

URBAN GEOGRAPHIES IN CREATIVITY-LED ECONOMIES. EVIDENCE FROM THE ITALIAN CASE

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**ABSTRACT**

Though creativity is increasingly becoming an issue for consideration in economic literature beside the more usual topic of innovation, doubts arise about the ability of mainstream economics to cope with it as an analytically well-defined notion. Looking at it from a merely epiphenomenal point of view or reducing it to ideation are currently the ways economics deals with it, according to the dichotomy Schumpeter established a century ago between the ideational and the implementational phases within the process of innovation. The starting point of this paper is that this situation is basically an expression of the underlying compliance of economics with the neo-positivist paradigm and, conversely, its tardiness if not inability to take part in the ‘interpretive/hermeneutic turn’ which has involved all the other social sciences in recent decades. The paper suggests that this ambiguous condition of ‘creativity’ offers an extraordinary opportunity for delving into the potentialities of a hermeneutic approach to economics. Through providing that term with a proper analytical status in relation to the ideation/innovation pairing, such an approach makes it possible to get fruitful perspectives on the entire knowledge-innovation chain, with foreseeable implications on the normative side. Having set up a suitable theoretical frame, the paper carries out an empirical exercise to test the heuristic potential of the proposed approach, with reference to the Italian creative sector, and especially its sensitiveness to Marshallian and Jacobsian agglomeration economies.

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## 1. Introduction

The assertion that innovation is the driving force of economic development has become pervasive within the economic literature. Viewed retrospectively, it represents the revenge of Schumpeter over Keynes, after this latter had successfully upstaged the former. Apart from the decisive role the 1929 crisis had in choosing the early winner<sup>3</sup>, the times were actually not ripe for the Schumpeterian message to be acknowledged. The Fordist paradigm had not yet fully deployed its potentialities in that, though it was substantially dependent on technological innovation, it still enjoyed large margins for extensive growth, thanks to the dominant role of scale economies (Jessop, 1993) and the relatively low and steady cost of energy: it is not by accident that the term ‘innovation’ does not appear in the *General Theory of Employment, Interest, and Money*.

The Schumpeterian message on ‘development through innovation’ did not vanish however, but continued to flow as an underground river throughout the “Glorious Thirties”, to re-emerge livelily in the Seventies, with the sudden demise of the Keynesianism-Fordism pair: so livelily as to induce some scholars to speak about a “Schumpeterian Renaissance” (Rosenberg, 1986; Andersen et al., 2006; Freeman, 2007; McCraw, 2007). It is precisely since this re-emergence that the issue of innovation has achieved the central place it presently enjoys in the theoretical debate on economic development, as well as within related praxes and policies (Hanusch, Pyka, 2007). Studies proliferated from then on, not only on the already established subjects of innovation ‘production’ and diffusion, but also on the more intriguing subject of how to shape attitudes and aptitudes towards innovation.

In this connection, this paper’s basic hypothesis is that mainstream economics is ill-equipped to cope with this subject owing to its persistent compliance with logical-positivism, according to which only empirically testable assertions and their logical derivatives belong to the scientific domain. A clear-cut distinction was thus established between the *context of discovery* and the *context of justification* (Garbolino, 2015) and the former was relegated to a position outside the scientific domain. By transferring this divide into economic analysis, Schumpeter (1934[1911]) set up an unequivocal distinction between the phases of ideation and innovation, on the presupposition that only the latter is susceptible to empirical enquiry, and put them into the hands of distinct agents, respectively the inventor and the entrepreneur<sup>4</sup>, and eventually gave the whole process of innovation a linear configuration.

However, a ‘third wheel’ – creativity – has silently entered the scene since then. The celebrated expression “creative destruction” is actually Schumpeter’s, to which he dedicated the seventh chapter of *Capitalism, Socialism and Democracy* (1942), without however providing ‘creativity’ with any analytical content. Staunch neo-positivist as he was, he disregarded its nature completely, looking only at its observable outcomes – innovation – according to a sort of renewed “*Hypotheses non fingo*” (“I frame no hypotheses”). But whilst Newton could utter such a sentence since he had no intention and, even before, no possibility of coping with gravity per se, but only (and possibly) with its noticeable effects, the same cannot be maintained as regards creativity because of its artificial nature. To discuss its constituent causes and ways of working is consequently reasonable and also expedient, especially when, like nowadays, providing the innovative process *as a whole* with rising effectiveness is increasingly becoming a matter of concern (one for all, Rickards et al., 2009).

It is precisely for this reason that creativity is an intriguing guest in the dominant approach to innovation: drawing essentially on Schumpeter, it has no firm analytical base, while pressures from company praxes increasingly reveal the need for “framing hypotheses” about its nature and ways of working. No surprise therefore if more or less declared followers of Schumpeter seek a compromise between complying with neo-positivist canons on the one hand, and integrating creativity into examination of the innovative process on

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<sup>3</sup> After the launch of the ‘New Deal’, the unemployment rate in the U.S. fell from 24.9 to 9.9 % of the Civilian Labor Force between 1933 and 1941. In 1944 it reached its historical minimum since 1907, at 1.2 % (Lebergott, 1957), but this figure could have been affected by the U.S.’s entry into the Second World War.

<sup>4</sup> Whereas a third figure, the manager, is tasked with implementing innovations.

the other. The results are not very exciting however, because of intrinsic resistance to what is seen as a drift towards metaphysics, so that creativity is variously *reduced* to ideation, which most authors do (for example, Belussi, Staber, 2011), to the quality of outcomes (for example, Amabile, 1996<sup>5</sup>) or, more cleverly, to the passions which move entrepreneurship (for example, Kirzner, 1999): subjects which all lie outside the empirical domain, thus exempting economists from wholly recognising the specificity of ‘creativity’ and integrating it into their analytical schemata.

We are thus facing a dilemma between remaining fully compliant with neo-positivist canons, on the one hand, without however being able to cope with creativity (and not reduced or trivialised portrayals of it), and taking it seriously into account, on the other, though transgressing the basic rule of ‘scientific method’, which forbids dealing with metaphysical/pre-analytical subjects. In this connection, the *construens* side of our basic hypothesis takes shape, in that the dilemma appears as such only from within the neo-positivist stance itself, while important room appears for coping analytically with creativity without transgressing the rules of scientific method by taking a lateral (which does not mean ‘opposite’) approach with respect to it. While acknowledging the indisputable worth of neo-positivism from having established a consistent methodological foundation for science, the proposed approach starts by recognising its paradoxical lack of ultimate epistemological foundation: as post-modern criticism suggests (for example, von Glasersfeld, 1984), the crucial tool neo-positivism devises to challenge the truthfulness of assertions – empirical testing – is itself too permeated by ideational/pre-analytical contents (tests have themselves to be ideated too!), so that what neo-positivism throws out of the door – ideation, along with its metaphysical legacy – inevitably comes back in through the window.

Among recent post-modern developments, the ‘interpretive/hermeneutic turn’ (Hiley et al., 1991) points the way to a suitable means for carrying out the task outlined above. Unlike most radical post-modernism, which confronts neo-positivism by mocking at its naiveties, thus leading to nihilism and ethical unresponsiveness, a hermeneutic approach knowingly rests on a deep sense of ethical responsiveness (Habermas, 1973; Ricoeur, 2004). While admitting that the human condition is anyway characterised by naiveties – the foremost of which is the presumption of having at its disposal *the* reliable criterion for approaching truth (Madison, 1990) – it suggests that an expedient solution for *living together in a satisfactory but dignified way* is to do our best constantly to identify our naiveties, while remaining aware that this is a mission which is impossible to carry out completely. Thus *exploration* within (rather than into) the anyhow contingent and naive ways humans devise to shed light on reality, rather than *explanation* according to a supposed quasi-truthful interpretative code, becomes central, which brings the issue of ideation fully into the domain of scientific concern.

The general aim of this paper hence becomes that of *exploring* consequences which ensue from taking a hermeneutic view of the process of innovation as a whole: firstly, consequences on the epistemological plane, mainly by considering the surprising fact that the interpretive turn has involved all the social sciences except economics (Lavoie, 1990; Cusinato, 2015); secondly, consequences on the methodological and normative planes. The paper is organised as follows. The next section will carry out a reassessment of the Schumpeterian approach to innovation, to highlight how the division it establishes between the ideational and strictly innovative phases is more consistent with an *a priori* epistemological option than an analytical concern and, even less, with entrepreneurial praxis. The reappraisal will make it possible to provide creativity with an analytical content. This subject will be specifically dealt with in section 3, by enquiring about the implications of a hermeneutic approach for the notions and praxes of knowledge and creativity, the most significant of which is that hermeneutics proves to be the main way towards creativity governance. To assess the heuristic power and methodological implications of this approach, an empirical exercise will be carried out in section 4, with reference to those economic activities which cope best with creativity, i.e. “Knowledge-creating services”. After demonstrating that they can be classified according to their attitudes to

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<sup>5</sup> “Creativity can be regarded as the quality of products or responses judged to be creative by appropriate observers, and it can also be regarded as the process by which something so judged is produced” (p. 33).

and capacities for hermeneutic practices – i.e. creativity governance –, the investigation will assess the suitability of the proposed approach by outlining their geography/ies and discussing their location rationales, especially in relation to their responsiveness to Marshallian and/or Jacobsian agglomeration economies, the working of cumulative effects and related regional divergences. The final section will draw conclusions and directions for policies.

## 2. Innovation and creativity: towards a hermeneutic perspective

Schumpeter (1934[1911]) defined innovation as the entrepreneur's decision to implement inventions. Apparently to achieve an analytical isolation of the entrepreneur's role from those of inventors and managers, he distinguished between the phases of ideation, the decision to innovate, and implementation. Irrespective of the fact that the three phases may actually depend on the same individual, the idea thus became dominant that the ideational phase lies within the individual inventor's mind or well-established routines in R&D departments, both of which work according to a sort of psycho-technical production function<sup>6</sup>, the care of which is left to individual genius and/or technical management. As for innovation, it is up to the solitary, heroic entrepreneur (Schumpeter Mark 1) or collective boards within big companies (Schumpeter Mark 2).

A bijective relationship was thus established between these two characters and their roles, without any possible analytical overlapping, which Schumpeter (1934[1911]; 1954) ascribed to earlier economists<sup>7</sup>. There can certainly be no objection to the analytical clarity, but it was precisely because of this that the third guest announced above – creativity – came into play. Except for saying that “he [the Man of Action] takes pleasure in a social power position and creating” (Schumpeter, 1911; quoted in Swedberg, 2007, p. 8) and for coining the celebrated expression “creative destruction” (Schumpeter, 2013[1942]), he did not define ‘creativity’ at all, which is an intriguing fact when we consider his resolute insistence on analysis. It is however possible to infer its content indirectly by quoting his assertion that “the carrying out of new combinations we call ‘enterprise’; the individuals whose function is to carry them out we call ‘entrepreneurs’” (Schumpeter, 1934[1911], p. 74). In this view, ‘creativity’ connotes the aptitude for combining existing entities in new ways, and (we deduce) it is ultimately this kind of aptitude that makes the difference between the inventor and the entrepreneur: while the former combines only technical/aesthetical entities, the latter combines the inventor's results with economic entities, essentially prices<sup>8</sup>.

Such a crystalline depiction only holds, however, within a parametric context, where prices and consumer preferences are independent of the entrepreneur's decisions to innovate. Otherwise, a strategic condition takes shape, because the entrepreneur's moves affect preferences and, consequently, prices, so that he also has to cope with them to know future prices and possibly set them, as Schumpeter himself asserted:

Innovations in the economic system do not as a rule take place in such a way that first new wants arise spontaneously in consumers [thus causing changes in prices; A/N] and the productive apparatus swings round through their pressure. We do not deny the presence of this nexus. It is, however, the producer who as a rule initiates economic change, and consumers are educated by him, if necessary. (Schumpeter, 1934[1911], p. 65).

It follows that, inasmuch as ‘educating consumers’ and, more comprehensively, interacting with mind-sets is a key factor for success<sup>9</sup> – economic success, here –, any decision the entrepreneur may take or even only announce affects stakeholders' mind-sets, so that he has to cope with a peculiar array of ‘combinations’.

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<sup>6</sup> This view became so common as to induce scholars to estimate the innovation production function. For example, Griliches (1979).

<sup>7</sup> For a critical review, see Swedberg (2007).

<sup>8</sup> As Kirzner (1999), drawing on von Mises, stated by writing that the “pure entrepreneurial activity [is] the perception (and thus the inevitable grasping) of a divergence between two prices at which the ‘same’ item could be bought and sold” (p. 11).

<sup>9</sup> In Ward's (2004) words, “Successful ideas are often a balance between novelty and familiarity” (p. 173), which are both elements belonging to the psychological domain.

In this connection, the meso-economic dimension<sup>10</sup> comes quite into play, beside the micro-economic one which Schumpeter and the neo-Schumpeterians box entrepreneurship in (Dopfer, 2006), whose path-dependent and complex nature ensures that the entrepreneur has no possibility to task anybody else (for instance, the marketing department) with this kind of combinatory work. This enables us to maintain that, *within a strategic condition*, the entrepreneur *must* also be an inventor to be a “Man of Action”. No clear-cut distinction can consequently be analytically made between the ideational, the decisional and the implementational phases<sup>11</sup>, and the entire process of innovation appears as spiralfirm rather than linear, like any genuine pragmatism process.

It is precisely in this connection – inside which Schumpeter tailored the entrepreneurial character according to a parametric world, while clearly admitting, in the same pages, that the real world does not work in such a way – that it becomes possible to provide the notion of creativity with an analytical status, thus distinguishing it from: (a) the empiricism of those who identify it with the (visible) new combination of existing ideas, without however questioning how this combination actually occurs (for example, Amabile, 1996); (b) the psychologism of others, who associate it with the entrepreneur’s talents (perceptiveness, boldness and self-confidence) which enable him to upset any tendency towards equilibrium (Schumpeter) or, more softly, to notice price-differentials sooner than others (Kirzner, 1999, p. 12)<sup>12</sup>; or (c) the reductionism of those other who identify creativity with ideation (for example, Belussi, Staber, 2011).

By looking at it from the proposed pragmatism prospect, *creativity* rather denotes the aptitude/attitude towards the ‘governance’ of the intertwined, evolving process of ideation-innovation-implementation, whatever its starting point and direction. Within this depiction, the inventor appears as an exogenous, important but not indispensable source of potentially profitable ideas, whereas the solitary entrepreneur or the strategic-management board in big companies *essentially* act as both inventors and innovators, i.e. conclusively, as *masters of creative processes*.

It is also worth noting that, in the same perspective, creativity:

- a) appears as a “distributed” process (Miettinen, 2006), for the reason that it essentially takes place at the meso dimension;
- b) inasmuch as its governance, rather than merely enhancement, becomes crucial, metaphysical/pre-analytical issues come inevitably into play, like those belonging to the psychological and emotional spheres (Cusinato, 2015). Though this means trespassing over the boundaries that logical-positivism firmly established to scientific enquiry, it seems that the epistemological and, more widely, cultural conditions have ultimately allowed us to look at *trans-gressions* of those boundaries as opportunities rather than threats. While unreservedly acknowledging that (neo-)positivism has the merit of having established *the* appropriate method for science, it now appears possible to admit that it no longer has to make much effort to counter the risk of metaphysical intrusions (which he ascribed to ancient science), since the adoption of a secular stance (at least in scientific affairs) has now become a widespread and pacifically exercised condition.

So, while maintaining that logical positivism still provides the main path to science, it seems appropriate cautiously to relax its rules by allowing ‘knowers’ to take into consideration also plausible, rather than only testable assertions. This constitutes a twofold good service to knowledge in general, rather than just science: first, by reconnecting the context of innovation to the context of exploration – “where the terrain of exploration is *the mind itself*” (Boden, 1993, p. 59; original emphasis) – even before that of discovery, makes it possible to devise the process of innovation as a whole, that is to cope with creativity; second, it allows neo-positivism to acknowledge that it is itself not completely free from pre-analytical traps, mainly because

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<sup>10</sup> As Powell (1990) maintains, the meso-dimension corresponds to the relational/decisional space which lies between markets and hierarchies, and which is essentially ruled by reciprocation rules.

<sup>11</sup> For an early approach to this topic, see Basadur (1991).

<sup>12</sup> Kirzner himself hastens to add however that “the *analytical essence* of the pure entrepreneurial role is itself independent on these specific qualities” (1999; original emphasis).

tests have to be ideated too, and ideation inherently enjoys large degrees of freedom, and connected naiveties, prejudices, blockages, errancies, fallacies, and so on. This latter is precisely the terrain the hermeneutic approach, as it was reshaped in the last half a century (Gadamer, 1975[1960]; Habermas, 1973; Ricoeur, 2004), warmly suggests should be attended to *while* making science, and learning in general. The essence of the “interpretive turn” actually lies in the exhortation to question interpretative habits – first, one’s own – *while* explaining empirical facts, because of naiveties, blind-spots etc. which inevitably nestle within them. Let us now outline how a hermeneutic approach opens to the governance of creativity.

### 3. Creativity governance

Hermeneutics is a third way between the (neo-)positivist belief of possessing the key – empirical testing – for approaching truth and the symmetrical post-modern negation of this. Taken too seriously, both are risky, respectively for excess and lack of confidence in human capacities: a self-referential sense of unlimited power over nature and society and a tendency towards nihilism are the respective extreme outcomes. More humbly, hermeneutics suggests that humans stand in the dramatic, though privileged condition of being able to gain awareness that fallacies are inherent in any cognitive process. Nevertheless, it continues, instead of persisting in the naïve belief that it is possible to attain *the* right way to truth or of shunning this belief, humans can carry that otherwise unbearable load with lightness on their back, experiencing that very human state *together and with dignity*: ‘together and with dignity’ because such a choice can only be made on condition of not being mocked by others and, reciprocally, not mocking others, but by reciprocally empathising. Once this state of affairs is intimately acknowledged and experienced, both the positivist concern for providing knowledge with a sound methodological basis and the post-modern caveat asserting the lack of any ultimate basis can be viewed as the most genuine expressions of how humans keep on trying to know, while being aware that they remain inescapably naïf.

Especially since Habermas and Ricoeur, the hermeneutic proposal has an ethical connotation, in that the answer to the cognitive stance no longer lies mainly within the relationships the mind establishes with external things, as positivism proposes, but within relationships between minds: minds which share the awareness that cognitive habits are scattered by traps and that the appropriate way to cope with them is by challenging the mental habits themselves through reciprocal assessment – dialogue, essentially (Gadamer, Smith, 1983) – while trying to act for the best in the world (Ricoeur, 2004).

What appears somehow curious in this connection is the fact that, while the generality of social sciences and humanities have taken this “interpretive turn”, economics remains the most notable exception (Lavoie, 1990). These pages are not the right place to investigate the causes of this absence, other than to note that it originates in the triad individualism-behaviourism-cognitivism which is constitutive of economics<sup>13</sup>. They can rather show what can follow in the economic discourse by *interpreting* creativity from a hermeneutic viewpoint. First of all, this will entail significant changes in the meaning of some current notions, in the value sign of other notions, and the appearance of new ones. For instance, knowledge could no longer be conceived as information collecting (or “accumulation”) as generally happens in mainstream economics, but as information building. Similarly, noise, dissonance, ambiguity, which are seen as ‘bads’ within the conventional approach, become ‘goods’ in a hermeneutic perspective. Again, the need will arise for reclassification of economic activities according to their attitude, no longer towards innovation per se (which is the epiphenomenal outcome), but towards creativity, and this will give rise to new nomenclatures, geographies and also normative tools (Alvesson, 1993). Similarly, the ‘knowledge economy’ could no longer be conceived as ‘merely’ characterised by intensive recourse to knowledge – how intensive?, first of all – but as an upshot of a qualitative change, as many scholars already maintain, without however explicitly crossing the threshold of hermeneutics (for example, Florida, Kenney, 1993; Gibbons et al., 1994). Since this crossing entails, in turn, focusing on the meso-economic dimension, notions such as network, place, city, territory, milieu, atmosphere, and so on, will also have to be reshaped (Cusinato, Philippopoulos, 2015).

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<sup>13</sup> For a more detailed inquiry, see Cusinato (2015).

Table 1 provides the analytical frame for realising where a hermeneutic approach enters the scene in relation to other cognitive stances, especially cognitivism, and what epistemological and heuristic prospects also open up. The table is based on the early distinction Bateson (1942) made between “simple-” and “deutero-learning”, and which he later rendered by the better known expressions “Learning 1” and “Learning 2”. At the lowest level, Learning zero (L0), no mental contextualisation occurs. Every experience  $a, b, c$  etc., or else  $\neg a, \neg b, \neg c$  etc., is singularly lived and impossible to connect to other experiences. The only learning competence consists in becoming able to give suitable responses to stimuli, according to the typical behaviourist scheme.

Table 1- Learning levels and the rise of creativity

Learning levels	Logical abilities	Learning abilities	Epistemological domain
0	$a \quad b \quad \neg a \quad \neg b$ $c$	Zero No contextualisation	Response to stimuli Behaviourism
1	$A = \{a, \neg a\}$ $\neg(\neg a) = a$	Contextualisation of $a$ with respect to its negation	Knowledge Logical-positivist constructivism (French School)
2	$A_i = \{a, \bar{a}_i\}$	Contextualisation of $a$ with respect to a possible complementary set $\bar{a}_i$	Creativity Radical constructivism (Palo Alto School)
3	$A = \{A_i, \bar{A}_i\}$	Contextualisation of $A_i$ with respect to a possible complementary set $\bar{A}_i$	Creativity governance Hermeneutics
4 (?)	...	...	...

At the L1 level, subjects become able to mentally fix the recognition of stimuli (for instance  $a$ ) by contextualising them with respect to their respective negation. This allows them to build information and give it stability by means of the double negation  $\neg(\neg a) = a$  (Piaget, 1954). This is the stage at which logical positivism stops, even in its most advanced form as represented by the Piagetian constructivism.

L2 differs from L1 in that subjects learn to contextualise *pragmatically*<sup>14</sup> the specific way by which they build negations and consequently information. In the depicted example, this happens by ‘exploding’  $\neg a$  into a complementary set  $\bar{a}_i$  to  $a$  out of an undetermined number of possible others. Creativity stems precisely at this stage, because the choice of the specific complementary set  $\bar{a}_i$  is a wholly contingent/idiosyncratic affair (how many other different sets  $\bar{a}_i$  could the subject actually conceive?). Creativity thus shows that it is the outcome of a second-order contextualisation, in a condition of bounded rationality. It entails going beyond deduction and induction, by calling into play abduction, which is the cradle for new hypotheses to take rise. In this sense, to deal with creativity substantially means “to flirt with chaos” (Philippopoulos-Mihalopoulos, 2015).

L3 finally appears when subjects learn to contextualise L2, that is the specific way by which they choose a specific/idiosyncratic complementary set  $\bar{a}_i$  to  $a$  among an indeterminate number of possible others. This also represents the entry into creativity governance (Ciaramelli, 1985), in that from here on it becomes possible to interact with the process of devising other possible complementary sets to  $a$ . It also appears clear that L3 entails a relational context, for any other reason but that exploring mind-sets requires making

<sup>14</sup> Not only *logically*, otherwise we should fall into the artificial divide between the ideational and the applicative phases of the innovative process, and creativity would be reduced to ideation.

comparison between them (Nonaka, Takeuchi, 1995). This is the proper domain of hermeneutics, where interpreting mental habits is the basic, constitutive exercise. This acquisition eventually allows economics to escape from the impasse within which it is blocked in relation to the issue of creativity, despite its openness to the relational approach. For instance, Miettinen (2006) is emblematic of this condition, when he frankly acknowledges that, despite having taken a relational approach, “the emerging cultural view of creativity delineated in this article cannot be directly applied to management”, and also that “a vital question in managing creativity is related to the mobilization of heterogeneous cultural resources within domains and across the boundaries of domains” (p. 178): all this while having come very close to realising that the way to carry out this task lies in a hermeneutic approach to praxis.

According to this interpretative frame, the ‘knowledge economy’ can no longer be defined as ‘merely’ characterised by previously unknown and increasing recourse to knowledge (Machlup, 1962; Drucker, 1968, as to the pioneers of this point of view). Considering that every rational activity implies recourse to knowledge (Kaufmann, Runco, 2009), and that economy, and especially industry, have made systematic and increasing recourse to deliberately ‘built’ knowledge since the second industrial revolution, that approach would only mean that entrance into the knowledge economy occurs when analytical-symbolic activities (Reich, 1992) concur for the most part with GDP or total employment (for example, Foray, 2000). Though indisputable, this depiction is limited in that it masks the circumstance that a qualitative rather than merely quantitative change has occurred in cognitive praxes, as Florida and Kenney (1993) and Gibbons et al. (1994) almost contemporarily maintained in portraying the transition from a solipsistic/cognitivist approach towards a relational/pragmatical approach to learning. Kaufmann and Runco (2009) moved the frontier to the knowledge economy further away, by “expand[ing] the perspective [from knowledge management, which is an interactional affair; A/N] and focus on the process at work in creativity” (p. 156), without succeeding however to really cope with this issue. As shown, taking a hermeneutic perspective allows these insights to acquire a more consistent (and also elegant) form, in that the knowledge economy appears as characterised by systematic recourse, within companies and their external relationships, to L3 practices for *creativity governance* rather than merely enhancement (Alvesson, 2001; Nonaka, Takeuchi, 1995<sup>15</sup>).

#### **4. An empirical research on the Italian case**

##### *4.1. Data and research methodology*

In order to assess the internal consistency and heuristic power of a hermeneutic approach to the economy (before than economics), this paper carries out an exercise on the geography of knowledge intensive services, with reference to the Italian case<sup>16</sup>. The first step to be done is to reclassify them according to their attitude/aptitude to copy with L3 practices. The notion of ‘Knowledge-creating services – KCS’ is thus established to identify, in general, this kind of activities, and also to characterise our approach with respect to similar ones<sup>17</sup>. After having outlined a descriptive geography of Italian KCS, a multivariate analysis will be performed to investigate the location rationales, and discuss them with reference to the scientific debate on this subject.

As regards the KCS classification, we distinguish among:

- *Core KCS*: Service whose core activity consists in L3 practices;

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<sup>15</sup> In actual fact, Nonaka and Takeuchi (1995) spoke only about the adoption of L2 practices by enterprises, though in our opinion it is also matter of L3. In the same authors’ words, those practices actually involve “establishing *new premises* (i.e. paradigms, schemata, mental models, or perspectives) to override the existing ones” (p. 44; emphasis added).

<sup>16</sup> The rationale of considering only services to represent knowledge-creating activities springs from the higher correspondence between ‘products’ and processes which occurs in this kind of activities with respect to manufacturing activities.

<sup>17</sup> For a discussion, see Cusinato (2015).

- *Core-related KCS*: Services whose normal activity consists in knowledge application (L1), but which interact systematically with *Core KCS*;
- *Collateral Activities to KCS*: Service or manufacturing activities working at the L1 level, which technically support the above categories.

In order to shed more light on the underpinning agglomeration rationales, two further distinctions are introduced: (a) *Core* and *Core-related KCS* will be split into *Private* and *Public*, depending on whether they normally work in the market or not and, by drawing from Asheim et al. (2011), (b) *Private Core KCS* will be grouped with reference to their typical knowledge base: analytical (science-based), synthetic (engineering and customer/supplier relationships-based) and symbolic (arts-based). The nomenclature for classification refers to *Ateco 2007* five digit definitions<sup>18</sup>, while quantitative data refer to employees and are drawn from the 1991, 2001 and 2011 Industry and Services Censuses. As for territorial partitions, four macro-regions will be considered according to Istat, namely North-West (NW), North-East (NE), Centre (CE), and *Mezzogiorno* (ME), while the urban level will be represented by the 611 LLS (Local Labour Systems), which represent a proxy of the functional urban areas (Istat, 2014). On these bases, KCS are finally classified as shown in Table A1 (see Appendix).

In order to realise the nature, size, working mechanisms and implications of the KCS-related economies as well as their functional relationships with manufacturing, an OLS regression will be performed according to the following specification:

$$lq_i = \beta_0 + \beta_1 Perc\_ID + \beta_2 lq\_other\_kcs + \beta_3 Rlqh + \beta_4 Rlqhm + \beta_5 Rlqml + \beta_6 Rlql + \beta_7 sll\_prov + \beta_8 pop^2 + \varepsilon$$

The dependent and independent variables are listed below<sup>19</sup>:

Dependent variables (for each performed OLS)

lqprco	Location Quotient (LQ)[1] Private Core KCS
lqana	LQ Analytical Private Core KCS
lqsymp	LQ Symbolic Private Core KCS
lqsynt	LQ Synthetic Private Core KCS
lqprre	LQ Private Core-related KCS
lqpuc	LQ Public Core KCS
lqpure	LQ Public Core-related KCS
lqcoll	LQ Collateral Activities to KCS

Independent variables

Perc_ID	Percentage of Industrial Districts on the total number of SLL within a given region
lq_other_kcs	LQ of complementary KCS
Rlqh	Regional LQ in High-tech
Rlqhm	Regional LQ in High- medium-tech
Rlqml	Regional LQ in Medium-low-tech
Rlql	Regional LQ in Low-tech
sll_prov	Dummy: whether SLL i hosts (1) or not(0) a provincial capital
pop <sup>2</sup>	Squared Population

Independent variables are supposed to represent the following different types of agglomeration economies:

<sup>18</sup> *Ateco 2007* is the Italian version of NACE Rev. 2 (Istat, 2009).

<sup>19</sup> LQ is the Localisation Quotient, and is obtained as follows:  $LQ_{i,j} = (e_{i,j}/p_j) / (E_i/P)$ , where  $e_{i,j}$  is the number of employees in the industry  $i$  of LLS  $j$ ,  $p_j$  is the population of LLS  $j$ ,  $E_i$  and  $P$  respectively the workforce in the industry  $i$  and the total population at the national level.

Independent variables	Related agglomeration economies
perc_ID	District Economies
lq_other_kcs	Infra-sectoral Localisation Economies
RLQ	Inter-sectoral Localisation Economies
sll_prov	Urban Economies, related variety
pop <sup>2</sup>	Cumulative Urban Economies, unrelated variety

#### 4.2. KCS national and macro-regional patterns

Tables A2 and A3 show some preliminary outcomes about KCS characteristics and trends in the last two decades. In particular, a first set of stylised facts can be outlined as follows:

1. In 2011, the KCS sector employed nearly 2.96 million workers, accounting for 15.3 % of the total Italian workforce. The KCS impact on total employment remains lower with respect to manufacturing activities, notwithstanding its remarkable growth between 1991 and 2011 and the simultaneous decrease of manufacture. As suggested by some scholars (Quatraro, 2009; Arlotti et al., 2015), the process of structural change from manufacturing to services appears to be slower in Italy than in most OECD countries. This sort of lock-in situation, in their opinion, represents one of the main factors explaining the severe and long-lasting effects of the 2008 crisis on the Italian economy.
2. Private activities represent the driving force within KCS. In 2011 they accounted for nearly double the Public KCS and their role, unlike that of the latter, has been growing over time. This means that the development of the knowledge economy in Italy relies mostly on the interplay of market forces rather than on public commitment.
3. The distinction between Private and Public KCS remains significant in terms of their respective Core and Core-related activities. Within Private KCS, in fact, Core activities represent the most important sector whereas, within the Public ones, the situation is reversed.
4. The Gini index (Table 2), which has been calculated on the basis of LLS employees compared with their respective surface area, suggests that KCS in general are characterised by the highest level of spatial concentration (by comparison with the population, the total number of employees and those in manufacturing). It further shows that, when KCS breakdowns are considered, Public and Private Core KCS are the most concentrated phenomena across space, to such an extent that they constitute a further source of regional unbalance (Compagnucci, Cusinato, 2014). On the contrary, Private and Public Core-related as well as Collateral KCS are less spatially concentrated than the Core ones. Finally, temporal trends do not highlight particular changes in the KCS concentration between 1991 and 2011, apart from the increase in 'Public Core-related KCS' and the decrease in 'Public Core KCS'.

Table 2 - Gini indexes of LLS population and employees – 1991, 2001, 2011

	1991	2001	2011
Population	0.72	0.71	0.72
Total Employees	0.76	0.76	0.77
Manufacturing	0.77	0.74	0.73
KCS	0.84	0.85	0.85
Private Core KCS	0.88	0.87	0.87
Private Core related KCS	0.83	0.83	0.84
Public Core KCS	0.92	0.92	0.90
Public Core related KCS	0.78	0.79	0.80
Collateral	0.85	0.84	0.85

I = max concentration

Moving to the macro-regional level, three main KCS spatial patterns emerge (Table A2 and A3):

- a) the first pattern refers to NW and CE. These are the only macro-regions which turn out to be specialised in KCS, even though they have followed opposite trends: slightly decreasing for CE and slightly increasing

for NW, both in terms of LQs and relative shares. In addition, two secondary though clear patterns emerge:

- a1) as regards the NW, KCS specialisation is clearly market-led, essentially concerning Private KCS;
  - a2) within CE, on the contrary, KCS are more Public-oriented.
- b) NE is essentially specialised in ‘Private Core-related’ and ‘Collateral activities to KCS’, which involve the less sophisticated part of the creative chain. Interestingly, in 2011 the LQ of ‘Public Core KCS’, having previously been always lower than one, reveals a specialisation similar to that of CE. It is also worth noting that NE is the only macro-region where the concentration of manufacturing activities continued to grow between 1991 and 2011, showing the highest value in 2011.
- c) Finally, with respect to ME, the only KCS specialisation is referred to ‘Public Core-related KCS’. The lack of highly specialised knowledge-based activities, as well as of a strong manufacturing base, clearly contributes to exacerbate regional unbalances, at the detriment of Southern regions.

These different patterns relate intuitively to regional specificities, such as industrialisation and technological trajectories, industry specialisation, urban structure, connection to the global market (and networks, in general), intensiveness and effectiveness of interactions between enterprises, institutions and research centres (Etzkowitz, Leydesdorff, 2000), as well as the endowment of public assets: elements which are all deeply interlinked in a path-dependent way. In this view, empirical evidence can be explained by considering the stage of development of their respective leading industry (Quatraro, 2009). When splitting between early (NW) and late industrialised areas (NE and CE, the so-called NEC regions; Fuà, Zacchia, 1983), an easier transition towards the knowledge economy is expected within the former one, where the service sector is more developed, while it will require major efforts within the latter, where manufacturing industries (especially low-tech ones) are still driving the regional growth.

#### 4.3. KCS regional and urban patterns

Refining KCS analysis at the LLS level by means of LQs makes it possible to add detail to the descriptive geography, and to put forward and test interpretative models with regard to its determinants. A first series of stylised facts emerges from the representation of the KCS LQs<sup>20</sup> with reference to the 611 Italian LLS (Charts 1a to 1f). In particular:

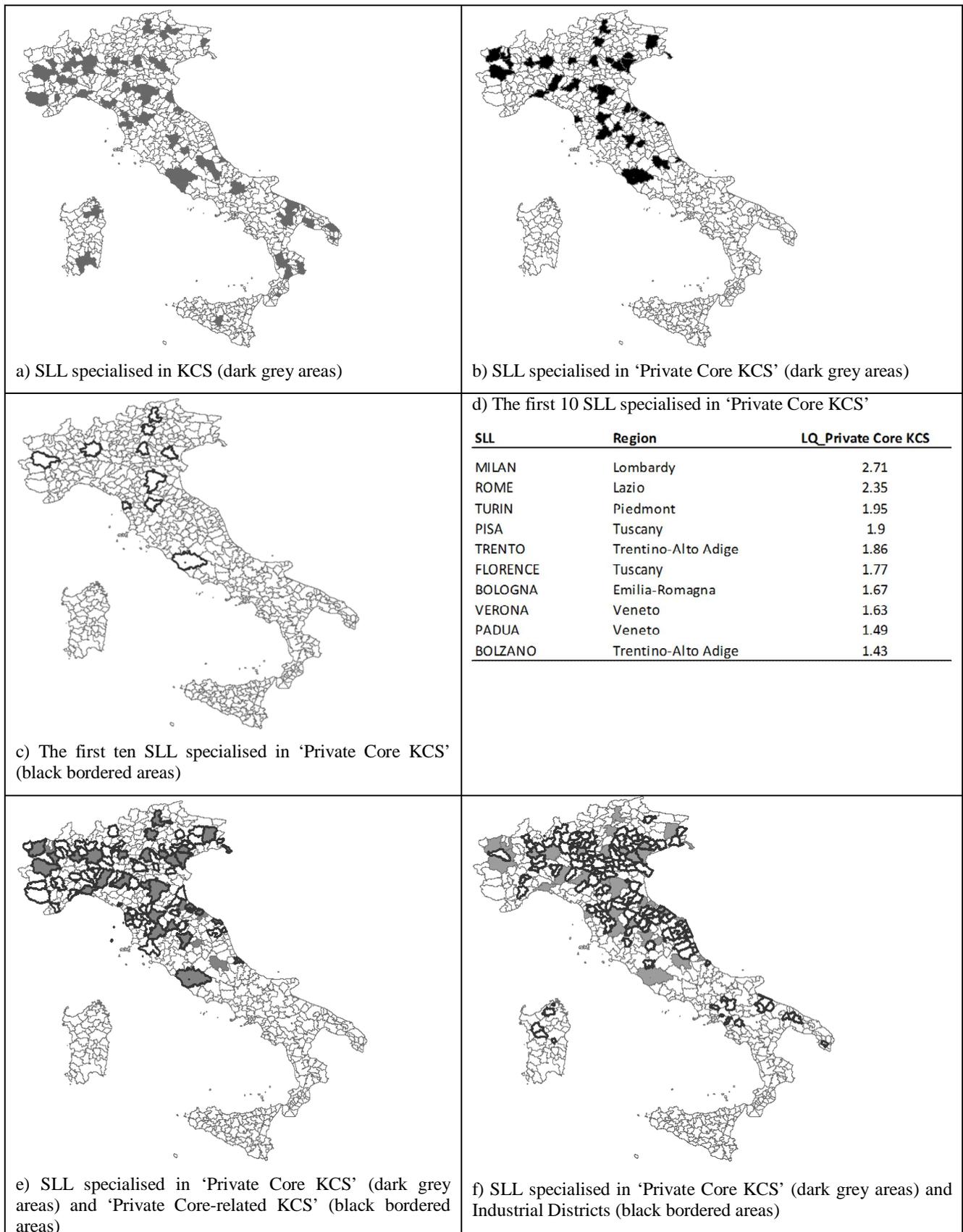
- 1) Chart 1a, which refers to the Italian LLS specialised in KCS as a whole, shows that:
  - 1a) they include most provincial capitals (52 out of 55),
  - 1b) the location of KCS urban areas, apart from Campania, Sicily and Sardinia, is quite evenly distributed across the country.
- 2) Considering ‘Private Core KCS’ specialisation, a more differentiated territorial pattern emerges (Chart 1b), with a clear North-South dualism. Among the first ten LLS specialised in this sector (Charts 1c and 1d), there are no Mezzogiorno cities. This evidence suggests that ‘Private Core KCS’ location rationales are market-led, while ‘Public Core KCS’ respond to a policy-driven location rationale: higher education, university hospitals, central bank offices and statistical activities, in fact, are usually located in order to serve equitably the entire national territory. As for the urban characterisation:
  - 2a) within NW, ‘Private Core KCS’ are associated with cities which can be labelled as “Large Metropolitan Areas”<sup>21</sup> (Turin and Milan);

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<sup>20</sup> In this section we basically investigate only ‘Private Core KCS’, because of their importance both in qualitative and quantitative terms within the creative chain. The other KCS breakdowns will be taken into account in the multivariate econometric analysis.

<sup>21</sup> According to Brezzi et al. (2012), the typologies of Urban Areas are defined as follows: 1) population < 200,000 inhabitants = Small Urban Areas; 2) 200,000 ≤ population < 500,000 inhabitants = Medium Urban Areas; 500,000 ≤ population < 1.5 million inhabitants = Metropolitan Areas; population ≥ 1.5 million inhabitants = Large Metropolitan Areas.

Chart 1 - A Geography of KCS - 2011



2b) NE shows a different pattern. Given the lack of Large Metropolitan Areas, there is room for Metropolitan Areas, such as Bologna, as well as for Medium and Small Urban Areas (Padua, Verona, Bolzano and Trento) to emerge among those which perform better in this sector;

2c) CE, finally, represents a mix of the previously described patterns, with a Large Metropolitan Area (Rome), a Metropolitan Area (Florence) and a Small Urban Area (Pisa) specialised in ‘Private Core KCS’.

This initial evidence implies that KCS specialisation is not univocally correlated with urban volume, a consideration which will be better tested through the multivariate analysis. In fact, even though there appears to be room for different types of urban areas specialised in KCS, the kind and size of agglomeration economies KCS are able to trigger may vary significantly with their specific kind and relationships among them and with manufacture.

- 3) A third stylised fact regards the spatial proximity, complementarity or overlapping between LLS specialised in ‘Private Core’ and ‘Private Core-related KCS’ (Chart 1e). The latter appear more sprawled than the former ones, which is in line with intuitive assumptions, mainly concerning the spatial effects of the bid rent curve. Clusters of different kinds of KCS appear along the Turin-Milan-Venice-Trieste, Genoa-Bologna-Florence and Ancona, and the Bologna-Verona-Bolzano axes, which lie all along the main traffic routes.
- 4) Finally, Chart 1f shows that just a few urban LLS specialised in ‘Private Core KCS’ are Industrial Districts<sup>22</sup>, while in general they are embedded within systems of surrounding Industrial Districts. This relationship does not hold in the Mezzogiorno, however, where the few extant Industrial Districts show not to count on significant local knowledge-based services.

The above stylized facts will be tested below through an OLS regression, which is specifically aimed at ascertaining the sensitiveness of KCS to infra-sectoral, inter-sectoral and urban agglomeration economies, as well as the strength of functional/spatial ties with manufacture. Results can be framed as follows (see Table 3):

- 1) In general, ‘Private Core KCS’ location rationale depends mainly on whether an LLS is a provincial capital and on its demographic size (Table 3a). This means that this kind of KCS is firstly sensitive to the urban assets in terms of suppliers, end markets (local, regional and global ones), material and immaterial public/common/club goods. Jointly with standard urban economies, ‘Private Core KCS’ further benefit from the cumulative effects stemming from the urban milieu (unrelated variety), the co-location of other KCS categories (infra-sectoral location economies), whereas, when considered as a whole, no inter-sectoral location economies emerge with manufacture.
- 2) As for ‘Private Core KCS’ (Table 3b), outcomes suggest that their location is not affected either by the LLS size, or the presence of a provincial capital. This means that they do not directly benefit from urban agglomeration economies. Analytical activities, in fact, being based on codified knowledge, are less dependent on face-to-face relationships, so that their location is more footloose with respect to specific local relational features (Shearmur, 2012). At the same time they benefit from infra-sectoral location economies, in that there is a significant connection with ‘Synthetic Private Core KCS’ and ‘Public Core KCS’, whereas they are inversely related to the presence of IDs, but positively though weakly related to medium-high tech industry. This shows that this kind of KCS, though science-based, is rooted in pragmatic grounds, as technological research generally is.
- 3) ‘Symbolic Private Core KCS’ (Table 3c) are strongly and positively related to LLS demographic size, while the presence of a provincial capital is not significant. This twofold and apparently contradictory outcome actually strengthens the idea that activities which are arts- or, rather, culture-based are more responsive to the urban milieu effect, than to standard services (such as those related to the presence of a provincial capital). With respect to the positive connection with Low-tech manufacturing activities, it is worth remembering that Symbolic activities include industrial design, which relates significantly to the

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<sup>22</sup> Brescia, Vicenza, Padua, Treviso, Reggio Emilia, Lucca, Arezzo, Pesaro, Fano.

Italian manufacturing tradition in sectors such as fashion, furniture, etc.. Finally, they benefit from infra-sectoral location economies, as the significant relationships with Synthetic knowledge-based KCS and ‘Private Core-related KCS’ show.

Table 3: OLS outcomes

a) Private Core KCS			b) Analytical Private Core KCS			c) Symbolic Private Core KCS			d) Synthetic Private Core KCS		
R <sup>2</sup> = 0.7613	coeff	P	R <sup>2</sup> =0.3292	coeff	P	R <sup>2</sup> =0.6563	coeff	P	R <sup>2</sup> =0.7586	coeff	P
perc_ID	.0010172	0.157	perc_ID	-.0092501	0.004**	perc_ID	-.002731	0.007**	perc_ID	.0032199	0.000***
sll_prov	.120343	0.000***	sll_prov	-.0915668	0.374	sll_prov	-.0055732	0.863	sll_prov	.1362523	0.000***
pop2	8.52e-14	0.000***	pop2	5.34e-14	0.190	pop2	8.13e-14	0.000***	pop2	4.63e-14	0.000***
lqprre	.4684868	0.000***	lqsymb	-.2557092	0.050*	lqana	-.025169	0.050*	lqana	.0553489	0.000***
lqpuco	.0526486	0.000***	lqsynt	103.548	0.000***	lqsynt	.396209	0.000***	lqsymb	.2151657	0.000***
lqpure	.0345755	0.036*	lqprre	-.0255061	0.873	lqprre	.3008181	0.000***	lqprre	.3521442	0.000***
lqcoll	.1211132	0.000***	lqpuco	.2314573	0.000***	lqpuco	-.0062542	0.564	lqpuco	.0335747	0.000***
Rlq_h	-.0428547	0.007**	lqpure	.1116933	0.124	lqpure	.0580705	0.011*	lqpure	-.0016824	0.920
Rlq_mh	.0127987	0.640	lqcoll	.0563299	0.558	lqcoll	.0582828	0.053	lqcoll	.0933344	0.000***
Rlq_ml	-.0920713	0.083	Rlq_h	.0419484	0.546	Rlq_h	-.0219745	0.313	Rlq_h	-.0387428	0.016*
Rlq_l	.0289217	0.194	Rlq_mh	.2773953	0.021*	Rlq_mh	.0313582	0.407	Rlq_mh	-.0291597	0.295
_cons	.1257953	0.000***	Rlq_ml	-.1792276	0.443	Rlq_ml	.0646304	0.378	Rlq_ml	-.1058108	0.050*
			Rlq_l	.1780327	0.074	Rlq_l	.1447781	0.000***	Rlq_l	-.0531431	0.021*
			_cons	-.2921617	0.012*	_cons	-.0894246	0.015*	_cons	.1999435	0.000***

e) Private Core-related KCS			f) Public Core KCS			g) Public Core-related KCS			h) Collateral to KCS		
R <sup>2</sup> = 0.7693	coeff	P	R <sup>2</sup> =0.3579	coeff	P	R <sup>2</sup> =0.3899	coeff	P	R <sup>2</sup> =0.4776	coeff	P
perc_ID	-.0039691	0.000***	perc_ID	-.0010575	0.782	perc_ID	-.010265	0.000***	perc_ID	-.0020337	0.138
sll_prov	.0803554	0.002**	sll_prov	.6661264	0.000***	sll_prov	.410767	0.000***	sll_prov	.2207561	0.000***
pop2	-2.18e-14	0.038*	pop2	-7.56e-14	0.118	pop2	-1.67e-14	0.468	pop2	3.67e-14	0.035*
lqana	-.0016869	0.873	lqana	.3253089	0.000***	lqana	.0354061	0.124	lqana	.0102235	0.558
lqsymb	.2021281	0.000***	lqsymb	-.0893052	0.564	lqsymb	.1870198	0.011*	lqsymb	.1074686	0.053
lqsynt	.4357071	0.000***	lqsynt	.8828145	0.000***	lqsynt	-.0099772	0.920	lqsynt	.3169089	0.000***
lqpuco	-.0145219	0.102	lqprre	-.3086087	0.102	lqprre	-.068993	0.441	lqprre	.2204872	0.001**
lqpure	-.0143945	0.441	lqpure	.2580706	0.003**	lqpuco	.0582056	0.003**	lqpuco	-.0284712	0.053
lqcoll	.0803461	0.001**	lqcoll	-.2204811	0.053	lqcoll	.0521738	0.335	lqpure	.0298718	0.335
Rlq_h	.0973769	0.000***	Rlq_h	.0527325	0.522	Rlq_h	-.1245349	0.001**	Rlq_h	.0442686	0.134
Rlq_mh	-.0018273	0.953	Rlq_mh	-.0789148	0.581	Rlq_mh	-.2875214	0.000***	Rlq_mh	.0721415	0.160
Rlq_ml	.2879299	0.000***	Rlq_ml	-.0117803	0.966	Rlq_ml	.536675	0.000***	Rlq_ml	-.0972148	0.329
Rlq_l	.1040892	0.000***	Rlq_l	.2525611	0.032*	Rlq_l	.0623142	0.266	Rlq_l	.0454708	0.284
_cons	-.0880608	0.003**	_cons	-.345316	0.013*	_cons	.6842899	0.000***	_cons	.1202577	0.016*

Significance levels: \*\*\* 99%; \*\* 98%; \* 95%.

- 4) ‘Synthetic Private Core KCS’ (Table 3d), which rely mainly on customer-supplier relationships, can be considered as context-led. Their location responds to the exploitation of their interlinking vocation, which maximises in urban environments embedded within manufacturing systems and districts, and also benefits from both standard and cumulative urban agglomeration economies. It is also worth noting the cumulative effect descending from co-location with all the other KCS breakdowns, except ‘Public core-related KCS’. The assumption that these KCS locate in urban contexts which lie within manufacturing systems is also confirmed by the positive and significant connection with the presence of IDs.
- 5) As regards ‘Private Core-related KCS’ (Table 3e), given their supporting function, evidence shows that their location rationale is mainly driven by Marshallian economies (District economies and, more generally, infra-sectoral and inter-sectoral localisation economies, especially with Symbolic, Synthetic KCS and Collateral activities to KCS, and manufacture as well). On the other hand, urban economies appear to shape their location choices on the functional side, in that only the presence of a provincial capital shows a significant connection with them, whereas, significantly, city size shows a negative connection.
- 6) Public KCSs location rationale (Table 3f and 3g) mainly depends on spatial equity criteria. ‘Public Core’ and ‘Public Core-related KCS’ are indeed positively related with the presence of provincial capitals, whereas population size does not significantly matter (and anyway, the relationship is negative). Provincial capitals, in fact, range from belonging to Small Urban Areas to Large Metropolitan Areas, and

are evenly distributed across the country, supplying a wide range of standard services to households and enterprises. ‘Public Core KCS’ and ‘Public Core-related KCS’ show a close spatial relationship, even though only the former have significant relationships with the other KCS activities, in particular with the Analytical and Synthetic ones. This evidence confirms our expectations: ‘Public Core KCS’ (universities, university hospitals, Central Bank offices, etc.) and Analytical KCS (basically represented by research centres) take mutual advantage from their co-location and from the skilled labour pool provincial capitals supply.

7) Finally, with respect to ‘Collateral Activities to KCS’ (Table 3h), their location mainly depends on infra-sectoral localisation economies (mainly with ‘Synthetic Private Core’ and ‘Private Core-related KCS’) and on urban standard economies.

## 5. Conclusions

This paper has explored some early potentialities of a hermeneutic approach to the knowledge economy and, especially, to the issues of creativity and creativity governance. On the epistemological level, outcomes show that these subjects provide economics with the opportunity to take part in and also to challenge the ‘interpretive turn’ which has affected most other social sciences and is entering creative praxes within industry, and society as a whole. On the heuristic level, the theoretical work carried out in the first part has shown that such an approach makes it possible to systematise the various notions of information, knowledge, creativity and creativity governance within a unified and lean analytical framework.

Drawing on these theoretical acquisitions, the second part of the paper has both provided a methodological frame for empirically approaching the issue of creativity within creativity-driven economies, and has carried out an empirical enquiry into the Italian case, to test its analytical consistency and interpretative power. The sharpness and significance of outcomes concerning the geography and location rationales of the entire chain of knowledge-creating services, along with their alignment with theoretical expectations, lead us to suggest – if not to assert – that hermeneutics can *also* provide economic analysis with consistent analytical tools, despite the suspicion this latter has for ‘metaphysical subjects’. The relaxation (which does not mean refusal) of the neo-positivist principles, on the one hand, along with a more persuasive effort of the consistency and effectiveness of a hermeneutic approach, on the other, are the first normative suggestions we finally draw. The main obstacle to putting them into practice is not however of a methodological or even epistemological kind, but of a cultural kind, in that it refers to a deeply-rooted mental habit in economic theory: an habit which has been tailored according to the ‘methodological individualism-behaviourism-cognitivism’ triad, but which is increasingly turning from having been the propulsive factor for economic analysis and the effectiveness of its normative recipes, into its chain – to paraphrase somebody who has somehow become neglected in the meantime – with respect to the changes which are now occurring, first of all within company praxes.

More detailed and practical suggestions for policies can be devised by turning the above econometric analysis into a normative reading. The first note is that KCS in general are highly sensitive to internal agglomeration economies, so that it becomes plausible to suggest that path-dependent factors are importantly at work in their location rationales, with cumulative effects. Specific location factors emerge within the various categories of KCS, however:

- within the private sector, the most sophisticated KCS (‘Private Core Analytical KCS’) follow location rationales which are independent of strictly local urban agglomeration economies, but respond to the co-location of ‘Public Core KCS’ and high-medium manufacture according to the *Triple Helix* logic;
- within the same private sector, the remaining Core KCS (Symbolic and Synthetic knowledge-based KCS) are sensitive to both industrial and urban agglomeration economies, with cumulative effects. It also emerges that whilst the first sub-class benefits from the presence of unrelated variety, the second derives more advantage from related variety and proximity to manufacture;

- the intermediary knowledge-creating activities ('Private Core-related KCS') are sensitive, though only slightly, to conventional/functional urban economies, as well as to proximity to both higher-order KCS and manufacture;
- as expected, Public KCS location patterns are mainly responsive to political rather than market rationales. Due to the observed interdependence between them and 'Analytical Private Core KCS', the *Triple Helix* factor also works with rapport to this kind of KCS;
- finally, as regards 'Collateral Activities to KCS', only infra-sectoral agglomeration economies count;
- a borrowed-size effect (Alonso, 1973) is also observable within the KCS system, which is probably connected with the bid-rent curve.

As known, public policies serve to prevent, mitigate or remove collective failures of individual choices, through functional and/or strategic interventions. In general, the above outcomes suggest that the lack of a manufacturing background, qualified urban services and/or a vivid urban milieu are the main causes of LLS marginalisation in the knowledge-creating chain. On the contrary, the presence of a dynamic metropolitan or urban entity is an important factor for enhancing KCS on a wide spatial scale. In this connection, the problem arises of how to establish a public decision-making body on a metropolitan scale, to avoid possible situations of 'prisoner dilemma'-type and/or the rise of damaging competing strategies among secondary urban realities.

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# Statistical Appendix

Table A1 - KCS classification

Ateco 2007	5-digit description	Asheim category	Ateco 2007	5-digit description	Asheim category
<b>Private Core KCS</b>					
58110	Book publishing	Symbolic	71121	Engineering activities	Synthetic
58130	Publishing of newspapers	Symbolic	71122	Integrated engineering services	Synthetic
58140	Publishing of journals and periodicals	Symbolic	71124	Aerial photography and mapping activities	Synthetic
58210	Publishing of computer games	Synthetic	72110	Research and experimental development on biotechnology	Analytical
58290	Other software publishing	Synthetic	72190	Other research and experimental development on natural sciences and engineering	Analytical
59110	Motion picture, video and television programme production activities	Symbolic	72200	Research and experimental development on social sciences and humanities	Analytical
59120	Motion picture, video and television programme post-production activities	Symbolic	73110	Advertising agencies	Symbolic
59201	Sound recording publishing	Symbolic	73200	Market research and public opinion polling	Synthetic
59202	Music publishing activities	Symbolic	74101	Specialised design activities	Symbolic
59203	Recording studios	Symbolic	74102	Graphic designers activities	Symbolic
60100	Radio broadcasting	Symbolic	74109	Other design activities	Symbolic
60200	Computer programming activities	Symbolic	74201	Photographic activities	Symbolic
62010	Production of software not associated with publishing	Synthetic	74901	Agricultural consultancy	Synthetic
62020	Computer consultancy activities	Synthetic	74902	Security consultancy	Synthetic
62030	Computer facilities management activities	Synthetic	85520	Cultural education	Symbolic
63112	Database activities	Synthetic	85600	Educational support activities	Synthetic
63113	Hosting and related activities	Synthetic	90010	Performing arts	Symbolic
63120	Web portals	Synthetic	90030	Artistic creation	Symbolic
63910	News agency activities	Symbolic	94110	Activities of business and employers membership organisations	Synthetic
64200	Activities of holding companies	Synthetic	94121	Activities of professional membership organisations	Synthetic
66110	Administration of financial markets	Synthetic	94122	Activities of federations	Synthetic
69101	Legal activities	Synthetic	94200	Activities of trade unions	Synthetic
69102	Notarial activities	Synthetic	94920	Activities of political organisations	Synthetic
69202	Auditing activities	Synthetic	94991	Activities of organisations related to citizens' rights protection	Synthetic
69203	Labour consultancy activities	Synthetic	94992	Activities of organisations pursuing cultural and recreational purposes	Symbolic
70100	Activities of head offices	Synthetic	94994	Activities of organisations pursuing international cooperation and solidarity	Synthetic
70210	Public relations and communication activities	Synthetic	94995	Activities of organisations pursuing philanthropy	Symbolic
70220	Business and other management consultancy activities	Synthetic	94996	Activities of organisations pursuing promotion and defence of the animals and of the environment	Symbolic
71110	Architectural activities	Symbolic	94999	Activities of other organisations n.e.c.	Synthetic
<b>Private Core-related KCS</b>					
52292	Transport services		77400	Leasing of intellectual property and similar products, except copyrighted works	
59130	Motion picture, video and television programme distribution activities		78100	Activities of employment placement agencies	
61901	Internet access providers		78200	Temporary employment agency activities	
62090	Other information technology and computer service activities		78300	Other human resources provision	
63111	Data processing		79902	Activities of tourist guides	
63990	Other information service activities n.e.c.		82110	Combined office administrative service activities	
69201	Accounting and bookkeeping activities; tax consultancy		82300	Organisation of conventions and trade shows	
71123	Surveyor activities		82912	Commercial information agencies	
71201	Technical testing and analysis		85592	Training courses	
71202	Quality checking and labelling		85593	Language schools	
73120	Media representation		85599	Other education n.e.c.	
74103	Technical designers activities		90020	Support activities to performing arts	
74300	Translation and interpretation activities		90040	Operation of arts facilities	
74909	Other professional, scientific and technical activities n.e.c.				
<b>Public Core KCS</b>					
64110	Central banking	Analytical	86103	University hospitals	Analytical
84112	Public planning activities and national statistical offices	Analytical	91010	Library and archives activities	Symbolic
85410	Post-secondary non-tertiary education	Analytical	91020	Museums activities	Symbolic
85420	Tertiary education	Analytical	91030	Operation of historical sites and buildings and similar visitor attractions	Symbolic
<b>Public Core-related KCS</b>					
84121	Regulation of the activities of providing health care		84135	Activities and services related to the construction of waterways and harbours	
84122	Regulation of the activities of providing education		84136	Activities and services related to transports and communication	
84123	Regulation of the activities of providing housing		84137	Regulation of activities related to domestic trade	
84124	Regulation of the activities of providing social services		84138	Regulation of activities related to tourism	
84131	Activities and services related to fuels and energy		84139	Regulation of other business and economic services	
84132	Regulation of agriculture activities		84230	Justice and judicial activities	
84133	Activities and services related to mining, manufacturing; construction of public engineering projects		84210	Foreign affairs	
84134	Activities and services related to the construction of roads				
<b>Collateral Activities to KCS</b>					
46510	Wholesale of computers, computer peripheral equipment and		58120	Publishing of directories and mailing lists	
46432	Wholesale of recorded media, sound and video		58190	Other publishing activities	
46433	Wholesale of optical, photographic and cinematographic products		74202	Photographic laboratory, developing and printing	
46492	Wholesale of books, newspapers and journals		82190	Photocopying, document preparation and other specialised office support activities	
47410	Retail sale of computers, peripheral units and software in specialised stores		82200	Activities of call centres	
47610	Retail sale of books in specialised stores		82992	Distribution's agencies of books, newspapers, journals and periodicals	
47621	Retail sale of newspapers and stationery in specialised stores		82999	Other business support service activities n.e.c.	
47630	Retail sale of music and video recordings in specialised stores		93299	Other amusement and recreation activities	
95110	Repair of computers and peripheral equipment				

Table A2 – Population and KCS, manufacturing and total employees – 1991, 2001, 2011

	Knowledge-Creating Services			Manufacturing			Total employees			Population		
	1991	2001	2011	1991	2001	2011	1991	2001	2011	1991	2001	2011
<b>Values (in thousands)</b>												
NW	567.3	799.0	968.8	2,106.3	1,836.8	1,414.0	5,712.1	6,016.3	6,040.1	15,063.9	15,059.4	15,857.4
NE	350.7	487.7	575.6	1,378.6	1,409.6	1,158.7	4,003.8	4,426.9	4,472.8	10,332.4	10,609.0	11,430.4
CE	476.3	620.4	709.1	922.1	861.9	686.3	3,583.3	3,875.3	4,046.8	10,884.4	10,880.6	11,590.2
ME	553.5	667.9	705.5	828.1	803.3	624.9	4,399.4	4,603.6	4,718.0	20,515.8	20,493.4	20,597.2
ITA	1,947.8	2,575.1	2,959.0	5,235.2	4,911.6	3,883.9	17,698.5	18,922.0	19,277.7	56,796.5	57,042.5	59,475.3
<b>1991=100</b>												
NW	100.0	140.9	170.8	100.0	87.2	67.1	100.0	105.3	105.7	100.0	100.0	105.3
NE	100.0	139.1	164.1	100.0	102.3	84.1	100.0	110.6	111.7	100.0	102.7	110.6
CE	100.0	130.3	148.9	100.0	93.5	74.4	100.0	108.1	112.9	100.0	100.0	106.5
ME	100.0	120.7	127.5	100.0	97.0	75.5	100.0	104.6	107.2	100.0	99.9	100.4
ITA	100.0	132.2	151.9	100.0	93.8	74.2	100.0	106.9	108.9	100.0	100.4	104.7
<b>Share (on Italy)</b>												
NW	29.1	31.0	32.7	40.2	37.4	36.4	32.3	31.8	31.3	26.5	26.4	26.7
NE	18.0	18.9	19.5	26.3	28.7	29.8	22.6	23.4	23.2	18.2	18.6	19.2
CE	24.5	24.1	24.0	17.6	17.5	17.7	20.2	20.5	21.0	19.2	19.1	19.5
ME	28.4	25.9	23.8	15.8	16.4	16.1	24.9	24.3	24.5	36.1	35.9	34.6
ITA	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Percentages (of total employment)</b>												
NW	9.9	13.3	16.0	36.9	30.5	23.4	-	-	-	-	-	-
NE	8.8	11.0	12.9	34.4	31.8	25.9	-	-	-	-	-	-
CE	13.3	16.0	17.5	25.7	22.2	17.0	-	-	-	-	-	-
ME	12.6	14.5	15.0	18.8	17.4	13.2	-	-	-	-	-	-
ITA	11.0	13.6	15.3	29.6	26.0	20.1	-	-	-	-	-	-
<b>Location Quotients</b>												
NW	1.1	1.2	1.2	1.5	1.4	1.4	1.2	1.2	1.2	-	-	-
NE	1.0	1.0	1.0	1.4	1.5	1.6	1.2	1.3	1.2	-	-	-
CE	1.3	1.3	1.2	0.9	0.9	0.9	1.1	1.1	1.1	-	-	-
ME	0.8	0.7	0.7	0.4	0.5	0.5	0.7	0.7	0.7	-	-	-

Table A3 – Employees in KCS breakdowns – 1991, 2001, 2011

	Private Core			Private Core-related			Public Core			Public Core-related			Collateral		
	1991	2001	2011	1991	2001	2011	1991	2001	2011	1991	2001	2011	1991	2001	2011
<b>Values (in thousands)</b>															
NW	259.2	374.5	436.5	73.6	177.8	254.6	25.2	31.7	40.9	148.0	155.2	138.8	61.3	59.9	98.1
NE	128.2	180.0	226.7	46.5	114.5	132.4	23.0	30.3	53.9	117.8	128.9	112.0	35.3	33.9	50.6
CE	165.0	248.1	309.3	43.1	96.0	117.4	50.0	54.6	61.1	180.1	184.6	157.6	38.2	37.1	63.7
ME	130.5	188.7	239.2	37.3	84.4	99.2	45.3	66.9	77.5	305.6	291.4	232.9	34.9	36.6	56.6
ITA	682.9	991.3	1,211.6	200.4	472.7	603.6	143.4	183.5	233.5	751.5	760.0	641.3	169.6	167.5	269.0
<b>1991=100</b>															
NW	100.0	144.5	168.4	100.0	241.7	346.1	100.0	125.9	162.5	100.0	104.8	93.8	100.0	97.7	159.9
NE	100.0	140.4	176.8	100.0	246.5	284.9	100.0	132.0	234.5	100.0	109.4	95.1	100.0	96.2	143.6
CE	100.0	150.4	187.5	100.0	222.9	272.6	100.0	109.3	122.4	100.0	102.5	87.5	100.0	97.2	166.9
ME	100.0	144.6	183.4	100.0	226.1	266.0	100.0	147.7	171.3	100.0	95.4	76.2	100.0	105.0	162.3
ITA	100.0	145.2	177.4	100.0	235.9	301.2	100.0	128.0	162.8	100.0	101.1	85.3	100.0	98.8	158.6
<b>Share (on Italy)</b>															
NW	38.0	37.8	36.0	36.7	37.6	42.2	17.6	17.3	17.5	19.7	20.4	21.6	36.2	35.8	36.5
NE	18.8	18.2	18.7	23.2	24.2	21.9	16.0	16.5	23.1	15.7	17.0	17.5	20.8	20.2	18.8
CE	24.2	25.0	25.5	21.5	20.3	19.5	34.8	29.8	26.2	24.0	24.3	24.6	22.5	22.1	23.7
ME	19.1	19.0	19.7	18.6	17.8	16.4	31.6	36.4	33.2	40.7	38.3	36.3	20.6	21.9	21.0
ITA	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Percentages (of total employment)</b>															
NW	4.5	6.2	7.2	1.3	3.0	4.2	0.4	0.5	0.7	2.6	2.6	2.3	1.1	1.0	1.6
NE	3.2	4.1	5.1	1.2	2.6	3.0	0.6	0.7	1.2	2.9	2.9	2.5	0.9	0.8	1.1
CE	4.6	6.4	7.6	1.2	2.5	2.9	1.4	1.4	1.5	5.0	4.8	3.9	1.1	1.0	1.6
ME	3.0	4.1	5.1	0.8	1.8	2.1	1.0	1.5	1.6	6.9	6.3	4.9	0.8	0.8	1.2
ITA	3.9	5.2	6.3	1.1	2.5	3.1	0.8	1.0	1.2	4.2	4.0	3.3	1.0	0.9	1.4
<b>Location Quotients</b>															
NW	1.4	1.4	1.4	1.4	1.4	1.6	0.7	0.7	0.7	0.7	0.8	0.8	1.4	1.4	1.4
NE	1.0	1.0	1.0	1.3	1.3	1.1	0.9	0.9	1.2	0.9	0.9	0.9	1.1	1.1	1.0
CE	1.3	1.3	1.3	1.1	1.1	1.0	1.8	1.6	1.3	1.3	1.3	1.3	1.2	1.2	1.2
ME	0.5	0.5	0.6	0.5	0.5	0.5	0.9	1.0	1.0	1.1	1.1	1.0	0.6	0.6	0.6