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1. Reference theoretical paradigms and conceptual framework

In 2011 the General Assembly of the United Nations recognized that culture is an essential component of human development, represents a source of identity, innovation and creativity for the individual and the community and is an important factor in the fight against poverty, providing for economic growth.

In the last fifteen years, in fact, the literature at both the academic and institutional level has been recognizing the role that could be played in socio-economic development by cultural heritage on the one hand (e.g. European Council ESPD 1999, Faro Convention 2005², European Commission 2007 and 2012, Council of the European Union 2014) and by creativity on the other (e.g. Florida 2002, Lazzeretti 2007, UNCTAD 2008 and 2010).

The overall interest towards the potential of cultural heritage and creativity in triggering local economic development is also witnessed by the fact that 2018 is going to be the European Year of Cultural Heritage³ and by the very recent release of the first Cultural and Creative Cities Monitor⁴ at the European level.

In terms of economic policy, cultural heritage was generally considered in the past as a cost to society, a financial burden tolerated, principally, as a moral duty. Museums, ancient monuments, and historic buildings have been maintained at public cost, as places that have not - with a few exceptions - directly generated measurable economic advantage. However, cultural heritage is currently being discovered by both governments and citizens as a mean of improving economic performance, people's lives and living environments (European Commission 2015). This is a significant change in focus since cultural activities have been traditionally regarded as a cost to society, while they are today recognized as a positive contributor to the economic performance.

According to the Commission (2014), regions hosting heritage sites turn into drivers of economic activity, centers of knowledge, focal points of creativity and culture, places of community interaction and social integration. In this sense, they generate innovation and contribute to smart, sustainable and inclusive growth (EU 2020 strategy⁵).

Greater use of the economic potential of cultural heritage is thus encouraged at the European and international institutional level (see also UNESCO 2013). Hence, culture is not anymore something to be "watched": it turned in fact into something to be "lived".

Parallel to the literature on cultural heritage and regional development, a stream of studies focused on creativity and economic performance has developed. The nature and the extent of the relationship between creativity and economics and how they combine to create value and wealth have emerged as an interesting area of study (Howkins 2007). For a long time, the research on this field has been a domain of psychologists, mainly due to

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² Other important references by the Council of Europe are the European Cultural Convention (1954), the Convention for the Protection of the Architectural Heritage of Europe (1985), the European Convention on the Protection of the Archaeological Heritage (1992, revised) and the European Landscape Convention (2000).

³ https://ec.europa.eu/culture/european-year-cultural-heritage-2018_en.

⁴ <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/cultural-and-creative-cities-monitor-2017-edition>.

⁵ http://ec.europa.eu/europe2020/index_en.htm.

the fact that creativity is an attribute of the personality (Fritsch and Sorgner 2013). Relatively recently, however, scholars from other research fields (psychometrics, cognitive science, artificial intelligence, philosophy, history, economics, design research, business and management) have provided significant contributions to this topic and creativity currently represents an emerging paradigm, being at the center of a lively scientific debate in which scholars from different fields are engaged. Particularly, it has been recognized that creativity is a major driver of innovation⁶, and it is thus of crucial importance for economic growth⁷ (Andersson et al. 1993, Florida 2002, UNCTAD 2008 and 2010). Creativity has also become an important objective for development policies paying particular attention to the territorial dimension of innovative processes (Lazzeretti 2007: 169). There is indeed an emerging consensus that innovation does not simply occur in the realm of scientific discovery, but across all sectors of the economy (Vinodrai and Gertler 2006). Hence, innovation is not confined solely to the high technology sector and the critical role that creativity can play in fostering innovation and urban competitiveness is more and more recognized (Baycan 2011). Besides, creativity has been recently extensively discussed in urban and regional studies, which have offered to the literature some new and very popular concepts such as “creative class” (Florida 2002), “creative industries” (e.g. UK-DCMS 1998 and 2001), “creative milieu” and “creative city” (Landry 2008 and 2011). In fact, we moved from a system in which most value was given by a set of physical inputs – labor, machines, raw materials – to a system in which most of the value produced comes from immaterial inputs related to human knowledge, intelligence, creativity. These are fundamental conditions for generating innovation and development. Today, indeed, it is the capability to innovate, to continuously create – rather than to produce or re-produce mechanically – that allows to build specific and durable advantages (Tinagli 2008).

From what explained above it can be quite clear how the territorial dimension has gained great relevance within these topics. The importance of local history and cultural heritage - as well as the role of communities, residents, and consumers - in shaping the features of local systems and in affecting their economic outcomes has been indeed strongly emphasized (see, for instance, JPI 2014 and Symbola and Unioncamere 2017). Context is important in social, cultural, and economic fields (Pratt 2008) and place, culture and economy are symbiotic elements (Sacco and Segre 2009). The distinctive cultural resources of a given area express indeed a unique identity and heritage that provide the raw materials for re-imagining and reinventing the future (Bradford 2004), and the importance of culture, history, religion and identity in the potential of any territory to develop is in fact now generally accepted (Rodríguez-Pose 2013). The success of a territorial system, thus, does not depend solely on the quantity and quality of the material resources with which it is endowed. It also, and crucially, depends on the richness of its cognitive elements, or the way individuals think and behave (Capello et al. 2010). The intangible elements connected with culture and innovative capacity, indeed, accumulate through slow processes of individual and collective learning. They are, therefore, intrinsically localized and cumulative, embodied in human capital and local relational networks, in the labor market, and in the local context.

Moreover, even the creative capacity of a place is shaped by its history, its culture, its physical setting and its overall operating conditions (Csikszentmihalyi 1988). Already in 1961, Rhodes stressed how environmental factors at all times in life form a psychological press that may be either constructive or destructive to creativity (p. 306). However, later on, many other authors pointed out the relevance of the social context and the environment in determining creativity, highlighting how this is rooted both in time and in space and how the environmental conditions of various systems may discourage, inhibit, and suppress, or nurture, stimulate, inspire, and cultivate creative processes. All this is related to the concept of creative environment, which in fact implies some preconditions. Among them, a sound financial basis, basic original knowledge and competence,

⁶ Firms that succeed in innovation prosper, at the expense of their less able competitors. Innovative countries and regions have higher productivity and income than the less innovative ones. Because of these desirable consequences, policy makers and business leaders alike are concerned with ways in which to foster innovation (for a comprehensive review on the role played by innovation in economic growth see Fagerberg et al. 2005).

⁷ The European Commission (e.g. EC 2010) also recognizes the relevance of the topic, which is the main subject of many funded research projects (see, among others, Creative Europe <https://ec.europa.eu/programmes/creative-europe/>). See also “Io sono cultura” annual reports, by Symbola (<http://www.symbola.net/html/article/summary/publications>).

and a diverse milieu. These elements were identified in particular by Andersson (1985), who stressed how the creative milieu is a culturally many-sided environment within which synergy comes from variation and diversity among activities.

Thus, it emerges quite clearly how the cultural and creative characteristics of a local area can potentially play an extremely relevant role in regional economic development. However, the existing literature about the link between cultural heritage and economic performance on the one hand and creativity and economic performance on the other, is still inconclusive.

The reasons for the inconclusiveness of the theories on the link between culture, creativity and regional development are different in the two strands of literature.

As for the link between creativity and regional development, the scant and mixed empirical evidence is due to the objective difficulties in defining and measuring creativity, since the concept is fuzzy, intangible and multidimensional and usually definitions and measures are tailored on the specific issues to be analyzed.

For what concerns cultural heritage and regional development, the link is often just assumed, according to the idea that, being cultural heritage an economic asset, it must have a positive effect on economic development. When - instead of a direct relationship - a transmission channel is considered, this is typically (and exclusively) cultural tourism (see, among others, Carr 1994 and Snowball 2013), according to a linear and mechanical “tourism → demand → development” model.

In particular, the inconclusive results on the role of culture in regional development suggests that something is missing in the reasoning and in particular that – without denying a direct effect of tourism on regional development – a role should be given to indirect effects, i.e. mediated by other elements. A way to proceed is to find an intersection between the two strands of literature (cultural heritage and development on the one hand and creativity and development on the other). They have in fact developed in a parallel way, without much interaction. Instead, space exists where one can link the two concepts in a way that they help reinforcing their interpretative power with respect to regional development. The value added of this work is specifically in joining the two theoretical traditions, highlighting for the first time the fact that cultural heritage and creativity do in fact interact at the territorial level and can concur to positively affect economic development. In this sense, exploring the channels through which this could work results of critical importance also in terms of policy design. Hence, clarifying the mechanisms through which the cultural and creative features of a local area can positively affect its economic development is extremely relevant in order to design appropriate policies, able to effectively trigger and push economic performance taking advantage of (and incentivizing) the peculiar cultural and creative characteristics of local areas.

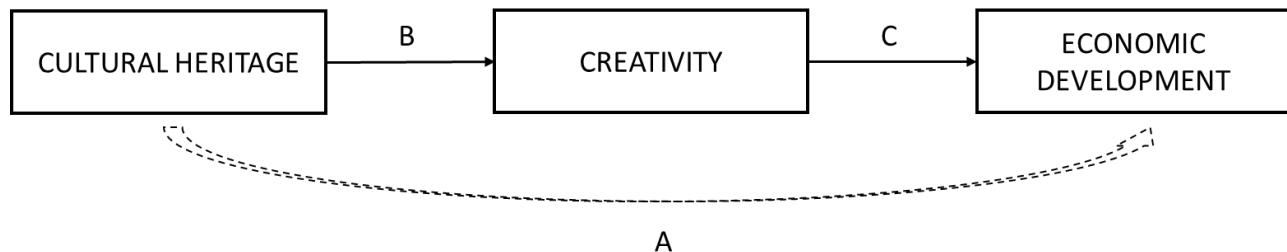
Thus, in order to identify some more sophisticated transmission channel with respect to the more “mechanical” touristic mechanism, this work starts from the idea that cultural heritage could play a relevant role in those areas endowed with specific intangible elements (Capello and Perucca 2017). In this sense, cultural heritage could positively affect regional economic development through creativity, where creativity – expressed according to different patterns – could in fact act as a mediator (catalyzer). This means that cultural heritage could inspire local creativity, according to the idea that cultural heritage can be considered as a value for people and community even if this does not provide them with a direct (monetary) benefit: individuals value cultural heritage simply because it exists. Cultural heritage could thus play a relevant inspirational role with respect to the territory in which it is located, giving rise to particular feelings and thoughts and, through this mechanism, could have an impact on economic development.

In this sense, the main research question this work tries to answer is: Does creativity mediate the effect of cultural heritage on economic development?

The overall reasoning is graphically represented in Figure 1. Link “A” represents the (potential) direct relation between cultural heritage and economic development, which is usually assumed in the existing literature. Link “B” represents instead the relation between cultural heritage and creativity, according to the idea that cultural heritage – through its aesthetic and emotional values, and thus exerting an inspirational role - can contribute to the shaping of the peculiar creativity of a local area. In particular, the focus of the thesis is on the “creative environment”, thus on how cultural heritage affects (inspires) the specific creative features of local systems and

the way in which these eventually play a role in economic development. Finally, link “C” shows the relation between creativity and economic development; such relation is expected to be positive since creativity is supposed to trigger the generation of new and original ideas and – through this mechanism – to lead to economic development. The overall reasoning is thus based on the potential mediating role of creativity between cultural heritage and economic development (links “B” + “C” in Figure 1).

Figure 1 – Cultural heritage and development: direct and indirect (mediated by creativity) effects



2. Methodology

To address, both conceptually and empirically, the research question presented in the previous section – does creativity mediate the effect of cultural heritage on economic development? – according to a territorial perspective, we develop:

- an investigation of the potential direct link between cultural heritage and economic development;
- an analysis of the effect of cultural heritage on (different types of) local creativity;
- an investigation on the role of creativity in regional development; and
- an overall comprehensive model meant to reconcile the different elements involved and to shed light on the cultural heritage → creativity → development nexus.

Step 1 – From cultural heritage to economic development: direct link

In order to be able to work according to the conceptual framework presented above, we start by addressing the first step of the reasoning, i.e. the potential direct effect of cultural heritage on economic development (link “A” in Figure 1), so often assumed in the existing literature but so seldom rigorously empirically tested. In order to do this, we need to clearly identify and define what is meant by cultural heritage. Within the present work cultural heritage is a tangible and common element. Cultural heritage is thus tangible according to the idea that it is the physical representation of the history of a given place and people. Hence, immovable units of heritage are also representations of intangible meanings (Carta 1999). Moreover, cultural heritage is considered here as a public good, thus characterized by non-excludability (no one can be excluded from its consumption) and by a low level of rivalry (consumption by one individual does not preclude consumption by others). This relatively narrow definition of cultural heritage is chosen also because the elements that we take into account are oftentimes mentioned as significant generators of tourism and economic development. In addition, their nature of public goods guarantees accessibility and implies potential positive externalities on economic development.

As for the econometric assessment, the units of analysis along the whole thesis are the Italian provinces (NUTS3 level) in two periods (2001 and 2011), for a total of 206 observations. The choice of the periods depends on the availability of census data, from which most variables are retrieved. Italy is a country with a rich endowment of cultural capital whose exploitation strongly differs from one area to another. For this reason, it represents an interesting case study where our framework can be applied. The dependent variable along the whole thesis is employment growth, while the variable representing cultural heritage refers to the immovable tangible cultural heritage present in the area, thus to the residents’ degree of exposure to tangible cultural heritage. Drawing on the data available from Carta del Rischio (Risk Map) provided by the Istituto Centrale per il Restauro (restoration central institute) of the Italian Ministry of Cultural Heritage, cultural

heritage is measured as “number of units of tangible cultural heritage per square kilometer”. The choice of weighting the number of cultural heritage elements by area was made precisely to be able to obtain an indicator which is indeed also a measure of the type of environment that characterizes a local area in terms of intensity of cultural heritage (intuitively, how likely an individual is to encounter a piece of tangible cultural heritage on his/her way). Controls for the main determinants of regional growth identified within the existing literature (e.g. urbanization economies, economies of scale in production, human capital, innovation) are also included in the econometric model.

Our expectations on the cultural heritage – economic development direct link is that the mere presence of cultural heritage, if not finalized through some filter, can hardly lead to economic development. This impression is econometrically tested and confirmed through a pooled OLS⁸ model of regional growth. The potential role of tourism is also taken into account by including an interaction term between cultural heritage and tourism measured as bedplaces per capita.

Since this first step of the analysis showed that there is no generalized direct impact of cultural heritage on economic development, we moved on with our reasoning, exploring some more sophisticated channels through which cultural heritage could indirectly affect regional performance.

Step 2 – From cultural heritage to local creativity: inspirational role

According to the framework presented before - and as a consequence of the results obtained in the previous step of analysis - we explore the potential inspirational role of cultural heritage on local creativity (link “B” in Figure 1). In order to do this, it is of course necessary to clearly identify what we mean by creativity. Defining creativity is in fact very difficult. This is due to the fact that it is an intangible and multi-faceted factor. The existing definitions and measures of creativity, together with their pros and cons, are extensively discussed in the thesis, which addresses the issue through proposing an innovative conceptual framework that allows to identify and measure different types of creative talents (artistic, scientific, and economic) and all their possible interactions, according to the belief that it is the “mental cross-fertilization” (Camagni 2011) between different creative talents that generates innovative and breakthrough ideas and – through this mechanism – pushes economic development. Creativity is thus defined as ideation based on talents of different types, i.e. stemming from different domains.

In particular, the three different creative talents identified are conceptualized as follows:

artistic creativity is probably the first idea that comes to our minds when we think about creativity. It is related to imagination and it is usually expressed through text, sound, or images (UNCTAD 2010). In terms of activities, we can refer for instance to dancing, painting, music, theatre, or cinema.

Scientific creativity is instead a type of creative talent more linked to curiosity and willingness to establish new connections in problem solving (UNCTAD 2010). Engineering and R&D are typical activities related to this type of creativity.

Finally, economic creativity is based on business ideas/skills/organization. It is a creative talent that is mainly expressed through applied (market) solutions to practical problems.

According to this multidimensional idea of creativity, a conceptual framework that takes into account the different types of talent and their possible interactions was ideated in order to be able to characterize geographical areas in terms of their peculiar type of creative specialization⁹. The three main components of creativity described before and all their possible combinations are investigated: there is no need for all the components to be there at the same time, since any possible combination shapes a particular type of local creative specialization.

The logical scheme is represented in Figure 2, which shows all the possible combinations of creativity endowments that can characterize a local area. The three intersecting circles show the main types of creativity,

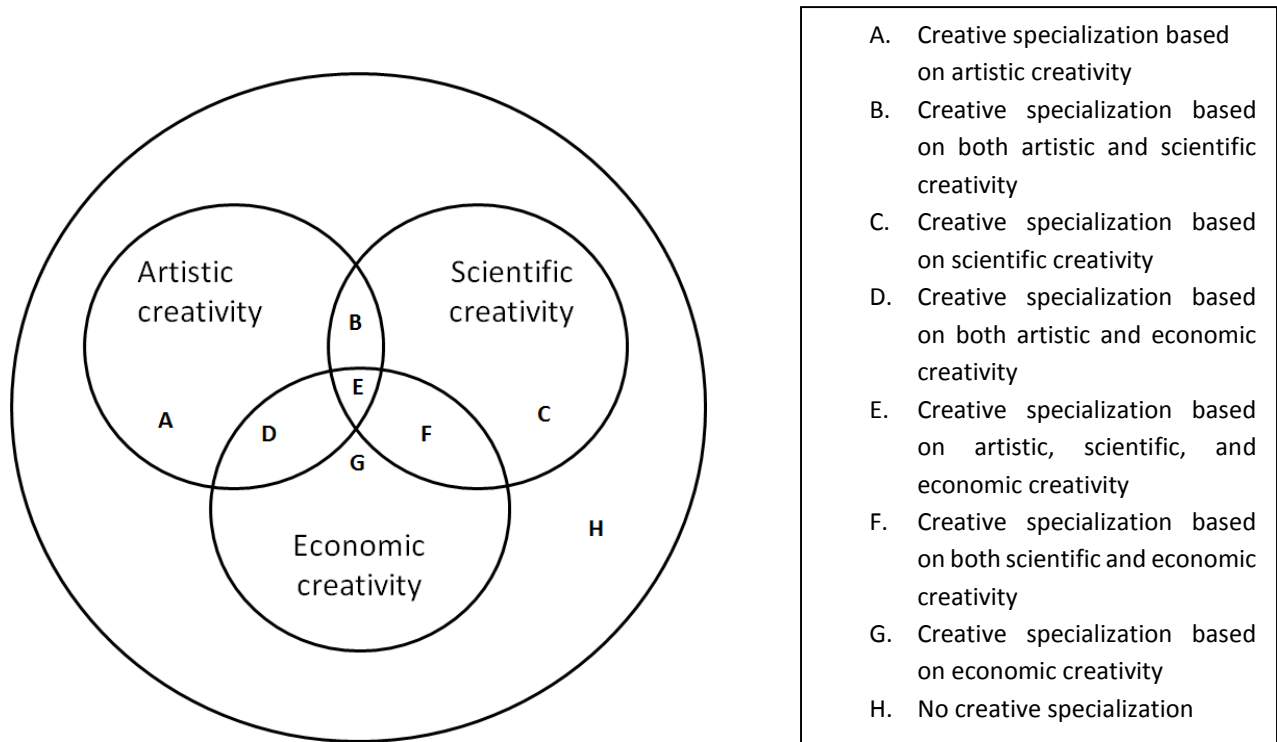
⁸ The time invariant nature of the variable related to cultural heritage prevented here the performing of a panel FE model.

⁹ This conceptual framework was already presented in Cerisola (2016).

together with all their possible interactions. There are also areas that do not present any particular type of creative specialization (category H).

The different types of creative specialization are mainly related to local history, thus to the peculiar (cultural) heritage of a territory and to the regional socio-economic conditions that, over time, pushed a given local system to its current “shape”.

Figure 2 – A visual representation of possible combinations of creativity endowments in a local area



Moreover, synergies between different types of creativity are explicitly taken into consideration. This is particularly relevant according to the view that the interplay of different creative skills favors novel associations and linkages, thus stimulating the generation of new and breakthrough ideas, and, through this mechanism, a positive effect on local development. Following this logic, local areas can be differently specialized, from a creativity perspective, according to the specific combination of creative talents that is present. In particular, there can be:

areas characterized exclusively by artistic creativity (A), that is, areas in which the creative specialization is related to a particular endowment of emotional expression, imagination, art, and culture;

areas characterized exclusively by scientific creativity (C). These are areas particularly endowed with creativity that relates to science, research, and analytical problem solving;

areas characterized exclusively by economic creativity (G), that is, in which creativity is mostly related to economic organization, business ideas, and entrepreneurship;

areas characterized by the concurrent presence of both artistic and scientific creativity (B), that is, areas in which creativity rests on both artistic and scientific talents that, when they interact, give rise to particular inventive capacities. Examples of such inventive capacities can be the ideation of a concrete or paint with a specific chemical composition for the restoration of ancient monuments¹⁰;

- areas characterized by the concurrent presence of artistic and economic creativity (D). These are local areas in which the artistic creativity easily finds business inventions to translate an artistic idea into a

¹⁰ A real practical example of this creative category is provided by Salimbeni et al. (2002) about the implementation of laser technologies of optometry for cleaning stone materials in the conservation of ancient monuments (see also Lazzeretti and Cinti 2013). Also relevant the role of R&D within the *Cirque du Soleil*, as reported in Stolarick and Florida (2006).

concrete business plan. A painter using his/her works of art (images) as the subjects to be reproduced on different objects, that are subsequently marketed, is an example in this respect;

- areas characterized by the concurrent presence of scientific and economic creativity (F). In areas characterized by the contemporaneous presence of scientific and economic talents, scientific ideas find entrepreneurial spirit ready to use them, and exploit them for business purposes. For example, the ideation and marketization of scientific instruments (see, for instance, von Hippel 1988) or of medicines;
- areas characterized by the concurrent presence of all the three types of creativity identified (E). These are the areas in which the co-presence of all types of talent may generate most diversified (complex) synergies and where the effect is potentially more interesting and relevant. Just to draw again on the example provided for category B, we could imagine the situation in which the special concrete or paint for the restoration of ancient monuments is also marketed on a large scale¹¹;
- finally, there are areas that do not present any particular type of creativity (H). These are local areas in which there is simply no specific creative specialization.

As for the measurement of the different creative talents, artistic creativity and scientific creativity are measured as the share of working age population performing artistic/scientific tasks and the data are retrieved from the Italian Censuses of Population and Houses (2001 and 2011).

Economic creativity is instead measured as the number of trademark applications over working age population in the same periods (2001 and 2011) according to the thought that the indicator chosen had to capture business ideas. Trademarks, indeed, can be seen as representative of an entrepreneurial discovery, since they are recognizable signs and expressions of new business ideas that can be embedded in a new product or service.

According to the conceptual framework and the measures described above, the second step of the reasoning - the potential inspirational role played by cultural heritage on the different creative talents - is explored through a Durbin Spatial Panel model, since some spatial autocorrelation in the dependent variable and/or residuals was detected. The role of other potential determinants of different types of creativity (e.g. education, wealth, socio-cultural diversity, presence of creative industries) is also taken into account¹². This type of analysis is particularly original because it introduces the innovative idea that different types of creativity can in fact be determined by different local characteristics.

Given the existence value, the aesthetic value and the emotional value of cultural heritage (Throsby 2001 and Mason 2002), we do expect it to have a special impact on artistic creativity. However, cultural heritage could also affect other creative talents, since in general it stimulates our thoughts, our feelings and our capability of critical thinking (Della Torre 2010). Our expectations are empirically confirmed and cultural heritage comes out as a significant determinant of artistic creativity and scientific creativity.

In order to move on with our reasoning - and thus to explore the potential role of (different types of) creativity as a mediator between cultural heritage and economic development – was then necessary to analyze the relationship between different (synergetic) creative talents and economic development.

Step 3 – From creativity to economic development: synergetic creative talents

The subsequent step of the reasoning, i.e. the impact of creativity on regional economic development (link “C” in Figure 1), is investigated through a panel FE model. The dependent variable, the controls, and the measures of the different creative talents are defined as explained before. In this case, the main innovative idea is that it is the synergetic action of different creative talents that triggers economic development. Such belief is empirically studied exploiting interaction terms between the different types of creativity. In fact, single talents risk to produce ideas with limited usefulness (a painting, a mathematical formulation with no practical application, a business idea with no market value). Instead, their association can be the way to approach the

¹¹ An extremely pertinent example of this category is provided by Livio (2017: Preface), who mentions *Hubble Cantata*, a piece of contemporary classical music, accompanied by film and virtual reality, all inspired by images taken with the Hubble Space Telescope.

¹² On the determinants of different types of creative specialization see Cerisola (2018b).

complexity of the world, by developing novel solutions to real problems, by stimulating new needs, by searching for new market niches thanks to the combination of artistic, scientific and economic talents. Thus, the original approach is mainly in considering that the mental cross-fertilization of talents, rather than creativity on its own, could be the driver of local development¹³. Our expectations are econometrically confirmed, which leads us to the next and final step of the reasoning, i.e. confirming if in fact creativity can play a mediating role between cultural heritage and economic development exploiting a comprehensive framework.

Step 4 – From cultural heritage to development through creativity

Finally, the last step of the overall reasoning – from cultural heritage to socio-economic development through creativity (links “B” + “C” in Figure 1) – is empirically assessed by a Structural Equation (mediation) Model. Such model was chosen as the most appropriate technique to investigate the research question since it allows to provide a comprehensive econometric model that shows both the direct and indirect impact of cultural heritage on economic development, taking into account the role of creativity as a mediator/catalyzer between cultural heritage and economic development. In this sense, the innovative goal of the model is in showing the impact of cultural heritage on the different creative talents (artistic, scientific and economic) and the subsequent effect of such creative talents on regional economic development. The dependent variable, the controls, and the measures of cultural heritage and of the different creative talents are defined as explained before.

Our initial expectations and previous results are confirmed: cultural heritage does not seem to play any generalized direct role on economic development, but it has an indirect effect on regional performance through its significant inspirational impact on artistic and scientific creative talents.

3. Results, conclusions and policy implications

3.1 Main results

Following the conceptual framework introduced in the first section (Figure 1), the first step of the analysis confirmed our expectations: the mere presence of tangible cultural heritage does not seem to play any relevant direct role in triggering economic development, while the interaction between cultural heritage and tourism comes out to be positive and extremely significant. The results suggest that the combined action of tangible cultural heritage and tourism could indeed play a role in regional economic development. Therefore, while the often assumed direct relationship between cultural heritage and economic performance does not seem to be there, the effect of the simultaneous presence of tangible cultural heritage and tourism looks more promising. This does not necessarily mean, however, that cultural heritage can affect economic development exclusively through the mechanical (and relatively trite) touristic channel. As a consequence of tangibility and public good characteristics of cultural heritage, indeed, it can also play an inspirational role, which was investigated as the second step of the analysis.

As expected, cultural heritage turned out to be an extremely strong determinant of artistic creativity, on which it exerts an inspirational role that is probably related to its aesthetic and emotional value. Cultural heritage came out as an important determinant of scientific creativity, as well. This is consistent with our idea that the presence of cultural heritage generally stimulates critical, original, and innovative thinking. The effect of cultural heritage on economic creativity, instead, does not result as particularly relevant. Overall, it seems indeed that the physical environment deeply affects our thoughts and feelings, cultural heritage being, in this sense, one of the environmental factors that can have an impact on local creativity (especially artistic and scientific). The analysis, therefore, corroborates the idea that there is an inspirational mechanism according to which the mere existence of cultural heritage can generate capability to doubt, to learn and to innovate. In this sense cultural heritage inspires (artistic and scientific) creativity through the triggering of original thinking. After establishing this inspirational link between cultural heritage and creativity, the next step was devoted to the analysis of the relation between (different combinations of) creativity and economic development.

¹³ A first version of this analysis was presented in Cerisola (2018a).

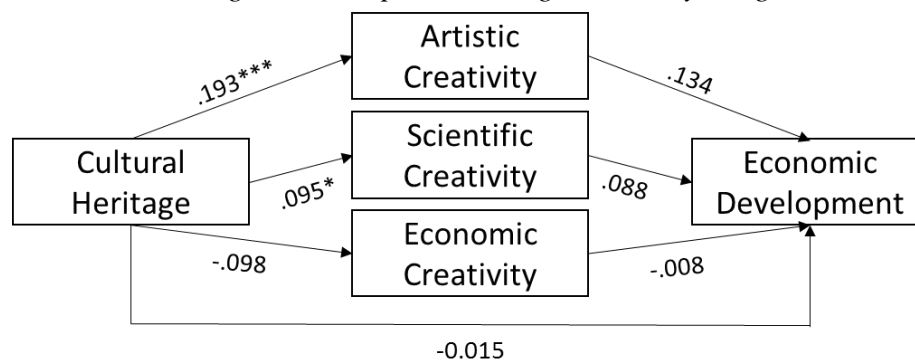
The empirical results show that no single type of creativity per se triggers economic performance. Looking instead at the effects of synergies between different types of creativity, our expectations are confirmed: all the interactions between different creative talents have always a positive and significant effect on the economic performance of Italian provinces. Thus, it seems to be the synergetic cross-fertilization between different creative talents that generates the best and most original ideas and, through this mechanism, that triggers the positive impact on development. This analysis in fact warns about the simplistic view of investing in creativity to generate economic growth. Starting from Florida (2002, 2003), the incentives to attract talented people in an area have been widely discussed in the literature. Such incentives, however, are not sufficient to re-launch a local economic performance. The real value added is in attracting a mix of complementary talents that, through their interaction, are able to generate breakthrough ideas, and consequently stimulate growth.

After analyzing the role of cultural heritage in determining (different types of) creativity and after investigating the effect of (multidimensional) creativity on regional economic development, the next step put together the whole reasoning (from cultural heritage to development through creativity) in a comprehensive model.

The outcomes of the previous analyses are confirmed: tangible cultural heritage does not seem to have any relevant direct effect on employment growth, but it plays an inspirational role on (and is thus a significant determinant of) artistic and scientific creative talents, while it does not affect economic creativity. On the other hand, the single creativity types do not have any significant impact on economic development (Figure 3). However, looking at the results for the specifications which consider the interactions between different creative talents, we found out that, being cultural heritage a strong determinant of artistic creativity and - although to a lower extent - of scientific creativity, it also significantly affects the interaction of these types of creativity, which in turn shows a relevant and positive impact on economic development. Moreover, consistently with the previous results, also the other interactions positively and significantly affect economic development. The role of cultural heritage in this cases is, however, mitigated by the fact that it is not a significant determinant of economic creativity and thus its contribution is necessarily less determinant (Figure 4).

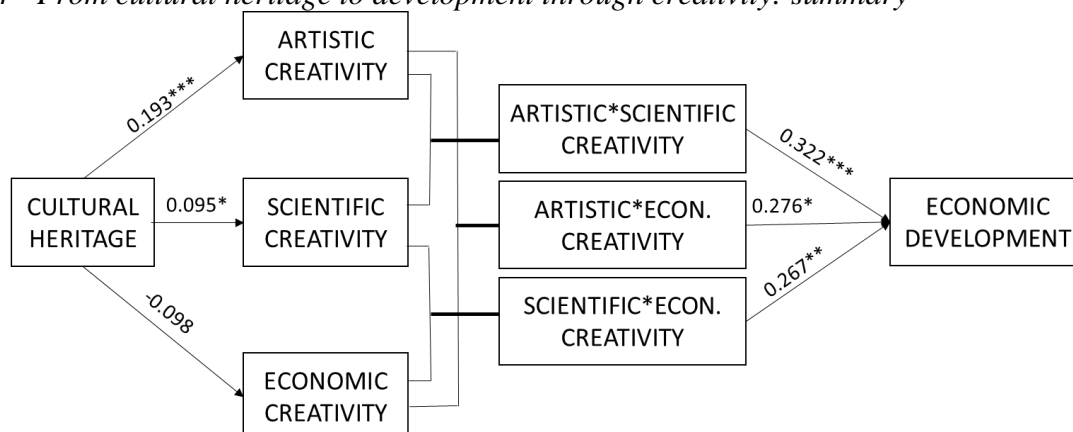
Thus, there seems in fact to be an indirect effect of cultural heritage on employment growth. Such effect is mediated by (different types of) creativity and by their synergic interaction. Therefore, the one described looks indeed as an effective transmission channel between cultural heritage and economic development.

Figure 3 – From cultural heritage to development through creativity: single creative talents



*Standardized coefficients. Robust std errors. Significance levels as follows: * 10%, ** 5%, *** 1%.*

Figure 4 - From cultural heritage to development through creativity: summary



Standardized coefficients. Robust std errors. Significance levels as follows: * 10%, ** 5%, *** 1%.

3.2 Conclusions and policy implications

Given the logic of the overall conceptual framework and the results of the empirical analysis, it is possible to draw some general conclusions that can provide interesting policy implications at the regional level.

Overall, indeed, the present work shed light on an indirect mechanism thorough which cultural heritage leads to regional economic development when mediated and catalyzed by creativity. However, the understanding of this transmission channel provided by this work should be translated into practical policy guidelines if we want the virtuous relationship we discovered to fully provide all its potential. Nevertheless, due to their intrinsic characteristics, such territorial relationship is particularly complex to be taken into account when designing local development policies. Creativity and, even more so, cultural heritage cannot be provided from scratch by local governments. Moreover, when building a policy base, it is critical to start from the existing assets rather than the desired set of assets. Related to this, adopting a place-based strategy and encouraging a context-specific design practice seems to be critically relevant.

All in all, culture is definitely a field for government intervention, especially because of the public nature of a great part of its products. As pointed out by Sacco (2012), Italy in particular is a country that seems to be naturally inclined to give culture a central role in its national and local development strategies, given the richness of its cultural heritage and the outstanding role of culture in the definition and perception of its national identity. In spite of this, culture seems to play a surprisingly minor role in the current Italian policy debate. Moreover, as already pointed out, the economic potential of culture is seen as exclusively and merely ancillary to tourism. In terms of policies, connecting culture with active citizenship and social cohesion appears instead of paramount importance under a culture-led local development perspective.

As for cultural heritage, in particular, the present work calls for a public cultural policy that pushes on its conservation and valorization. If cultural heritage - through its inspirational role on creativity - does indeed play an indirect role on regional and local economic development, taking care of it is meaningful not only for a sense of moral and civic duty, but also because this favors local wellbeing. In this sense, a strong community involvement also seems to be desirable, especially in order to “activate” a mechanism that is otherwise completely passive. The mere existence of cultural heritage does indeed play an inspirational role on local creativity and - through this channel - leads to a positive indirect effect on regional economic development. However, its impact could be enhanced if there were active policies aimed at preserving and valorizing cultural heritage, especially if boosting the engagement of local actors and fostering cultural participation.

Related to this, a cultural policy can help to ensure that arts and cultural endeavors are supported (Baycan 2011). A practical way to address this need and assure the engagement of local population could be the implementation of cultural districts: geographically delimited relational systems that integrate the tangible and intangible cultural richness of given territories with the related economic activities, specific of their contexts. In Italy, cultural districts policy represents indeed a rather successful way to increase the awareness and social participation in the protection of heritage, leveraging on the (more or less) present social capital and milieu

effects and addressing it toward the valorization of heritage capital. At a more “global” level, the use of ICTs – through the so-called e-Heritage – could be an effective way of making cultural heritage more (virtually) accessible, thus involving a higher number of people and widening the chances to get in contact with impressive tangible elements of history.

As for creativity, on the other hand, there is no recipe for local areas to just become creative. However, public policy can play a critical role in nurturing creative assets and infrastructure: what can be done is to try and create the proper framework conditions, thus increasing the chances that local creativity will germinate. The creativity of individuals forming the creative core of a local area can be seen as a synergetic process nurtured by interaction and cooperation (Andersson 2011), tolerance and freedom (Florida 2002), affection to places (Cusinato 2016), casual encounters (Rémy 2000), chance, sudden breakdowns, and even (organized) chaos.

The force of these synergetic processes is determined by the quality and size of the (creative) environment. In particular, the simultaneous and synergic presence of different creative talents was proved within the present work to be very relevant for local economic development in terms of regional employment growth. Thus, the real value added could reside in attracting (and retaining) a mix of complementary talents that, through their interaction, are able to generate breakthrough ideas. This is, however, a difficult process to guide, since it is more the result of spontaneous, long term cooperation rather than of incentive policies. What normative interventions can do is to develop the local conditions for attracting different types of talented people and let them merge with the indigenous population. In this sense, promoting sociocultural diversity seems to be advantageous in order to push economic creativity through tolerance (and possibly interest) towards differences. In addition, incentivizing the presence of creative industries could also be a practicable and useful strategy. Finally, improving the local endowment of human capital can also furtherly push creativity and, through this, economic performance. In fact, the message that emerges from the different steps of the analysis about the importance of the environment is that creativity basically germinates in relatively rich and educated areas, thus within a context of modernity, which is also related to urbanization and agglomeration economies. Thus, as Csikszentmihalyi (1996) puts it, what can be done is “creating creative environments”. In any case, we cannot be satisfied just attracting creativity (creative people). We also need to identify the factors that allow creativity to become a structural component of our territories. Therefore, targeted policies might try to attract talented and creative people but they could also try to invest in “growing” them. However, creative development may go hand in hand with social tensions and social polarization, as Florida himself finally admitted in his recent book (2017: xvi). Such risks should be taken into account, handled carefully, and limited as much as possible.

One relevant issue linked to the policy implications raised by the present work is related to the financing and management models for policy design for cultural heritage and creativity.

As stressed by Cicerchia (2002), the investment in culture is profitable mainly in non-material ways (only indirectly translatable in monetary terms, see Throsby’s use vs non-use values) and, in particular, in many cases the results can come much later (next generation) with respect to the investment. According to the author, this is the reason why the main subject of this kind of activity is the public sector. Although we can by and large agree with this position, it is also relevant to take into account the newly developing models of collaboration between the public and the private sector. As the European Commission (2015) has recently pointed out, indeed, the public sector should incentivize the involvement of private sector in investing in cultural heritage through new financial instruments, such as tax breaks, differentiated VAT rates, well designed grants, loan programs and Public-Private Partnership (3Ps) schemes, i.e. a long term collaboration between public and private entities aimed at realizing public duties in which resources and risks are proportionally shared. 3Ps management models, in particular, could push the investment on (and the “activation” of) the existing cultural heritage.

Overall, given the importance of cultural heritage and synergetic interactions of different creative talents for a territory, the present work calls for a critical role that could be played by the education system. If conveniently organized, indeed, it could provide a continuous sequence of specialization and re-composition of disciplines, approaches, and cultural fields, especially considering that – in history – the blossoming of any civilization (and

development) cycles have always witnessed the simultaneous presence of cultural, artistic, and scientific/technological manifestations.

Finally, considering the complexity of designing development policies that exploit cultural heritage and creativity, a non-linear, multi-causal scheme seems to be the only possible framework for the policy design of credible, socially accountable, culture-led development strategies (Sacco et al. 2014). A mono-causal development scheme would be indeed absolutely inadequate, as came out quite clearly within the present work: on the one hand, cultural heritage exerts an inspirational influence on different types of creativity and – through this mechanism – indirectly affects regional economic development; on the other hand, it is the synergic interaction between different creative talents to generate new and innovative ideas and – through this channel – to trigger economic development. To go beyond mono-causality Sacco et al. (2014) propose a “new territorial thinking” for culture-driven, complex socio-cultural dynamics. Culture-led development would then mean to create the social and economic conditions for enabling culture to perform effectively and sustainably, through a proper strategic coordination with the whole local economy and community.

The present work also allows to think about further perspectives to be explored, especially in terms of:

- the importance of synergies between different fields and mental settings;
- the most appropriate level of government that should play a part in raising the chances for regional creativity and conservation/valorization of cultural heritage;
- the possible “return effect” (from economic development to conservation and valorization of cultural heritage) that could lead to additional reasoning on the “sustainable” governance of cultural heritage as a key factor for a durable and balanced long-term regional development.

This work contributed to our knowledge of the relationship between cultural heritage and economic development through the study of an innovative transmission channel that involved the catalyzing role of creativity. As it is always the case in any research process, many more lines of reasoning now open up within this extremely fascinating and wonderfully promising topic.

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