Economic development and the creative industries: a tale of causality

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Economic development and the creative industries: a tale of causality

Francisco Marco-Serranoa*, Pau Rausell-Kosterb and Raul Abeledo-Sanchisc

aDepartment of Economics, GSM London, London, UK; bDepartment of Applied Economics, Universitat de Valencia, Valencia, Spain; cCultural Economics Research Unit (Econcult), Universitat de Valencia, Valencia, Spain

Cultural and creative industries are thought to be a driver for economic growth. During the last decade, research has tried to link higher intensity of these industries with the region’s welfare. However, this is a controversial relationship that still needs to be proved. In this article, we build a conceptual framework to help us test the possible causality between regional income generation and employment in the cultural and creative sectors. Using regional European data for 1999–2008, our results show that there is a significant feedback (bidirectional causality) between the per capita GDP and employment intensity in the cultural and creative industries, allowing us to conclude that there is a ‘virtuous circle’ fed by these industries.

Introduction

European regions, especially the southern ones, are at a crossroads without precedent since the aftermath of the Second World War. In 1989, the year of the fall of the Berlin Wall, there emerged in Europe the most successful political and economic space through a process of economic convergence and unforced integration that could be considered as a miracle in historical terms. Twenty years later, the impact of the financial crisis in the USA hit the European economies causing falls in the gross domestic product (GDP) of 6% in Germany, the UK and Italy. Since then, there have been a number of attempts to try to overcome a crisis that almost collapsed the monetary system and damaged the real economy; the implemented economic policies have resulted in a substantial reduction in the size of the welfare state that characterised the European model.

Against that background, different proposals try to look for a sustainable economic model that ensures Europe’s competitiveness in the medium and long term. Strengthening cultural and creative industries (CCI) is one of the proposed paths. Actually, as pointed out by Potts and Cunningham (2010), these industries have their significance in dynamic terms, derived from their ability to catalyse dynamic economic growth and development, even when their static significance is also of growing importance and constitutes an economic sector whose size exceeds the ‘primary sector’ in terms of gross value added in many Western countries.

Using European data at the regional level and structural equation modelling (SEM), we intend to analyse if there is an actual relationship between economic growth and the strength of the creative industries, building a model that allows us to interpret the impacts of different socio-demographic variables on both the income generation growth of a region and the employment in the sector.

*Corresponding author. Email: francisco.marcoserrano@gsm.org.uk

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Socio-economic conditions and the cultural and creative industries in Europe

Despite some discussion about the definition of the CCI and the different behaviours of each of its subsectors, academic literature has emphasised in some detail the relationship between culture and development.

Power and Nielsén (2010) and Power (2011) stated that ‘regions with high concentrations of creative and cultural industries have Europe’s highest prosperity levels’ (p.2, executive summary), suggesting that there is an increasing set of evidence reinforcing the idea that there is a strong relationship between the size of the CCI and the wealth of regions in Europe.

This evidence shows that the relationships are not only mere correlations but causal and circular relations. Therefore, being a wealthy region is the cause of having more people working in the CCI sectors; at the same time, having more people employed in those sectors makes the regions wealthier, which in turn, will attract higher employment in the sector, transforming the process into a virtuous circle. Other insights point out that these relationships are complex, multiple and sometimes contradictory (Rausell and Abeledo 2012; De Miguel et al. 2012).

Traditionally, the relationship between cultural and creative activities has been relegated to answering questions around the arts and market failure (cultural economics) or about looking for the rationale for cultural regulation. Instead, nowadays there is a focus on the role of media, culture and communications in generating change and growth in the Schumpeterian sense: the ‘capitalist engine’ (Cunningham 2011).

Europe does not have many more options of specialisation in a scenario of global competitiveness. As the Green Paper ‘Unlocking the potential of cultural and creative industries’ stated:

For Europe and other parts of the world, the rapid roll-out of new technologies and increased globalisation has meant a striking shift away from traditional manufacturing towards services and innovation. Factory floors are progressively being replaced by creative communities whose raw material is their ability to imagine, create and innovate. In this new digital economy, immaterial value increasingly determines material value, as consumers are looking for new and enriching “experiences.” The ability to create social experiences and networking is now a factor of competitiveness. (European Commission 2010b, 2)

So, if we want to leverage creativity and innovation and create a new entrepreneurial culture, governments need to nurture them by empowering the CCI. Regrettably, as Cooke and De Propis (2011) argued, the EU’s economic growth takes little account of the opportunities and potential of the CCI, favouring hard technologies and services.

On the bright side, a consensus is starting to be generated around the fact that the symbolic dimension of an area and how it deploys in the cultural and creative activities affecting its socio-economic structure and competitiveness lays far beyond the aesthetic aspects of cultural activity. However, policy formulations have become too vague and culture appears as a contextual variable that envelops everything but where it is difficult to determine the causality of relationships (Rausell and Abeledo 2012). Even some authors seriously question the relationship between creative economy and development (see e.g. Reese and Sand 2008).

Only recently has a body of theory been developed to unveil a more accurate approach to the black box that connects the cultural and creative activities to competitiveness and economic performance of a region. Even noting that we are quickly building a storyline that connects culture and creativity with economic development, there are still many unresolved issues. Indeed, one of the objectives of this research is to deepen our understanding of the dynamics of relations between CCI and the economic performance of a region.

According to research sponsored by the European Commission, wealth generation in the European regions is explained by the instantaneous effect of employment in the
creative sectors. The report ‘The economy of culture in Europe’ (European Commission/KEA 2006), beyond uncovering the links between creativity and innovation within the information and communications technology sector, and regional development and attractiveness, demonstrated that the creative and cultural sectors in Europe are as competitive as other industrial sectors; in some cases, even more competitive, turning CCI as a driver for economic growth based on its labour force.

Urbanisation is another relevant factor to explain employment in the cultural sector, which reinforces the importance of agglomeration economies and the clustering of creative and cultural activities. Urban regions concentrate 32% of the creative workforce with only 25% of the active population (Russo and Quaglieri 2011). Works like the European Competitiveness Report 2010 (European Commission 2010a) have pointed out several reasons why creative industries are concentrated in urban areas. The main factors are: (1) importance of specific local labour markets and tacit knowledge; (2) spillovers from one creative industry to another; (3) firms’ access to specific infrastructures and collective resources; (4) project-based work; (5) synergic benefits of collective learning; and (6) development of associated services, infrastructures and supportive government policies. However, other studies based on least square estimates (European Competitiveness Report, 2010) indicate that the degree of urban specialisation of the creative industries rises less than proportionally to an increase in the population size. These data may indicate that, in certain sectors, urban spaces offer a minimum critical mass that allows for the establishment of cultural and creative activities. However, once this critical mass is surpassed, variations are not proportional.

Another variable to be considered when explaining employment in the creative industries is human capital. Notwithstanding, the creative industries are strongly linked to the existence of a concentration of highly educated individuals (Florida 2002).

In Rausell et al. (2011), some hypotheses about the directionality of causality between employment in the CCI and economic development are proposed. In that work, an econometric panel data approach is adopted to test the causality between per capita GDP and labour intensity in the CCI measured as the percentage of employed people in the sector with regards to the total in the region, with the scope of the research being in Spain. The results of that research showed the existence of a bidirectional and lagged relationship between both variables, which the authors tagged as a ‘virtuous circle’ between income generation and CCI labour intensity.

For our research, we are interested in broadening the scope of the analysis started by Rausell et al. (2011) to embrace the whole European economic area. Furthermore, we will be using a methodology considered technically more suitable for testing the following hypotheses:

H1: There is a bidirectional causal effect between regional income generation and labour intensity in the CCI in Europe.

H2: Labour intensity in the CCI is linked to human capital stock, linked to the presence of a strong higher education sector and to urbanisation processes.

Data

Using data from Eurostat and the European Cluster Observatory, we have compiled an unbalanced data set made up of 271 European regions (NUTS 2 level). The available annual data comprises the years 1999–2008.
**Income generation**

In order to analyse income generation, we assessed three variables: per capita GDP (GDPPC, measured in purchasing power standards); per capita disposable household income (DIPH, measured in purchasing power standards); and apparent labour productivity (PROD). While the first is one of the most widely used variables to evaluate economic development, the second variable extracts the tax effect, allowing us to determine the income that can be used individually and effectively to obtain direct utility. However, this obviates the social effects derived from the use that governments make of tax resources. As for the third variable, it is necessary to consider this when evaluating the income generation of an economy because of its relationship to job creation and wage setting, and because it is the main driver for economic growth.

**Employment**

The analysed period was a decade of growth in terms of employment, with the employment rate experiencing an annual growth of 0.71% and the unemployment rate decreasing by 3% per year.

In order to analyse the evolution of employment in the CCI, we resort to the operational definition of the European Cluster Observatory (Power 2011) and therefore consider both employment in the CCI and employment in knowledge-intensive professional services. The variables have been calculated as intensities, obtaining the percentages of employment in comparison to the total employment of the region INTCCI (intensity of the employment in the CCI sector) and INTKIBS (intensity of employment in the KIBS sector).

**Higher education**

Three variables have been considered as higher education indicators: students in tertiary education ISCED 5–6 (International Standard Classification of Education, levels 5–6) as a percentage of the population aged 20—24 years at regional level (STTER1); the ratio of the proportion of higher education students over the proportion of the population in the region (STTER2); and students at the regional level, as a percentage of the total students at country level (STTER3).

**Urbanisation**

The degree of urbanisation is one of the characteristics that accompanies both economic growth and the evolution of CCI. Since the cultural and creative phenomenon is an urban entity, it is interesting to evaluate whether these characteristics are decisive or explanatory of the degree of development of the regional economy at the European level. The average values per variable and year can be found in Table 1.

**Assessing the causality between cultural and creative industries labour and income generation**

Plotting the relationship between labour intensity in CCI (INTCCI) and labour intensity for knowledge-intensive business services (INTKIBS) with per capita GDP for the period 1999—2008 shows a strong relationship between the INTCCI and INTKIBS labour markets and per capita income generation (Figure 1). Both labour intensity variables are...
Figure 1. Relationship between labour intensity in CCI and KIBS, and per capita GDP (1999–2008).
Source: Own source from Eurostat and European Cluster Observatory.

Table 1. Variables.

<table>
<thead>
<tr>
<th>Year</th>
<th>GDPPC</th>
<th>DIPH</th>
<th>PROD</th>
<th>INTCCI</th>
<th>INTKIBS</th>
<th>DENS</th>
<th>HUA</th>
<th>STTER1</th>
<th>STTER2</th>
<th>STTER3</th>
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<tbody>
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<td>11,027</td>
<td>28,271</td>
<td>1.80</td>
<td>4.89</td>
<td>366</td>
<td>46.46</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
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<td>18,366</td>
<td>11,320</td>
<td>29,761</td>
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<td>4.97</td>
<td>374</td>
<td>48.02</td>
<td>46.14</td>
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</tr>
<tr>
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<td>4.76</td>
<td>370</td>
<td>48.18</td>
<td>46.00</td>
<td>7.66</td>
<td>0.90</td>
</tr>
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<td>31,657</td>
<td>1.76</td>
<td>4.63</td>
<td>380</td>
<td>48.72</td>
<td>47.29</td>
<td>8.22</td>
<td>0.90</td>
</tr>
<tr>
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<td>1.76</td>
<td>4.63</td>
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<td>49.69</td>
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<td>0.89</td>
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<tr>
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<td>4.36</td>
<td>379</td>
<td>47.65</td>
<td>51.74</td>
<td>8.89</td>
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</tr>
<tr>
<td>2005</td>
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<td>13,252</td>
<td>34,215</td>
<td>1.70</td>
<td>4.61</td>
<td>378</td>
<td>48.10</td>
<td>53.88</td>
<td>8.80</td>
<td>0.89</td>
</tr>
<tr>
<td>2006</td>
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<td>35,621</td>
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<td>4.50</td>
<td>374</td>
<td>47.28</td>
<td>54.22</td>
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<tr>
<td>2007</td>
<td>24,211</td>
<td>14,307</td>
<td>36,436</td>
<td>1.62</td>
<td>4.40</td>
<td>376</td>
<td>46.82</td>
<td>56.92</td>
<td>9.69</td>
<td>0.90</td>
</tr>
<tr>
<td>2008</td>
<td>24,357</td>
<td>ND</td>
<td>36,184</td>
<td>1.49</td>
<td>3.89</td>
<td>316</td>
<td>48.18</td>
<td>58.43</td>
<td>9.65</td>
<td>0.90</td>
</tr>
<tr>
<td>Total period</td>
<td>20,909</td>
<td>12,597</td>
<td>32,724</td>
<td>1.68</td>
<td>4.50</td>
<td>370</td>
<td>47.68</td>
<td>52.16</td>
<td>8.85</td>
<td>0.90</td>
</tr>
</tbody>
</table>

Source: Own source from Eurostat and European Cluster Observatory.
capable of explaining up to 47.57% (INTCCI) and 53.32% (INTKIBS) of the variability of per capita GDP. However, it has to be noted that the London metropolitan area has a big impact; when this region is omitted, the coefficients of determination fall to 39.58% (INTCCI) and 45.52% (INTKIBS).

This apparent relationship does not mean that it is an increase in labour intensity in these sectors that generates economic growth, nor that economic growth is the cause of higher labour intensity in the considered sectors; it could simply be a spurious correlation showing a significant statistical relationship without any economic sense. There could be another phenomenon: the transmission of causality through a third variable invisible or unknown to the researcher. Or, it may be the effect of pure chance.

Econometrically we can try minimising the effect of spurious correlation by incorporating more explanatory variables. Regrettably, this procedure misses the possibility that some of these variables are difficult to measure and we would still incur an endogeneity issue. (According to Greene [2003] an exogenous variable would be expected to vary ‘autonomously’ while an endogenous one would not be able to vary independently of the others.) Instrumental variables (IV) could be used to avoid an endogeneity issue. Other alternatives relate to simultaneous equation models, like vector autoregression (VAR). In Rausell et al. (2011), for instance, a panel data test based on Granger’s causality test is used to determine if causality patterns are found between labour intensity in INTCCI and INTKIBS, and per capita GDP.

However, SEM methodology fits better with the concept of causality and considers the possibility of both direct and indirect relations; for that reason, we chose SEM for the analysis in this research.

According to Mueller and Hancock (2008), SEM foundations can be found in variable path analysis and in confirmatory factor analysis, whereas other techniques such as analysis of variance, multiple linear regression or canonical regression could be considered as special cases of SEM.

This statistical technique adopts a confirmatory approach to the analysis of a theoretical structure by means of a series of simultaneous equations. The achievement of a significant model adjustment would give us an idea of the plausibility of the proposed structure.

Causality is thereby contrasted from a theoretical as well as an empirical point of view. In this sense, SEM has a better reputation in academic literature, even though its capacity to evaluate true causal relations has also sparked debate (for a comprehensive account of this debate, see Pearl 2012).

In order to establish the theoretical model, we have conceptualised three synthetic constructs named according to the groups mentioned in the previous section: Urbanisation, Higher Education and (CCI) Employment. These non-observed synthetic indicators (‘latent variables’, according to SEM literature) constitute our structural model, while the observed variables of which they are formed establish the measuring model. The latter variables are also described in the previous section.

In Figure 2, the synthetic variables are marked with an ellipse, while the observed variables are shown within rectangles. The arrows that link synthetic variables indicate a theoretical relation of cause—effect, while the those that link a synthetic variable with an observed variable indicate a relation between the structure (latent variable) and the measurement (observed variable).

This model hypothesises the existence of a circular effect between income generation and the intensity of labour in the creative sectors.

Employment in the cultural sectors is explained by three types of effect: (1) the urban model, resulting from the measurement of the density of the population per square
kilometre (DENS) and the percentage of the population living in densely populated areas (HUA); (2) the generation of human capital, resulting from STTER1, STTER2 and STTER3 (as defined above); and (3) the effect of income generation, represented by GDPPC, DIPH and PROD (also defined previously).

For estimating the model, the statistical software R has been used, employing the package ‘lavaan’ (see Rosseel 2012). The best approximation to the Higher Education construct is the linear combination of STTER2 and STTER3, while Urbanisation stands with HUA and DENS. Both latent variables explain Employment. However, INTCC1 is the best option to explain Employment.

As we can see from Table 2, even though there is a significant relationship from Employment and Income, only in Model 4 we find the opposite relationship (Income is statistically significant to explain Employment). Furthermore, this is an indirect relationship, which seems to be counter-intuitive since we would expect a positive relationship.

Trying to dissect this relationship, considering that the bilateral effects of Employment and Income may take some time to have their impact, we transform the model by considering the possibility of lagged effects from both structural variables; a similar procedure was developed in Rausell et al. (2011) with a multiple regression approach. As can be seen in Table 3 and Figure 3, lagged variables have been introduced: these are named adding a two-digit suffix for the year (i.e. Income08 for Income in 2008).

From the causality model for the creative industries shown in Table 3 and Figure 3, we can assert the existence of a virtuous circle, where Income has a direct effect on Employment, with a lag of two periods; at the same time, Employment has a positive effect over Income both during the same year, and with a one period lag.

**Conclusion**

We may conclude with the interpretation that the foundations for activating the virtuous circle generated by the reciprocal causality between employment in the CCI and regional income generation are the existence and concentration of human capital in urban areas.
We analysed the conditions when there is feedback between employment and income generation in a previous work (Rausell et al. 2011). In this sense, cities and universities become key factors for the growth of CCI and, according to the foreseen circular relationship, the economic growth of the regions.

One has to take into account that the urbanisation factor has a major impact in determining employment in the CCI, reinforcing all other concepts about the importance of the agglomeration economies and the economics of clusters.

Another point that needs to be stressed is the fact that the variables representing human capital are those related to the proportion of students aged 20–24, those theoretically of an undergraduate studentship age. This leads us to consider the importance of formally trained young people and how critical the availability of universities in the territory

<table>
<thead>
<tr>
<th>Measurement model</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDPPC</td>
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<td>1.0000</td>
<td>N/A</td>
</tr>
<tr>
<td>PROD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTCCI</td>
<td>1.0000</td>
<td>N/A</td>
<td>1.0000</td>
<td>N/A</td>
</tr>
<tr>
<td>INTKIBS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STTER2</td>
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<td>1.1420</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HUA</td>
<td>1.0000</td>
<td>N/A</td>
<td>1.0000</td>
<td>Na</td>
</tr>
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<td>DENS</td>
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</table>

<table>
<thead>
<tr>
<th>Structural model</th>
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<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment</td>
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<td>0.0000</td>
<td>0.7640</td>
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<td>Higher Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urbanisation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>-0.0840</td>
<td>0.3710</td>
<td>-0.0340</td>
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</tr>
<tr>
<td>Higher Education</td>
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<td>0.0000</td>
<td>0.2480</td>
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<tr>
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<td>1.2070</td>
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<td>0.5760</td>
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</tr>
</tbody>
</table>

$\chi^2$  

3.946  

6.395  

9.251  

4.671  

$p$  

0.684  

0.094  

0.160  

0.587  

AIC  

4,056.29  

3,415.61  

3,998.01  

4,068.03  

BIC  

4,110.32  

3,458.84  

4,052.04  

4,122.06  

adj-BIC  

4,062.76  

3,420.79  

4,004.48  

4,074.50  

RMSEA  

0.00  

0.07  

0.05  

0.00  

Note: Estimates are unstandardised coefficients. 

We analysed the conditions when there is feedback between employment and income generation in a previous work (Rausell et al. 2011). In this sense, cities and universities become key factors for the growth of CCI and, according to the foreseen circular relationship, the economic growth of the regions. One has to take into account that the urbanisation factor has a major impact in determining employment in the CCI, reinforcing all other concepts about the importance of the agglomeration economies and the economics of clusters. Another point that needs to be stressed is the fact that the variables representing human capital are those related to the proportion of students aged 20–24, those theoretically of an undergraduate studentship age. This leads us to consider the importance of formally trained young people and how critical the availability of universities in the territory.
is for this process. Therefore, we are putting in question the idea of the relevance of the creative class, since here we seem to find as relevant the percentage of young students, rather than the percentage of professionals. It does indicate that there is a correlation between youth and CCI employment, backed by the fact that CCI tends to be a very young sector in terms of labour force. If that is the case, then we could assimilate or hypothesise the characteristic of ‘being young’ to the creative dimension, and also the capacity to assimilate innovations. Young people participate in a higher proportion both in physical and virtual networks and they are more open to adapt working models that are more flexible and linked to lifestyles that are traditionally viewed as fused with unstable working styles (we could add ‘precarious’ here, as well).

Table 3. Model 5 results*.

<table>
<thead>
<tr>
<th>Measurement model</th>
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<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Income06 PROD06</td>
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<td>N/A</td>
</tr>
<tr>
<td>Employment08 INTCCI08</td>
<td>1.0000</td>
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</tr>
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<td>Employment07 INTCCI07</td>
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<tr>
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<tr>
<td>Higher Education STTER3</td>
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<tr>
<td>Urbanisation DENS</td>
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<table>
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<th>Structural model</th>
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Note: Estimates are unstandardised coefficients.
Finally, our models would stress the fact that universities are not only socially profitable in terms of generating human capital and technology, and as innovation transfer hubs, but as centres for the dissemination of certain lifestyles and the creation of solvent demand, at the same time helping to develop people capable of working in the CCI.

Note
1. According to EUROSTAT, ‘The NUTS classification (Nomenclature of territorial units for statistics) is a hierarchical system for dividing up the economic territory of the EU’. NUTS 2 regions are ‘basic regions for the application of regional policies’. See Regulation (EC) No 1059/2003 establishing the common classification of territorial units for statistics (NUTS).

Notes on contributors
Francisco Marco-Serrano is an Economist and Lecturer in the Department of Economics in GSM London. He is finishing his PhD thesis on the economic impact of cultural heritage. He has been collaborating with the Research Unit in Cultural Economics (Econcult) from Universitat de Valencia since 1998, acting in several roles from intern to PhD student, external consultant and academic collaborator.

Pau Rausell-Koster is an Economist and Senior Lecturer in the Department of Applied Economics in the Universitat de Valencia and the Director of the Research Unit in Cultural Economics (Econcult). He has led and participated in several Latin American projects (OEI), European (MED) and Spanish competitive calls for research and development. He has also led many knowledge transfer agreements with public and private institutions.

Raul Abeledo-Sanchis is a Doctor in Economics and Master in Environmental Strategies and Management. He is specialised in local development, sustainability and cultural planning and is author
of the thesis ‘The agenda 21 as a strategy for local sustainable development: from environment to culture’. After seven years of consulting experience in the private sector, he became part of the Cultural Economics Research Unit (Econcult) of Universitat de Valencia, where he has been coordinating the European Projects area since 2006.

References


