International journal of psycho-analysis*, 27, 99.
- Klein, M. (1946). Notes on some schizoid mechanisms. *The International journal of psycho-analysis*, 27, 99.
- Klein, M. (1978). *Scritti 1921-1958*. Torino: Boringhieri.
- Lewin, K. (1939). "Field Theory and Experiment in Social Psychology: Concepts and Methods," "*American Journal of Sociology*", Vol. 44, No. 6 (May, 1939)
- Mahler, M. S., et alii, (1975). *The Psychological Birth of the Human Infant. Symbiosis and Individuation*. London: Karnac.
- Mancia, M. (2006) (ed.). *Psychoanalysis and Neuroscience*. Milano: Springer-Verlag Italia.
- Menger, C. (1976). *Principi di economia politica*. Torino: UTET.
- Merleau-Ponty, M. (1965). *Fenomenologia della percezione*. Milano: Il Saggiatore.

- Merleau-Ponty, M. (2015). *Segni*. Milano: Il Saggiatore.
- Mitchell, S. A. (2014). *Relationality. From Attachment to Intersubjectivity*. New York: Taylor & Francis.
- Napolitani, D. (2006). *Individualità e gruppaltà*, Roma: IPOC.
- Neumann, J., Morgenstern, O. (1953). *Theory of Games and Economic Behavior*, III ed., New Jersey: Princeton University Press.
- Orsucci, F. (2015). *Human Dynamics. A Psychotherapy-Complexity Science Open Handbook*, Cambridge, UK: Nova Science Publisher.
- Pareto, V. (1919). *Manuale di economia politica*. Milano: Società Editrice Libreria.
- Pareto, V. (2006). *Corso di economia politica*. Milano: Milano Finanza Editori.
- Pearson, K. (1901). *Principal components analysis*. The London, Edinburgh and Dublin Philosophical Magazine and Journal, 6(2), 566.
- Piccolo, D. (2000), *Statistica*. Bologna: il Mulino.
- Roncaglia, A. (2011). *La ricchezza delle idee*. Bari: Laterza.
- Samuelson, P. (2009). *Economia*. Milano: McGraw-Hill.
- Samuelson, P. A. (1938). "A note on the pure theory of consumer's behavior." *"Economica"*, 1938, 17, may 5, pp. 61–71.
- Samuelson, P. A. (1970). "The "Transformation" from Marxian "Values" to Competitive "Prices." A Process of Rejection and Replacement," in *"Proceedings of the National Academy of Sciences U.S.A"*, Vol, 67, n.1, Sep. 1970,
- Schmidt, C. (2013). *Neuroeconomia. Come le neuroscienze influenzano l'analisi economica*. Torino: Codice edizioni.
- Schumpeter, J. A. (2006). *History of Economic Analysis*. London: Routledge.
- Screpanti, E. Zamagni, S. (2004). *Profilo di storia del pensiero economico, dalle origini a Keynes*. Roma: Carocci.
- Simon, H. A. (1959). "Theories of Decision-Making in Economics and Behavioral Science," *"The American Economic Review"*, Vol. 49, No 3. (Jun., 59).
- Spitz, R. A. (1965). *The first year of life: a psychoanalytic study of normal and deviant development of object relations*. New York: International Universities Press.
- Spitz, R. A. (1965). *The first year of life: a psychoanalytic study of normal and deviant development of object relations*. New York: International Universities Press
- Varian, H. L. (1990). *Microeconomia*. Venezia: Cafoscarina.
- Walras, L. (2006). *Elementi di economia politica pura*. Milano: Milano Finanza Editori.
- Winnicott, D. W. (2005). *Playing and Reality*. London: Routledge.