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EXTENDED ABSTRACT

Title:
Instituciones, regiones y clústeres: Fundamentos y Futuras líneas de investigación

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Abstract: *(minimum1500 words)*

Traditional economic growth models, despite ever more complex approaches, retain high "unexplained" growth factors. Attempts to improve these models have paid attention to the study of how institutions, both formal and informal, structure and constrain the behaviour of economic agents. Researchers have recently made considerable progress in showing that institutions may matter more for economic growth that factor endowments (Acemoglu et al., 2004; Rodrik et al., 2004), nonetheless this literature has not yet explained which institutions matter, when they matter and how they shape growth, even those working under the subcategory economic geography, have not engaged with the institutionalist literature on "economic growth" (Farole et al., 2010).

The majority of institutionalist research in economics, sociology and political science are oriented to discovering large-scale regularities in the relationship between institutions and economic development, in contrast, the "relational turn" in geography has tended to be used by researchers to examine particular cases. As a result finders of

geographers about how institutions work have not been appreciated in wider social science debates.

Data and methodology

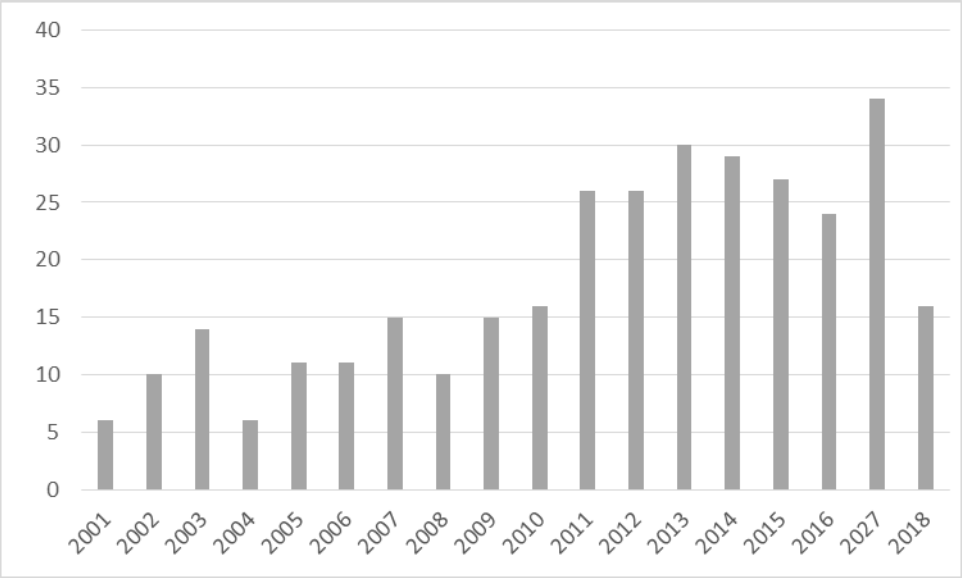
Our data comes from the Thomson-Reuters Social Science Citation Index (SSCI). The choice of the SSCI is motivated by its widespread use in bibliometric studies, and includes academic journals in the social science.

In June 2018, we started initially selecting all documents under the search terms "economic geography" and "institution" and obtained a large number of documents. We refined the search to papers published in impact journals and this restricted the sample. Next step given was to refine the search to publications only in certain web of science subcategories related with management and economics: behavioral science, business, economics, geography, management, planning development, and urban studies. Since some papers used the search terms without referring to the interaction between institutions and the economy in order to delete those that had no relationship with it a detailed analysis of all papers was made in two independent rounds of review.

The final sample is composed by a total of 326 articles. The number of publications on Economic geography and institutions has grown considerably since 2001, before this year few studies are found, explaining why our study is dated from that year. The sample is divided into 2 periods of 9 years each, 2001-2009 with 98 papers written by 134 authors published in 33 different journals, and in 2010-2018, 228 articles were published in 61 journals, written by 379 authors. Figure 1 shows the distribution in time of the 326 citing documents that integrate the sample and Table 1 shows the 7 best publisher journals in each study period.

The 14 most cited journals in 2001-2009, as shown in Table 2, were cited in 1374 occasions, representing the 41.60% of the total number of citations of the 33 journals of this period, whereas the same number of journals in 2010-2018 were cited in 4497 documents, representing the same percentage, the 41%, of the total number of citations of the 61 journals in this period of time.

Figure 1: Number of articles on economic geography and institutions in 2001-2018



Note: year 2018 is considered only until month of June.
Source: Authors' elaborations based on SSCI database.

Table 1: List of best-publisher journals by time frame

Journal 2001-2009	Articles	Journal 2010-2018	Articles
Environment and Planning A	17	Reg Stud	28
Economic Geography	15	Economic Geography	21
Journal of Economic Geograpphy	11	Journal of Economic Geography	19
Reg Stud	7	Environment and Planning A	12
Geoforum	6	Geoforum	11
Tijdschrift voor Economische en Sociale Geografie	4	Geografiska Annaler Series B-Human Geography	9

Source: Authors' elaborations based on SSCI database.

Table 2: The top disseminators. Most cited journals by time frame

Journal 2001-2009	Total citations	Journal 2010-2018	Total citations
Env Plan A	189	J Econ Geogr	800
Reg Stud	173	Reg Stud	683
J Econ Geogr	163	Econ Geogr	565
Econ Geogr	155	Env Plan A	414
Prog Hum Geog	127	Res Policy	356
T I Brit Geogr	90	Prog Hum Geog	349
Int J Urban Regional	82	J Int Bus Stud	269
Am Econ Rev	66	Eur Plan Stud	225
Geoforum	57	Strateg Manage J	175
Ann Assoc Am Geogr	57	Geoforum	140
Res Policy	55	Ind Corp Change	138
Strateg Manage J	55	T I Brit Geogr	137
Antipode	55	Urban Stud	128
Camb J Econ	50	Am Econ Rev	118

Source: Authors' elaborations based on SSCI database.

Table 3 shows the 10 most cited articles in each study period. In 2001-2009, these articles were cited in 168 occasions, representing the 2.53% of the total cited references (6626), whereas as observed in Table 4 in 2010-2018 the top ten articles were cited in 462 papers, representing a similar percentage of total references (17398) in the period, 2.65%.

Table 5 and Table 6 show the most cited authors in each study period of time. In 2001-2009 there were a total of 2872 cited authors in 6626 articles. As can be seen in Table 5, authors with a minimum frequency of 40 were cited in 716 occasions, representing 10.80% of the total citations in that period of time. In 2010-2018 a larger number of cited authors is found, 6710, being cited in 17398 documents. As Table 6 shows, authors cited at least in 80 of these articles were found in 1856 references representing a similar percentage of total citations that in the previous period, the 10.66 %.

Data show that the percentages referring to the most cited journals, articles and authors in relation to the total references in each period are similar in both study periods but there is a considerable difference in the number of citing articles and authors. For instance in 2001-2009 the most cited author has a frequency of 21, whereas in the second period 105 authors with minimum frequency of 20 are found.

Table 3: The top disseminators. Top cited articles in 2001-2009

Authors	Year	Journal Abbreviation	Total citations
Storper M	1997	Regional World Terri	21
Grabher G	1993	Embedded Firm Socioe	20
Granovetter M	1985	Am J Sociol	20
Nelson R	1982	Evolutionary Theory	19
Porter M	1998	Competition	17
Gertler M	2003	J Econ Geogr	16
Cooke P	1998	Ass Ec Firms Regions	14
Amin A	1999	Int J Urban Regional	14
Marshall A	1890	Principles Ec	14
Amin A	1994	Globalization I Regi	13

Source: Authors' elaborations based on SSCI database.

Table 4: The top disseminators. Top cited articles in 2010-2018

Authors	Year	Journal abbreviation	Total citations
Martin R	2006	J Econ Geogr	55
Boschma R	2006	J Econ Geogr	54
Mackinnon D	2009	Econ Geogr	54
Boschma R	2009	Econ Geogr	50
Bathelt H	2004	Prog Hum Geog	45
Boschma R	2010	Handbook Evol Ec Geogr	43
Martin R	2010	J Econ Geogr	42
Grabher G	1993	Embedded Firm Socioe	41
Boschma R	2005	Reg Stud	41
Gertler M	2010	Reg Stud	37

Source: Authors' elaborations based on SSCI database.

Table 5: Most cited authors (minimum frequency of 40) in 2001-2009

Authors	Number of citations
Amin A	94
Clark G	92
Storper M	75
Martin R	62
Krugman P	59
Gertler M	57
Yeung H	51
Dicken P	50
Boschma R	47
Cooke P	46
Nelson R	42
Grabher G	41

Source: Authors' elaborations based on SSCI database.

Table 6: Most cited authors (minimum frequency of 80) in 2010-2018

Authors	Number of citations
Boschma R	392
Martin R	224
Gertler M	149
Bathelt H	142
Coe N	132
Storper M	129
Amin A	121
Cooke P	112
Grabher G	108
Peck J	91
Asheim B	90
Mackinnon D	84
Yeung H	82

Source: Authors' elaborations based on SSCI database.

Co-citation analysis and Bibliographical coupling

To this dataset co-citation analysis and bibliographic coupling were applied. Co-citation analysis focuses on references or “cited documents”, considering them to be more related or similar the more often they are cited together. This technique is used to identify the knowledge base of s field and the intellectual structure of existing research (Zupic and Cater, 2015). Bibliographic coupling relates the “citing papers” of a dataset to each other on the basis of their shared references, so two papers or “citing documents” are more related the more cited references they share. Since this technique focuses on citing documents deals with the state-of-the-art of a scientific field (Kovacs el al., 2015).

The article selection method described above is based on citing documents; however in co-citation or bibliographic coupling the database of cited documents must be reviewed and refined in order to identify the relatedness of articles (Díaz-Vial and Montoro-Sánchez, 2017). This 326 articles included cited references that had to be homogenized allowing to further refine our selection. In doing so, the name of the journals, since many of them used different abbreviations, deleted the second surname of the authors and converted tittles and names of authors into lowercase. Papers that were in press

when the citing document was published were corrected to include the actual year of publication and journal issue number.

Once we revised the cited documents, we ended with 6626 documents in 2001-2009 (of which 4251 were only cited once) published in 603 journals, and 17398 (of which 10.229 were only cited once) published in 1398 journals in the second period. For the first period of time only articles with minimum frequency of 9 citations (representing 407 cited references, the 6,1% of total cited references in 2001-2009) and articles with minimum frequency of 20 for the second period (representing 972 cited references, the 5,59% of total cited references in 2009-2018) were considered for the analysis. As can be observed in Table 7, this restriction gives 65 cited documents, 34 for the first period and 31 for the second, representing 5.74% of the sample of cited references.

Table 7: Number of cited references, authors and documents

2001-2009	Total	Minimum frequency of 9
Cited references	6626	407
Cited authors	2872	112
Cited documents	4989	34
2010-2018	Total	Minimum frequency of 20
Cited references	17398	7169
Cited Authors	6710	105
Cited documents	12049	31

Source: Authors' elaborations based on SSCI database.

Results

To facilitate the bibliometric analysis of scientific literature we used BiblExcel software. This software takes raw Web of Science bibliographic data and performs bibliometric calculations based on similarities matrixes between cited documents, for co-citation analysis and citing documents for bibliographic analysis.

Table 8 shows a summary of the evolution of the co-citation network over the two 9-years period analysed. It can be seen than the mean similarity of the cited references increased from 6.18 in the first period to 10.36 in the second.

Table 8: Cohesion evolution of the citation networks

	Average Degree	Density
2000-2008	6,18	0,51
2009-2018	10,36	0,61

To normalize the relatedness measure based on counting the number of co-cites between cited documents or references we used the Salton cosine similarity (Salton and McGill 1983). This allowed us to normalize the matrix for each period of time and using factor analysis performed in SPSS 22.0 we identified the subfields or factors. We used the exploratory factor analysis with principal components analysis as an extraction method that requires to specify the number of factors in advance. In this study the Kaiser stopping rule was used, based on choosing the number of factors with an eigenvalue of over 1, but since this produced too many factors, we used the screen plot, representing the relationship between the relative magnitude of the eigenvalues and the number of factors, choosing the number of factors up to the transition point (Bryant et al., 1995). This criterion was combined with the evaluation of the total variance explained and the resulting factors, avoiding those with a low contribution. In order to fit (or load) the maximum number of references on the minimum number of factors we used the varimax rotation.

The factor loadings represents the correlation between a given reference and the factor. References with a loading lower than 0.45 are poor, so we did not take them into consideration. References to more than one factor were considered. In this case they were considered in all the factors, but weighting their contribution to the loading factor of the reference in each factor.

For this study we focused on references that load to just one factor and have a high loading value. Authors worked independently to characterize the factors and then together to find the most satisfactory characterizations. As shown in Table 9, several factors were identified for each study period. Studying the evolution of these factors or group of references will allow to understand the evolution of the theoretical foundations.

In order to obtain measures of centrality for each factor in each period we followed network approach studies (Badar et al., 2015). All calculations were performed using

UCINET software (Borgatti et al, 2003). Our analysis was based on the network created between cited documents, where nodes are cited documents or references, and a connection between them exists only if they are cited together.

Table 9: Cohesion evolution of the co-citation networks

	Average Degree	Density	No cited documents
Factors 2001-2008			
Local Systems & Districts	6,91	0,58	7
Global-Local linakges	4,60	0,60	5
Agglomeration effects	6,87	0,65	7
Regional Systems of Innovation	6,82	0,40	3
Chain, Networks & Territories	5,85	0,45	3
Loading to two factors	6,97	0,57	2
No loading	5,31	0,35	7
Factors 2009-2018			
Path dependence	12,98	0,73	5
Economic change	13,04	0,75	4
Local interactions & Knowledge	13,60	0,71	4
Evolutionary Economic Geography	14,65	0,65	4
Relations & Spatial dynamics	0,00	0,00	2
Geography of Firms (Firms & Regions")	12,25	0,77	3
Knowledge Variety	4,11	0,53	2
Loading to two factors	12,77	0,75	5
No loading	9,87	0,67	2

As shown in Table 10 the load in each factor (column 1) is a measure of centrality in terms of degree. The more references connected to the factor, the more central this factor is to that period of time. Since references were not restricted to a particular factor (as some of them can have loadings higher than 0.45 in more than one) each reference was weighted by its loading in that factor, and the result can be seen in column 2. To indicate how tightly connected the cited references are to a factor as a mean, in column 3 it was calculated the mean loading per reference.

Table 10: Clusters in co-citation analysis

	Number cited documents	Sum of loadings	Loading/ Cited documents	Sum of citations in the period
2001-2009				
Local Systems & Districts	7	4,78	0,68	75
Global-Local linakges	5	3,55	0,71	47
Agglomeration effects	7	4,65	0,66	110
Regional Systems of Innovation	3	2,16	0,72	41
Chain, Networks & Territories	3	1,91	0,64	36
2010-2018				
Path dependence	5	3,43	0,69	144
Economic change	3	2,42	0,8	106
Local interactions & Knowledge	5	2,02	0,4	168
Evolutionary Economic Geography	3	2,84	0,67	147
Relations & Spatial dynamics	2	1,91	0,95	40
Geography of Firms	3	2,03	0,67	71
Knowledge Variety	2	1,5	0,75	48

Evolution of the foundations in economic geography and institutions.

Before the first study period few articles can be found in economic geography and institutions. So it can be said that this marks the birth of research into this field. In this study 98 citing documents and 4989 cited documents can be found. Considering those cited documents with minimum frequency of 9, then 34 are left for the analysis. Five factors were identified: “Local Systems and Districts”, “Global-Local lincakes”, “Aglomeration effects”, “Regional systems and Innovations” and “Chain, Networks and Territories” (see Figure 3)

In the second study period the number of citing publications increased more than double compared to the first period, reaching the number of 228 hosted in 62 journals and written by 379 authors. Following the same trend, the 12049 cited documents found in this period are considerably larger than in the first one. As explained above, in order to compare both periods, only articles cited at least in 20 documents (31) were considered for the study. Seven factors were characterized in this period: “Path dependence”, “Economic change”, “Local interactions and Knowledge”, “Evolutionary Economic Geograpghy”, “geography of Firms”, and “Knowledge variety” (see Figure 3).

Figure 2: Co-citation networks and factors: 2001-2009

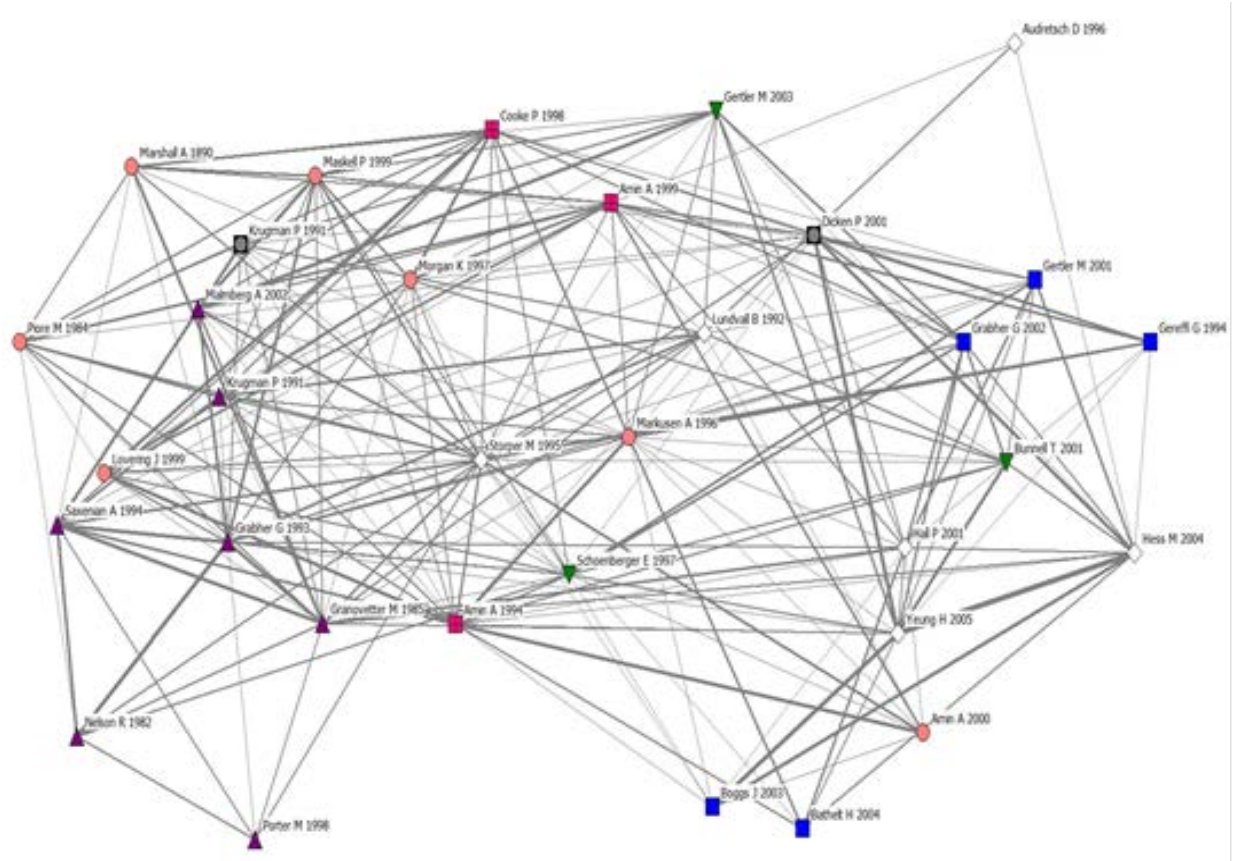
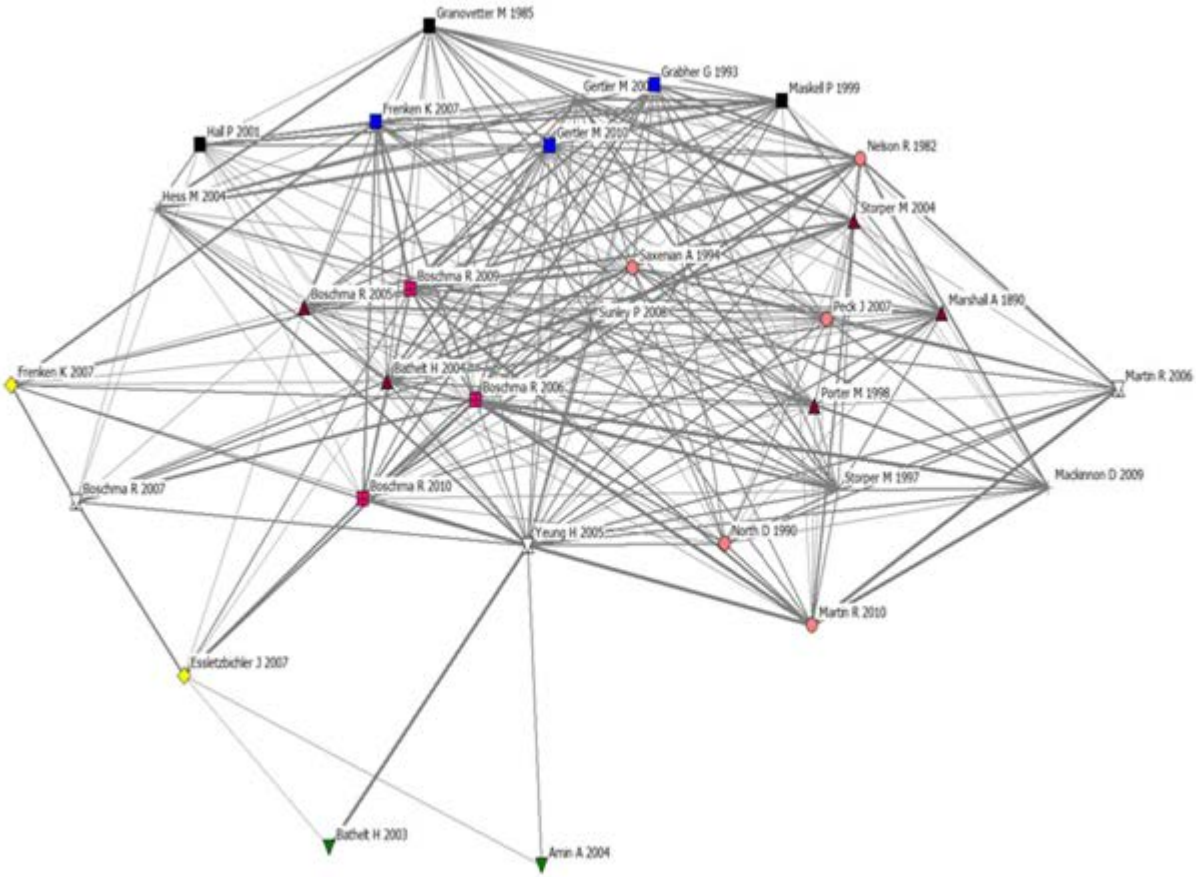


Figure 3: Co-citation networks and factors 2010-2018



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