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## SHIFTING BOUNDARIES IN ECONOMICS: THE INSTITUTIONAL COGNITIVE STRAND

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# **“Shifting boundaries in Economics: the Institutional Cognitive strand”**

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## **Abstract**

The paper proposes a critical interpretation of the development of *new institutional economics* and of its relationship with other economic fields. Consistently with the oil-spot dynamics model, new institutionalism can be described as an enlargement of the mainstream that, in time, seems to further expand towards heterodoxy by branching and specializing. *Institutional cognitive economics* positions itself at the borders between these two areas. With its focus on the cognitive processes underlying institutional genesis and evolution, it is the result of the integration process between the ideas of new (D.C. North’s in particular) and old institutionalism (T. Veblen’s in particular) plus the injection of F. Hayek’s theories on the link between mind and institutions. *Institutional cognitive economics* also represents an example of interdisciplinary cross-fertilization that is taking place at the border of social sciences and that might represent the future of our discipline.

# “Shifting boundaries in Economics: the Institutional Cognitive strand”

## 1. Introduction

Economic theory is an important area in the universe of social sciences. Far from being a coherent endeavor, economics can be seen as a domain composed by various theoretical blocks that develop, expand, and recombine. Recombination takes place both within the field and at its boundaries with a growing openness towards other disciplines. This process results in boundaries that are changeable and fuzzy: there are porous zones characterized by non-trivial dynamics within and across blocks.

Economics is often assigned a special role within social science. As compared with say, sociology, economics is much more attached to the idea of being a monolithic field. In line with the sociology of scientific knowledge, Davis (2008) explains this distinctive trait with the necessity of defending the autonomy of the discipline both from neighboring endeavors and from the hard sciences. The idea of having a strong consensus within the discipline would be functional to the defense of the domain from other similar communities of scholars that might invade those research areas that economics has identified as its domain. Moreover, the distinction between orthodoxy – with the attached meaning of best scientific approach – and heterodoxy – with the attached meaning of unscientific – allows economics to be seen from the outside as a somehow reliable and cohesive discipline in the ambit of policy. For what concerns the hard sciences, the divide serves the purpose of hiding the fact that economics has a plurality of views and values inspiring research and therefore that it is not as ‘pure’ as, say, physics. Hiding or minimizing value judgments that lay behind research in a domain with a strong empirical vocation is fundamental. As (the dismissal as unscientific of) a heterodoxy is needed to strengthen the “scientific” character of economics (and its orthodoxy) itself, pluralism would make value judgment simply too apparent, and thereby disrupt the image of economics as a science (Cedrine and Fontana p. 9, 2015).

In this scenario, new institutional economics (hereafter, NIE) represents a particularly interesting area. On the one side, it constitutes the most important contemporary research field dealing with institutions; on the other side, its recent developments reveal the distinctive aspects of the trend that seems to characterize current economics.

Embracing the literature that represents NIE as an enlargement of mainstream, the paper highlights the common features and the main differences with respect to mainstream and orthodox<sup>1</sup>,

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<sup>1</sup> Mainstream and orthodox are respectively defined as: “the ideas that are held by those individuals who are dominant in the leading academic institutions, organizations, and journals at any given time (Colander, Holt and Rosser 2004, 490) and “the most recently dominant ‘school of thought’, which has been long recognized as being ‘neoclassical economics’” (Colander, Holt and Rosser 2004, *ibidem*).

theory and the relationship with old-original<sup>2</sup> institutionalism<sup>3</sup>. The interplay among them allows identifying boundaries' and shifting processes among these economic areas.

The analysis relies on the *oil-spot dynamics model* (Fontana, 2010) that describes economics as a complex and evolving system characterized by expanding forces. From this angle, new institutional economics is as a widening area pivoting on the fundamental assumptions of mainstream and absorbing, by means of appropriate re-arrangements, the institutional level of economic analysis. It follows that the paper provides evidence for the noteworthy program<sup>4</sup> of rejoining old institutionalism and evolutionary economics, under the auspices of a constructive dialogue with new institutional economics.

The relationship between the various instances of institutionalism and the mainstream are further complicated by a surge of interdisciplinarity that lately has profoundly affected the traits of economics. Institutional cognitive economics, a recent research stream that originates from the integration of new institutional economics, old institutionalism and the Hayekian contributions to the theory of knowledge production, is a paradigmatic example of a novel attitude that characterizes the discipline. The disenchantment with the superpowers of mathematical modeling and the mounting dissatisfaction with the standard behavioral assumption has spurred economists to seek more reliable methods and more sound theoretical underpinnings even beyond its traditional boundaries. In this perspective, Institutional cognitive economics deepens the fruitful merge between economics and cognitive sciences inaugurated by cognitive economics. By building on the findings of cognitive economics, institutional cognitive economics gives special emphasis to psychology and to neurosciences.

The paper is organized as follows: Section 2 adopts the *oil-spot dynamics* model in order to compare new institutional economics to mainstream and orthodox economics; Section 3 extends the comparison to old original institutional economics; section 4 describes and then places institutional cognitive

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<sup>2</sup> In the paper “old institutionalism” or “old institutional economics” indicate contributions of the main representative authors of first institutional theory (end of the 19<sup>th</sup> century – first half of the 20<sup>th</sup> century, see par. 3.2. “Original institutionalism” or “original institutional economics” refer to the literature recovering the tradition of old institutionalism. The expression “old-original institutional economics”, finally encloses the previous ones.

<sup>3</sup> New Institutionalism exponents are North (1990, 1994, 2005), Stanfield (1999), Hodgson (2014) and Stoelhorst (2014).

<sup>4</sup> Such program has been defined in detail in a special issue of the *Journal of Institutional Economics*, in 2014: Hodgson, 2014; Hodgson and Stoelhorst, 2014; Ménard, 2014; Ménard and Shirley, 2014; Stoelhorst, 2014; Winter, 2014; Witt, 2014). “...NIE can learn from the original institutionalism, particularly when elaborating more dynamic analyses, and developing more nuances, psychologically grounded and empirically viable theories of human motivation.” (Hodgson, 2014, p. 591).

economics in the scenario of contemporary economics; Section 5 concludes and suggests further research questions.

## 2. The *oil-spot dynamics* model

The *oil-spot dynamics* model (Fontana, 2010) analyzes the core features and evolving forces that characterize mainstream, orthodox and heterodox economics (see Colander et al., 2004; Dequech, 2007; Davis, 2008; Cedrini and Fontana, 2015).

The oil-spot dynamics model – figure 1 - considers mainstream, as absorbing revolutionary ideas and criticisms in ways that tend to reconcile them with the orthodoxy thereby guaranteeing its survival. Overall, the process results in a progressive enlargement of mainstream's boundaries.

As hinted above, mainstream is a sociological category, in the sense that it is defined by those ideas, objectives and methods proposed and shared by individuals who hold a leading and prestigious role within the academy. On the other hand, orthodoxy and heterodoxy are intellectual categories: the former broadly correspond to the Samuelsonian/Neoclassical approach while the latter, is defined by the rejection of the orthodox pillars.<sup>5</sup> Mainstream and orthodox economics does not overlap since orthodoxy relies on the notion of equilibrium and on the rationality postulate while mainstream results in broader and eclectic area where criticism have been bolted on (e.g. bounded rationality, imperfect information etc.).

Mainstream has absorbed those ideas that are recognized as valid and has incorporated them in a compatible way. Among such new elements there are the imperfections introduced in rationality and information.

Fontana stresses the role of the narrative dimension in contributing to the definition of boundaries among economic areas. Such dimension reflects orientation of authors towards the different approaches, often irrespective of the actual content of their contributions, but according to their choices of stressing less or more the innovative or mainstream elements inside and, consequently, to their choices of being published by specific journals.

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<sup>5</sup> Definition of mainstream, orthodox and heterodox categories' boundaries and shifting processes is controversial and deeply discussed (Blaug, 2003; Colander et al., 2004; Blume and Durlauf, 2006; Davis, 2008; Fontana, 2010).

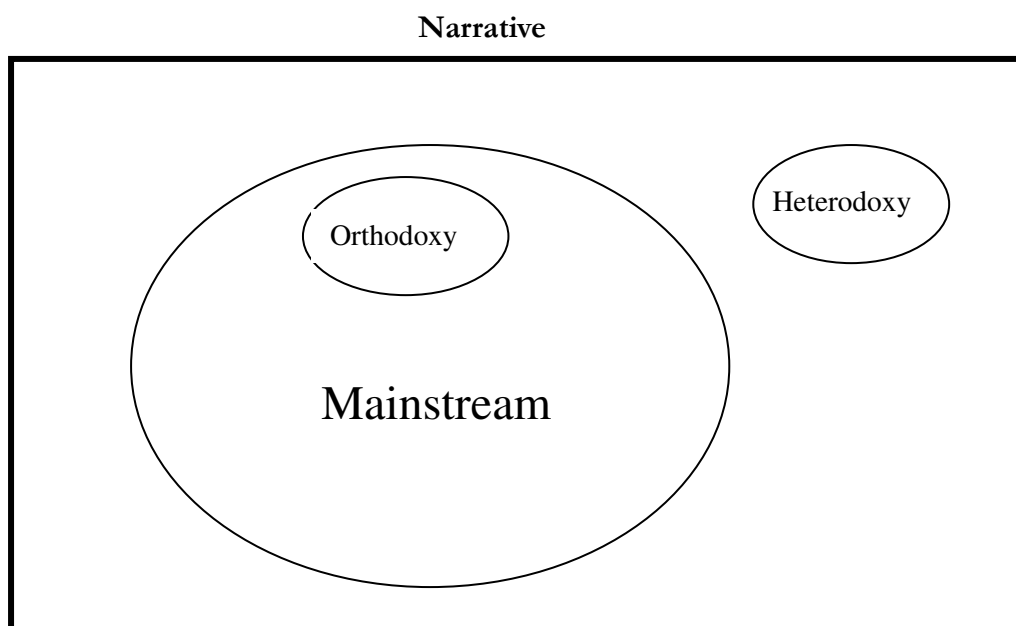


Figure 1 - Fontana's *oil-spot dynamics* model

### 3. The oil-spot dynamics

New institutional economics reinvigorates the tradition of old institutionalism by putting institutions at the core of economic analysis. However, as the literature points out, while “resurrecting” the institutional tradition, Nie also changes it by shifting it towards the orbit of mainstream neoclassical economics (Stanfield, 1999; Hodgson, 2000; Rutherford, 2001).<sup>6</sup>

#### 3.1 New institutional economics as an enlargement of mainstream theory

In the definition offered by Klein (1998, p. 1), “The New Institutional Economics (NIE) is an interdisciplinary enterprise combining economics, law, organization theory, political science, sociology, and anthropology to understand the institutions of social, political and commercial life. It borrows liberally from various social-sciences disciplines, but its primary language is economics. Its goal is to

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<sup>6</sup> The debate on the relationship between old and new institutional economics has particularly characterized the period between the end of the 20<sup>th</sup> century and the beginning of the 21<sup>th</sup> one (Klein, 1998; Rutherford, 2001; Hodgson, 2000; 2004).

explain what institutions are, how they arise, what purposes they serve, how they change, and how – if at all – they should be reformed.”

New institutional economics consolidated in the second half of the 20<sup>th</sup> century thanks to the seminal works of R. Coase, O. Williamson and D.C. North’s on governance structures and transaction costs. Generally, NIE pivots on three elements: institutions, governance structures and individuals (Williamson, 1985; 1986; 1996a; 1998a; 1999; North, 1990; 1991) whose interaction determines the development and performance of the economies. Individuals represent the link between institutions and governance structures. By devising institutions and organizational forms individuals reduce uncertainty and face the problem of scarce information. Namely governance systems should guarantee transactions from against bounded rationality, opportunism and asset specificity.<sup>7</sup>

Currently, NIE is characterized by different strands that focus of different aspects (Klein, 1998; Rutherford, 2001; Hodgson, 2004; Ménard and Shirley, 2008; Eggertsson, 2013). Such strands cover both the micro-dimension of institutional analysis, concerning governance structures the macro-dimension, i.e. the institutional environment, which includes the set of all formal and informal rules.

The micro-dimension of institutional analysis includes those streams concerning theories of firm and dealing with a series of organizations and tools that regulate exchanges (e.g. firms, public bureaucracies, non-profit organizations, long-term contracts and other contractual agreements). Related approaches are: moral-hazard agency; transaction costs economics (including vertical integration; informal agreements; franchise contracting); capabilities and competences of the firm.

The macro-dimension of institutional analysis includes those strands dealing with: legal environment and property rights; norms and social conventions; economic history and economic growth; positive political theory.

In order to locate NIE in the tripartite classification shown in figure 1., Table 1 identifies six criteria according to which explore the compatibility of NIE and mainstream economics: *economic problem; individual; context; institutions; approach; method*<sup>8</sup>. Rectangular boxes highlight the compatible elements of new institutional economics and mainstream economics while the circular box detects the analytical focus that differentiate the two fields (Klein, 1998; Rutherford, 2001; Hodgson, 2000; 2004).

In more details, in NIE the *economic problem* remains the optimal allocation of scarce resources in accordance with preference and under a budget constraint. The criticisms to the concept of Olympian rationality however, have been met by the acceptance of the Simonian concept of bounded rationality

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<sup>7</sup> Without these three assumptions, transaction processes would be drastically simplified and governance would not be necessary. Particularly, its efficiency would be guaranteed by only planning (if bounded rationality was missing); or by promises (if opportunism was missing); or, finally, by competition (if asset specificity was missing).

<sup>8</sup> The same features are also scrutinized for orthodox, mainstream economics and old-original institutionalism. See Table 1 and section 3.2.



(Pagano 1999). The acceptance of bounded rationality however posed a serious challenge to the functioning of the *oil spot dynamics* – i.e. the inclusion of “dissenting opinions” in the mainstream. While it is commonly recognized that “bounded rationality is not just some other kind of utility maximization or something close to it” (Dequech 2001, 917; North 1990, 19)<sup>9</sup>, NIE successfully attempted at recasting it in optimizing terms in order to preserve the core of the orthodoxy/mainstream: general equilibrium framework.

One of the elements that considerably takes distance from orthodoxy is the *context*. The static context of orthodox theory - characterized by perfect information, certainty and the absence of historical time – is left behind in favor of imperfect information and the relevance of historical time, especially path-dependence.

The methodological vocation covers various ranges of individualism with different degree of reductionism<sup>10</sup> assuring fully compatibility with the maximization of utility<sup>11</sup>.

Finally, while *prima facie* Nie seems to be more open to apply a *comparative institutional analysis* - which, far from measuring real outcomes with the potential ones as one would expect from general equilibrium model, takes into account the alternative actual arrangements – the prevailing method is still reductionist and deductive. Formalism (quantitative methods, econometric analyses) - though lesser than in orthodoxy and mainstream economics - is accurately preserved (Groenewegen et al., 1995; Klein, 1998; Palermo, 1999; Stanfield, 1999; Rutherford, 2001).

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<sup>9</sup> “Instead of assuming a fixed set of alternatives among which the decision-maker chooses, we may postulate a process for generating alternatives. Instead of assuming known probability distributions of outcomes, we may introduce procedures for estimating them, or we may look for strategies for dealing with uncertainty that do not assume knowledge of probabilities. Instead of assuming the maximization of a utility function, we may postulate a satisficing strategy.” (Dequech 2001, *ibidem*) Contra see (Langlois, 1986; Rizzello, 1999). According to this view Bounded rationality - though defining the cognitive limits in decision-making process - is still characterized by some important features of substantive rationality - constrains (alternatives) and objectives (profit and utility function) - such that it is still possible to adopt a maximizing behavior, within those limits.

<sup>10</sup> Harsanyi (1968), p.321, argues that social norms should not be used as basic explanatory variables but rather should be themselves explained in terms of people’s individual objective and interests.

<sup>11</sup> The reductionist method is refused by other exponents of New Institutionalism like Basu (1998) and Langlois (1986).

Not surprisingly, the introduction of institutions in the analysis represents the actual element of difference between mainstream and new institutional economics. However, the way institutions are dealt with in NIE is consistent with the mainstream approach. According to the *oil-spot dynamics*, Nie has formally accepted but substantially tamed the “heterodox” concepts that were more challenging for the status quo. This strategy has a double effect: it neutralizes the criticisms by leaving the theoretical pillars almost intact and, unintendedly, produces an enlargement of the boundaries of the mainstream. In the case of new institutionalism it also revives the old institutional tradition.

### 3.2 Institutions in Nie: the incompatibility with old-original institutional economics

Old institutionalism or institutional economics<sup>12</sup> started to develop between the end of the 19<sup>th</sup> century and the first half of the 20<sup>th</sup> century mainly through the contributions of J.R. Commons, T. Veblen, W.C. Mitchell and C. Ayres. Its birth seems particularly tied to the necessity of an economic analysis taking into account the relevance of non-economic factors, considering the importance of political and social influences in economy after the World Wars<sup>13</sup>.

In the aftermath of WWII, old institutionalism offered several seminal contributions analyzing institutional structures in an empirical and inductive way. Its relative success debouched into the famous competition with neoclassical economics, that as well know, was lost to the defenders of an evolutionary and broad tent approach to economic phenomena.

Its decline was accelerated in the second half of the 20<sup>th</sup> century, by the rise of new institutional economics (Parada, 2001; Hodgson, 2009, 2014).<sup>14</sup> Yet, old institutional economics did not vanish, rather it became the blueprint from which “original institutional economics” originated.

As shown in table 1, the differences between new institutional economics and old-original institutional economics are definitely stark. The most relevant aspect of old-original institutionalism is

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<sup>12</sup> The term was introduced by W. Hamilton in 1918, during a meeting of the American Economic Association, with the paper “The Institutional Approach to Economic theory” (Hodgson, 2000; Rutherford, 2001; Ambrosino, 2012).

<sup>13</sup> In this sense, the empirical and inductive method<sup>13</sup> was the most appropriate for application (Klein, 1990; Alston and Vaughan, 1993; Klein, 1998; Rutherford, 2001; Volchik, 2011).

<sup>14</sup> Parada (2001) summarized the factors of the decline: the high formalism which prevailed in economic theory at that time and which makes Nie more favored as well as the more conservative political approach which influenced economic theory; finally, the sterility of the current original institutionalism which did not add significant economic reflections to the first relevant contributions of the founders.

the centrality of evolution in the social and economic system<sup>15</sup> (Groenewegen et al., 1995; Stanfield, 1999; Hodgson, 2009).

Individual - far from being the “lighting calculator” of orthodox theory - is strongly tied to the context and to the institutions of the society he/her is living in. Adopting Hodgson’s definition (2000), individual is “institutionalized”. Hodgson (2009) underlines the relevant role of “shared conventions, rules, routines and norms” in processing information: this is the process of *enculturation* which makes it possible to filter external stimuli and which is at the basis of individual rationality in old-original institutional economics.

Old-original institutional economics stresses the interdependence between individuals and institutions. There is an upward and downward causal link: individuals create and change institutions; institutions mold and constrain individuals, conditioning their ideas and choices (Hodgson, 2000; 2009; Ambrosino, 2012).

Such considerations make institutions - *paradoxically* - the most important element of contrast between old-original and new institutional economics. While new institutional economics considers institutions as devices that individuals use in order to simplify the environment, in Old-original institutional economics institutions are more than mere tools (Hayek, 1952; 1998a; 1998b). They are “habits of thought”, reflecting “generally accepted ways of thinking and behaving” (Rutherford, 2001).

Moreover, new institutional economics concentrates on defining the institutes as restrictions while in old institutional economics focuses on institutes as “factors of agents informative ability” (Volchik, 2011, p. 25).

Old institutionalism – and, most of all, Veblen – takes into account the link between mind mechanisms and the genesis and evolution of institutional norms. In addition, Commons defines them as the reflection of individual action power that is strongly influenced by cultural and cognitive and that in time reveals the cumulative and path-dependent character typical of evolutionary processes (Volchik, 2011; Ambrosino, 2012).

Such concept of institutions reverberates in methods. Original institutional economics refuses the deductive and highly formal approach of orthodox and mainstream economics and adopts an empirical inductive comparative method. The latter consists in the collection of information and in the description of field studies, interpreted through pattern modeling techniques that are “an effort to bring into focus relationships or connections that are not evident in the conventional comprehension of the lived-world.” (Stanfield, 1999, pp. 236-7). This implies the multidisciplinary characteristic of original institutionalism (Groenewegen et al., 1995; Klein, 1998; Stanfield, 1999; Rutherford, 2001).

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<sup>15</sup> D.C. North constitutes an important exception to this general statement. We will return on the topic in section 4.1.

The approach is holistic (Groenewegen et al, 1995; Fontana, 1998; Klein, 1998). “In NIE analysis, institutions are derived from individual behavior through interaction among individuals. ...OIE always underlines the role that habits, norms and institutions play in directing human behavior, without discarding some rationality in individual behavior but constrained by the social and economic environment.” (Parada, 2002, p. 3).

Table 1 – Focuses of analyses of the main economic fields

AREAS FOCUS OF ANALYSIS	ORTHODOX ECONOMICS	MAINSTREAM ECONOMICS	NEW INSTITUTIONAL ECONOMICS	OLD-ORIGINAL INSTITUTIONAL ECONOMICS
<b>ECONOMIC PROBLEM</b>	optimal allocation of scarce and given resources with defined budget constraints;	optimal allocation of scarce and given resources with defined budget constraints;	optimal allocation of scarce and given resources with defined budget constraints;	continuous and evolutionary social, institutional and technological process modifying preferences and resources in time (endogenous character of economic facts);
<b>INDIVIDUAL</b>	well-defined preferences; Olympian rationality; opportunist behavior;	well-defined preferences: bounded but not procedural rationality; opportunistic behavior;	preferences formation process is recognized as endogenous, but it is not included in the analysis; bounded rationality; opportunist behavior;	“institutionalized individuals” with heterogeneous variable preferences and choices conditioned on the social and historical evolutionary process; bounded rationality;
<b>CONTEXT</b>	static context; perfect information; no historical time; certainty;	imperfections on information; uncertainty; introduction of historical time	imperfections on information; uncertainty; introduction of historical time	dynamic, interdependent and uncertain context; historical time;
<b>INSTITUTIONS</b>	absent: Paretian efficiency explains allocation dynamics;	absent: Paretian efficiency explains allocation dynamics;	institutions and governance structures are devices for reducing transactions costs; efficiency rationale; they are mere variables;	institutions as “habits of thought” and not mere devices: reciprocal causation bond with individuals; cultural and historical evolution;

<b>APPROACH</b>	strict individualism; optimal individual choice model; utility maximization; general equilibrium framework;	strict individualism; optimal individual choice model; utility maximization; general equilibrium framework;	strict individualism; optimal individual choice model; utility maximization; general equilibrium framework;	holistic or collectivistic approach;
<b>METHOD</b>	reductive - deductive method: high formalism;	reductive - deductive method; high formalism; econometric techniques	comparative institutional analysis, but (actually) reductive – deductive method; formalism (but less than orthodoxy and mainstream); multidisciplinary method; econometric techniques;	comparative – inductive method (case studies and pattern modeling); descriptive analysis of quantitative information; social change, power and cultural elements as part of the analysis; multidisciplinary method; anti-formalism;

**4. Between old and new institutionalism: *institutional cognitive economics***

As an enlargement of mainstream theory, new institutional economics is in strong disagreement with the tenets of old-original institutionalism. However, it can be thought of as integration between the two.

**4.1 Origins and main features**

The Institutional cognitive approach to economics adopts an evolutionary concept of economic processes that derives from old institutionalism and from the works of F. Hayek (Rizzello and Turvani, 2000; Ambrosino, 2005; 2012).

Economic processes are strongly conditioned by institutional norms that structure and regulate individual and social action. The concept of institution derives from Hayek's theory (Hayek, 1952; 1998a; 1998b; see also Fontana, 2012) on the link between mind and institutions. Institutional norm is conceived as the result of an enactive, evolutionary process that starts from the production of knowledge and ends with the production of a behavioral pattern which - if adopted by the social group - becomes a consolidated norm (at formal or informal level). Such process is mold by cultural dimension and social interaction. Therefore, individuals and institutions are reciprocally connected. Institutions reflect perception mechanisms and knowledge of individuals and, at the same time, they work as social grids directing and constraining individual behavior.

In Hayek's theory, institutions solve the problem of understanding how knowledge is produced and distributed (Hayek, 1945) - and are related to subjectivism, according to which "explanation in the social sciences consists in tracing social phenomena back to the perceptions and intentions of the agents those phenomena comprise" (Langlois, 1985, p. 493).

The link between mind and institutions had been already seen by old institutionalism and particularly stressed in Veblen's works, as explained in section 3.2. However, while Veblen considers only the social level, Hayek makes a step forward by setting forth the cognitive roots of institutional genesis and evolution and, in so doing, he shifts the analysis from the social to the individual level (Ambrosino, 2012).

Putting at the center of analysis the production of individual knowledge and its role on socio-institutional mechanisms, institutional cognitive economics integrates a holistic approach with individual analysis<sup>16</sup> and connects to the general framework of cognitive economics.

As for the rationality of individual, in accordance with cognitive economics (Egidi and Rizzello 2004), institutional cognitive economics adopts the Simonian notion of *procedural rationality* (Langlois, 1986).

While the main theoretical roots of institutional cognitive approach have been traced by the old institutionalism and by the Hayekian theories, a relevant contribution derives from part of the new institutional economics (Ambrosino, 2012).

North explicitly recognizes the fundamental link between institutions and mind mechanisms, maintaining that mental models are the internal representations that mind builds to interpret the environment, while institutions are the corresponding external mechanisms that are created to structure it (North, 1990; 1994; 1996; 2003; 2005; North et al., 1993; 2004; 2006; Bronk, 2009). It is worth noting that North leaves behind his original maximizing and deductive approach that included institutions as

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<sup>16</sup> Rutherford (1996)

mere variables and that was in full agreement with mainstream economics (Rutherford, 2001, p. 188).

He adopts an evolutionary model of economic system, which takes into account the central role of culture, ideas and ideologies on institutional genesis and evolution mechanisms (Groenewegen et al., 1995; Hodgson, 2009).

The main boundaries and exchange processes among institutional cognitive approach and the fields it draws on, are represented in the spirit of the oil-spot dynamics model - figure 2.

Figure 2 – Institutional cognitive economics’ boundaries and placement

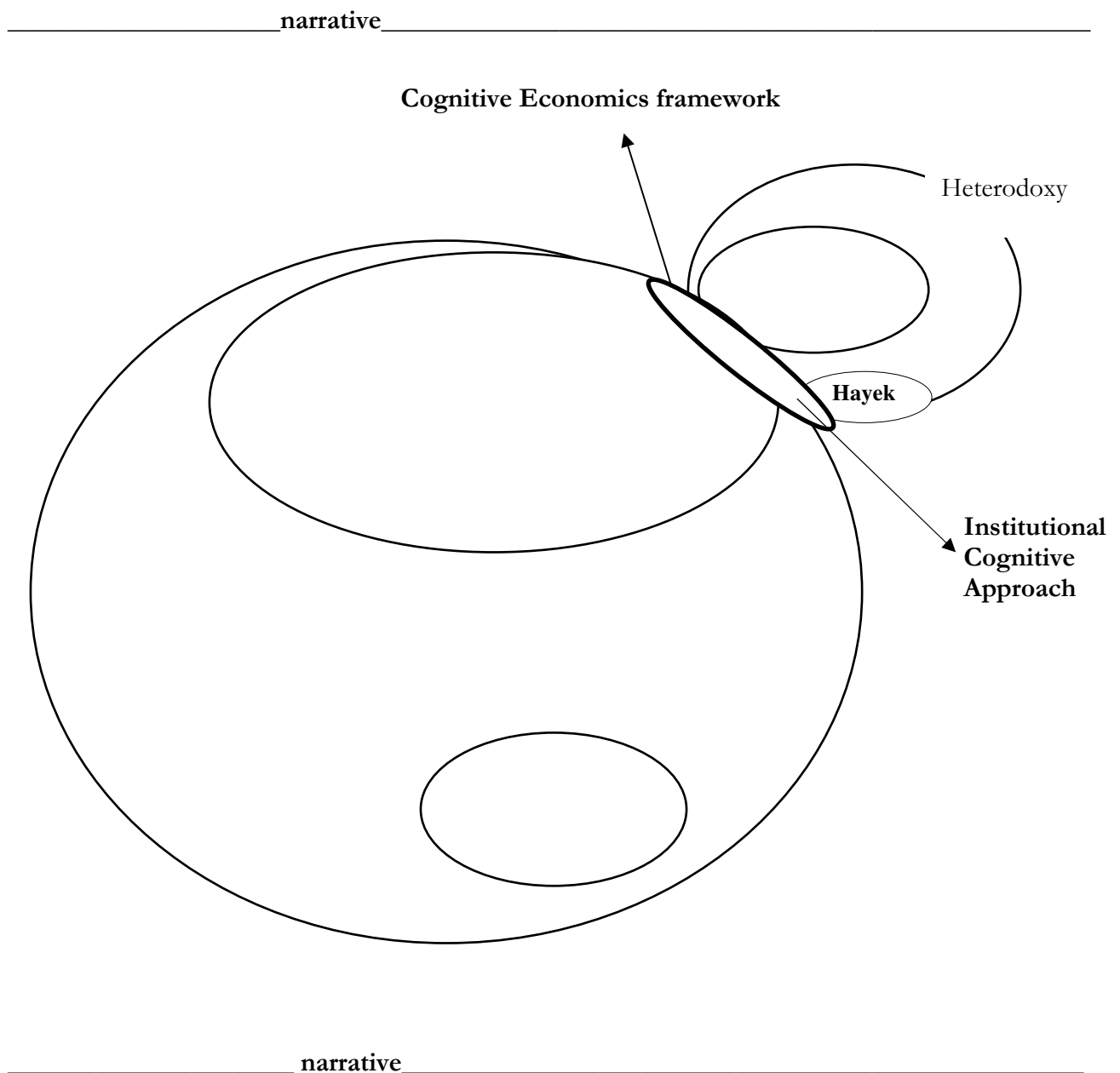




Table 2. synthetizes the main analytical focuses of Institutional Cognitive economics. In old institutionalism, the link between mind and institutions has been well defined by Veblen's: institutions – named “habits of thought” – in that mental regularities give rise to behavioral patterns socially adopted and to norms (Ambrosino, 2012).

The context reflects the evolutionary concept of economic and social process: as in the original institutional analysis it is defined by strong interdependency and dynamism (Tabb, 1999; Hodgson, 2000; Ambrosino, 2012).

Taking into account the extremely recent development of institutional cognitive economics the table should not be considered a complete chart, particularly for what concerns methods.

The paper agrees with the view that supports the comparative method which, based on field studies, leads to an “ethnographic record” – the summation of the “activities, the rules, and the applicable understanding or cultural underpinnings that comprise human behavior unfolding in an institutional context” – and to its interpretation (Stanfield, 1999). Towards this aim, Stanfield recommended to build on Hayek's and North's contributions.

Institutional cognitive economics has to adopt the same suggested method. However, an integration among old (and Original), new institutionalism and Hayek's theory of the mind is only the first step in the development of institutional cognitive economics.

Hayek and Veblen are undoubtedly the forerunner of the cognitive analysis in institutional economics. Hayek, particularly, develops Veblen's seminal insights (Ambrosino, 2012). Such theory however is not exhaustive and reveals some drawbacks that have to be overcome. Particularly, it needs to be integrated with new analytical tools and methods coming from cognitive sciences. The same concerns also North's thoughts. The explicit recognition of Hayek's influence (North, 2005) does not result in its systematic inclusion in North's theoretical building, nor is the claim that mental models play a relevant role in the genesis and evolution of institutions is adequately corroborated. The task will probably constitute the future research agenda for institutional cognitive economics.

Table 2 – Institutional cognitive economics' focuses of analysis

<b>AREAS</b>	<b>INSTITUTIONAL COGNITIVE ECONOMICS</b>
<b>FOCUS OF ANALYSIS</b>	

<b>ECONOMIC PROBLEM</b>	Dynamic and evolutionary process dependent on individual knowledge production process regulating decisional mechanisms and on social interaction; it is mediated by cultural dimension;
<b>INDIVIDUAL</b>	“institutionalized individual” whose preferences and choices strictly depend on the social and historical evolutionary process; reciprocal link with institutions at cognitive level; individuals are heterogeneous;
<b>CONTEXT</b>	dynamic, interdependent and uncertain context; historical time;
<b>INSTITUTIONS</b>	institutions as “habits of thought” and not mere devices: reciprocal causation bond with individuals; cultural and historical evolution;
<b>APPROACH</b>	the holistic approach is not abandoned but it is integrated by individual analysis investigating mind processes and knowledge production mechanisms intervening in institutional genesis and evolution mechanisms;
<b>METHOD</b>	comparative–inductive method; ethnographic record construction; multidisciplinary method; cognitive sciences analytical and experimental tools <b>(in progress)</b>

## 4.2 The investigation of cognitive processes and the role of psychology

The processes that regulate boundaries among the areas of economic theory are also affected by the exchanges between economics and psychology. Such mechanisms have produced in time two approaches: the behavioral and the cognitive approach to economics.

Institutional cognitive economics locates itself within cognitive economics (as partly explained in the previous paragraph) and distances itself from the behavioral stream.

Relevant differences exist between cognitive and behavioral economics in spite of their common

origin (Spada, 2010). Both originated from the criticisms to orthodox economic theory in the 50s of the 20<sup>th</sup> century (Simon 1947; Katona 1951; Allais 1953) represent the main references in this sense. They stressed the cognitive limits of individual against the orthodox substantive rationality; the fundamental role of perceptive mechanisms and expectations; the importance of empirical and experimental method. However, while cognitive economics – developed in the 90s of the 20<sup>th</sup> century - fully adopted such criticisms and developed an autonomous stream of analysis, behavioral economics - developed in the 80s of the 20<sup>th</sup> century – absorbed only those elements compatible with mainstream theory and, particularly, with the maximization approach. Spada distinguishes among three different periods in behavioral economics: the *old* one (50s - 70s), characterized by a strong rejection of the maximization approach; the *transaction* one (70s - 80s) characterized by a closer approach to mainstream economics; the *new* one (in the 90s), where a complete compatibility with mainstream economics is affirmed.

Spada finds relevant similarities in the role played by psychology in old institutional economics, old behavioral economics and cognitive economics. Early institutional economics (end of the 19<sup>th</sup> century - beginning of the 20<sup>th</sup> century) draws on the *instinct theory* of James, McDougall and Morgan and on the concept of *habit* expressed by Durkheim and Weber (Ambrosino, 2012). Habits were described as behavioral regularities intervening on nervous system development - on the one side - and on the genesis of institutional norms – on the other. Veblen used idiosyncratically the concepts of *instinct* and *habit*. He defined instincts as individual innate tendencies and habits as rules of action, through which individuals organize the external context and that are at the basis of institutional norms. In his view, instincts and habits are interdependent, but the latter are more resistant to change.

Table 3 summarizes the principal theoretical roots of old institutionalism, old behavioral, cognitive and institutional cognitive economics. Their development defines a path, which gradually – from old institutionalism to institutional cognitive economics – is characterized by a progressive and more complex use of psychology and the adoption of appropriate tools and methods in economic analysis.

Table 3 – Psychology and economics - the placement of institutional cognitive economics

	PRINCIPAL THEORETICAL ROOTS	THE DEVELOPMENT OF ANALYSIS
<p><u>First</u>  <b>OLD INSTITUTIONAL ECONOMICS</b>                      (between the end of the 19<sup>th</sup> century and the beginning of the 20<sup>th</sup> century)</p>	<p><i>Instinct</i> theory (W.James, W.McDougall, L.Morgan);                      Concept of <i>habit</i> (É.Durkheim and M. Weber work);</p>	<p><i>idiosyncratic use of instinct and habit concepts (Veblen);</i>  <i>psychology as a science including introspective analysis;</i></p> <p style="text-align: center;">↓</p>
<p><u>Old</u>  <b>BEHAVIORAL ECONOMICS</b>                      (50s-70s of the 20th century)</p>	<p>Carnegie Mellon School;                      Universities of Michigan, Oxford, Stirling (limited rationality, uncertainty);                      H.Simon’s and G. Katona’s works;</p>	<p><i>limited and procedural rationality;</i>  <i>satisficing, not optimizing approach;</i>  <i>incompatibility with mainstream theory;</i></p> <p style="text-align: center;">↓</p>
<p><b>COGNITIVE ECONOMICS</b>                      (90s of the 20th century)                      and  <b>INSTITUTIONAL COGNITIVE APPROACH</b></p>	<p>Oxford and Stirling Universities (uncertainty, knowledge);                      H.Simon, G..Katona, F.Hayek;                      C.Menger, T.Veblen, J.Commons;                      Cognitive sciences (Cognitive Psychology, Neurobiology, Mind Philosophy);</p>	<p><i>limited and procedural rationality;</i>  <i>satisficing, not optimizing approach;</i>  <i>incompatibility with mainstream theory;</i>  <i>empirical and experimental methods; use of simulations;</i>  <i>analytical tools derived from</i>  <b><i>cognitive sciences (social psychology, cognitive psychology, neuroscience, etc..)</i></b></p>

## 5. Concluding remarks

New institutional economics analyzes the institutional arrangements meaning, on the one side, the set of the social, political and juridical norms regulating production, trade and distribution, and, on the other side, the mechanisms governing relations among economic units, i.e. transactions (Rutherford, 2001).

Through the lens of *oil-spot dynamics* model, the paper describes new institutional economics as a research field that expands mainstream economics. In fact, while introducing institutions in economic analyses, Nie safeguards the fundamental theoretical pillars of the mainstream - particularly, the general equilibrium framework and the maximization approach. Institutions are introduced as mere variables: they are devices that reduce transaction costs and uncertainty.

Incompatibilities with old-original institutional economics are evident. The most relevant element of inconsistency is paradoxically the same feature that, apparently, unites them: institutions. On the contrary, original institutional economics - particularly, Veblen - considers institutions as *habits of thought*, shedding light on the cognitive link between individuals and institutional norms.

A part of the new institutional economics - and, particularly, some contributions of Douglass North - however, pick up the cognitive level of institutional economic analysis and continue the old institutionalism's tradition.

Institutional cognitive economics is currently developing at the borders among new and old institutional economics. In its perspective, economic process coincides with institutional and social evolution, where the concept of evolution does not imply improvement (Ambrosino, 2012).

Institutional cognitive economics however is still in its infancy. In order strengthen, it has to go beyond the mere integration among old and new institutionalism and the Hayekian theory. It has to acquire the analytical tools that allow the development of a scientific field. Modern cognitive sciences - particularly, cognitive and social psychology and neuroscience - can play a central role to this aim. Significant examples of similar enterprises are provided by the recent opening to the cognitive approach of *law and economics* (Ambrosino and Biancone, 2013; Ambrosino, 2014) and of *game theory* in the analysis of institutions (Schelling, 1960; Hargreaves and Varfoufakis, 1995; Ambrosino, 2013).

The former, starting from Mitchell's (2002; 2003) defines a cognitive legal theory based on the individual and social perception of legal systems.<sup>17</sup> As for the analysis of institutions in game theory,

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<sup>17</sup> Cognitive legal theory obviously overlaps with institutional cognitive economics. The definition of the precise border between the two falls beyond the scope of this paper, that only stresses the potential for cross-fertilization.

Schelling's theoretical and empirical approach (1960) takes into account and encompasses some elements of cognition in social interaction through *focal points* that work as “clues” that coordinate agents' decisions. The process whereby players, in coordination games, mutually perceive focal points seems to be the same originating institutional norms.

In the wake of a growing interest in the cognitive and psychological features of economic processes, the paper defines the role and highlights the potentialities of institutional cognitive economics by revealing its precursors and its keens. It also corroborates the idea that a fruitful development strongly depends on the integration of old institutionalism, evolutionary economics and new institutionalism (Hodgson, 2014; Hodgson and Stoelhorst, 2014).

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