Publication Strategies in SSH: Empirical Evidence and Policy Implications

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1 Introduction

In past decades, universities have undergone institutional changes that have significantly affected their objectives, sources of funding and financing methods, as well as their mode of action. A relevant change is evident in the increase in the share of university budget represented by competitive grants and third-party funding, as opposed to the traditional and institutional block grant funding (Bonaccorsi et al. 2014). United Kingdom, Spain, Slovak Republic, Poland, Portugal, Italy, Belgium (Flemish Community), Norway, Sweden, Denmark and Finland in Europe, as well as Hong Kong, China, Australia and New Zealand conduct regular comparative performance evaluations of universities and use results in performance-based funding schemes. Research is evaluated in many places, by many types of organisations, for many different purposes (Hicks 2012). In the science and technology disciplines (STEM) there is a long tradition of quantitative analysis based on the bibliometric approach, whereas in social sciences and humanities (SSH) this evaluative practice is not widespread. Bibliometric indicators have increasingly become of interest because they can be helpful in providing some measurement of visibility of scientific publications, as well as in evaluating research success and the impact on the scientific community (Alves et al. 2016).

In Italy, on 16 July 2013, the Ministry of Education, University and Research (MIUR) closed the second research evaluation exercise (VQR, or Research Quality Evaluation 2004–2010), with the publication of university performance ranking lists. The results determined the allocation of an important share of funding for each institution. The 2004–2010 VQR is aimed at evaluating the results of scientific research of both public and private universities carried out during the period ranging

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from 2004 to 2010. The VQR was formalised with the approval of Ministerial Decree no. 17 on 15 July 2011.

From 2004 to 2010, Italian universities and other public research bodies submitted almost 185,000 articles, books, patents, and other scientific products. In most cases, scientific publications were peer reviewed; however, bibliometric indicators were also used in hard sciences, medicine, engineering, and economics (Cicero et al. 2013). The VQR was based on a hybrid model (bibliometric and peer review approach). The MIUR entrusted the implementation of the VQR to the Agency for the Evaluation of University and Research Systems (ANVUR), which commenced the evaluation process at the end of 2011.

The goal of this article is to analyse the strategies of publication in SSH. The research questions are: (1) Do researchers in SSH have a strategy in the choice of dissemination channels for their research products? (2) Does the strategy (if any) depend on the disciplinary area? (3) Which factors explain the choices of publication channels?

For this purpose, we analyse the scientific production in the SSH area submitted to the VQR 2004–2010, as well as the journal articles collected in the Loginmiur database managed by the University Consortium Cineca in the period 2004–2013. As in other chapters in this volume, we examine five macro-areas as defined by the National University Council (CUN): Area 10 (Antiquities, Philology, Literary Studies, Art History), Area 11 (History, Philosophy, Pedagogy and Psychology), Area 12 (Law Studies), Area 13 (Economics and Statistics), and Area 14 (Political and Social Sciences).

This paper is structured as follows. Section 2 (Bibliometric versus peer review methods for research evaluation in SSH) discusses the literature in social sciences and humanities about the use of instruments of bibliometric and/or the peer review approach. Section 3 (The main results of 2004–2010 VQR) illustrates the results of the VQR exercise. Section 4 (Discussions and conclusions) compares the results of VQR across disciplinary areas and examines the journal articles published by scholars in SSH from 2004 to 2013 in DB CINECA, suggesting implications for future evaluation projects.

2 Bibliometric Versus Peer Review Methods for Research Evaluation in SSH

The measurement approach in bibliometrics makes use of *ad hoc* indicators. The adoption of a number of *conventions of equivalence relation* has permitted to achieve an agreed definition of entities such as “journal article”, “author”, “affiliation”, “citation”, or “subject category”. These conventions do not allow evaluation of scientific books because these are heterogeneous products. The bibliometric approach was born in the mid-1900s in the United States on the initiative of the Institute for Scientific Information (ISI) founded by Eugene Garfield, father of the well-known Impact Factor (IF). Garfield, however, had at the time recommended

the use of bibliometric indices primarily with the aim of orienting purchase decisions of libraries (WoS 2016).

The supporters of the use of bibliometrics for the evaluation of research products believe that this is the only "objective" procedure for classifying a journal (the container), from which can then be deduced, by transitive property, the assessment of an article (the content), with obvious advantages in terms of elimination of any biased external interventions, and reduction of the time and cost of the evaluation.

Among the unintended negative consequences of the adoption of bibliometrics, the literature often mentions the reduction of academic freedom in the choice of research topics and in publishing strategies, the criminalisation of interdisciplinary studies, the marginalisation of topics of niche or national interest. These problems are amplified in SSH, because many products of research are published in journals without an Impact Factor. According to updated data at the beginning of 2015 from the loginmiur database managed by Cineca, the top 10 articles written by Italian statisticians from 2002 to 2014 (about one-fifth of all articles published in the period), have been published in 5 Italian journals without IF.

It is also worth mentioning that for several years the evaluation of research organisations in the UK and Australia have openly abandoned the use of pure bibliometrics, which has also been criticised in the Declaration On Research Assessment sponsored by the American Society for Cell Biology (ASCB 2012) and signed by a large group of researchers, organisations and publishers of scientific journals of international standing. More recently, *Nature* published the Leiden Manifesto for Research Metrics (NAT 2015).

Given the problems of the bibliometric approach, in recent years it has been developed an approach that many experts consider the most promising. While this model does not exclude the rational use of bibliometric information, it relies on a large and regular consultation of experts to also consider the reputation of the journals within the relevant scientific community: there are mentioned in particular the experience of France for the area of Economics and Management with the National Committee of Scientific Research (CNRS 2016), the three Nordic countries (Denmark, Finland and Norway) with the Norwegian Centre for Research Date (NSD 2016) and Australia with the Australian Research Council (ARC 2015). At the international level, EvalHum is a network that allows a stimulating comparison between European scholars in SSH.[1] It is registered as an association in France under the French 1901 law.

Peer-review methodologies are based on the assessment of research outputs of research organisations, by panels of assessors selected by the authority presiding over the assessment. In this approach, the judgement of quality depend on experts. Time and cost of assessment exercises are also a critical element. The methodology, furthermore, presents no universality, as the mechanisms of appraisal are defined independently by the assessing panel, and are therefore open to possible distortions (Abramo and D'Angelo 2014).

[1] See http://www.evalhum.eu/

3 The Main Results of the VQR 2004–2010

The 2004–2010 VQR is divided into 14 research areas, as defined by CUN. For each of them, ANVUR has identified a group of experts (GEV) and its president. The composition of each GEV, the curriculum vitae of the president, and the approved evaluation criteria of GEV were published on the web site of ANVUR, section VQR. The quality assessment is based on the criteria published in Ministerial Degree no. 17 on 15 July 2011.

As discussed elsewhere in this volume, three research quality criteria were defined as important: (a) relevance, to be understood as added value for the advancement of knowledge in the field and for science in general, even in terms of appropriateness, effectiveness, timeliness and duration of impact; (b) originality/innovation, intended as a contribution to the advancement of knowledge and/or new acquisitions in the field; (c) internationalisation and/or international competitive potential, intended as positioning in the international arena in terms of relevance, competitiveness, editorial dissemination and appreciation of the scientific community, including explicit collaboration with researchers and research teams from other countries.

Moreover, judgements expressed by referees are summarised in a score from 1 to −2 (Table 1). The GEV together with ANVUR defined the criteria used for the evaluation. The products are not evaluable if they belong to types excluded from the list of admissible products or if the documentation provided is inadequate. There is a penalty for confirmed cases of plagiarism or fraud. The list of scientific journals, published on the ANVUR website, is the result of the work of their respective GEV and have been approved by the executive board after consultation with the scientific societies, journal editors, and scholars. This list is not a necessary condition for calculating bibliometric indicators: the Italian journals in SSH present in the ISI and Scopus databases are still few and the database offered by Google Scholar is not entirely reliable. For this reason, ANVUR considered it necessary to establish an *ad hoc* working group in order to develop criteria, parameters and methods of action for the future. The rating of journals built in the last exercise of the 2004–2010 VQR had a significant impact in the following years on the whole Italian scientific community. In fact, the results of VQR have been used, in addition to the mentioned performance-based funding scheme at the level of universities, for the evaluation of the composition of the teaching colleges of PhD programmes. Journal ratings have

Table 1 Judgements associated with scores expressed by the peer review

Judgement	Score
Excellent	1.0
Good	0.8
Fair	0.5
Poor	0.0
Not evaluable	−1.0
Fraud or plagiarism	−2.0

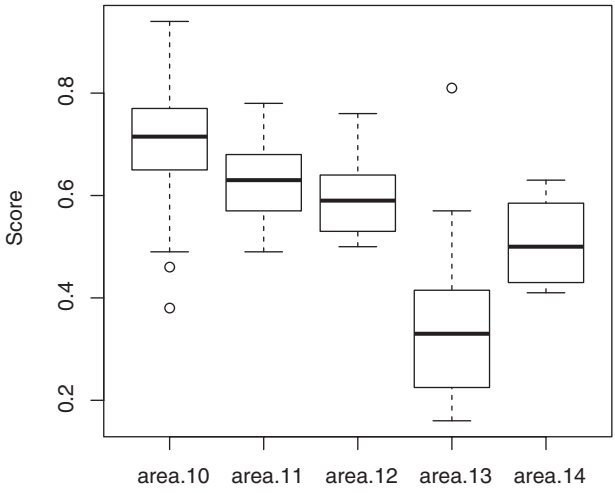

Fig. 1 Score by CUN AREA in SSH

been used as the basis for the calculation of indicators for National Scientific Habilitation. In some universities, although this use has been strongly discouraged by the Agency itself, VQR data have also been used for the allocation of individual research funds. In some cases the procedures decided by Evaluators Expert Groups (GEV) have been criticised (see for example for the Area 13 Economics and Statistics: SIS 2014).[2]

The new VQR 2011–2014 is currently in progress and the results will be delivered by the end of 2016. Also, the new VQR lists of journals were created using indexes derived from bibliometrics, so it is possible to automate the processes of journal classification. Let us examine more closely the results of VQR in the SSH areas.

Boxplots of scores in SSH show very different patterns. In the areas 10, 11, 12, and 14 the range of scores is from 0.5 to 1, the median value is from 0.5 to 0.7 (overall, a good judgement). In the area 13 the range is from zero to 0.5, indicating that at least half of the scholars submitted poor production. In the area 10 the values 0.38 ("Portuguese and Brazilian literatures"), and 0.48 ("Portuguese and Brazilian translations") are outliers; in the area 13 0.81 ("Econometrics") is an outlier.

These differences are amplified when we look at the average score by discipline and by product types (Table 2). In CUN areas 10 and 11, the highest scores are assigned to the monograph or scientific treatise (monographs received have an average score of 0.72 and 0.64, respectively); in area 12, the highest score is assigned to chapters in book with an average value of 0.63; in area 13, the journal article has an

[2] See website: SIS (2014. Available at www.new.sis-statistica.org/wp-content/uploads/2014/12/statsoc-3_2014.pdf

Table 2 Product types (average) by CUN areas 10–14

	Area 10	Area 11	Area 12	Area 13	Area 14
Journal article	0.70	0.62	0.59	0.51	0.51
Monograph	0.72	0.64	0.56	0.11	0.51
Edited book	0.63	0.55	0.33	0.04	0.51
Book chapter	0.69	0.58	0.63	0.13	0.41
Proceedings	0.66	0.59	0.26	0.07	0.38
Others[a]	0.65	0.43	0.56	−0.13	0.22

Source: Based on DB ANVUR 2014 (97%)

[a]This category includes: scientific review; composition; design; critical exposure; exposure; software; show; artefact; note to judgement; preface; afterword; art prototype and related projects; publication of unpublished sources; translation; voice (dictionary or encyclopaedia); correlation; performance.

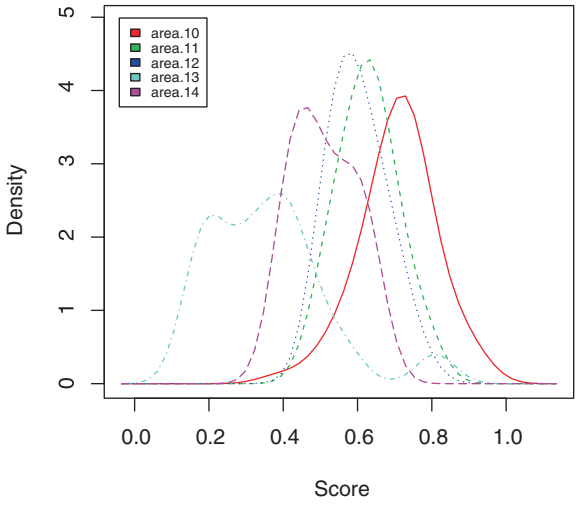

Fig. 2 Distributions of the scores by CUN AREA (Source: Based on DB ANVUR 2014 (97%))

average score of 0.51; in area 14, the journal article, the monograph and the edited book receive the highest score at 0.51.

In area 10, there are no marked differences between the assessments of the various products. Consequently, producing a monograph rather than an article or another product has led to an average score above 0.5. On the contrary, in area 13 those who have presented products different from journal articles received a very low average score. Figure 2 shows a general idea of the shape. The areas 13, and 14 have a multimodal distributions with more modes. The area 13 presents three distinct peaks (local maxima) close to 0.2, 0.4, and 0.8; the area 14 two peaks close to 0.4, and 0.6. These peaks highlight the existence of a disparity of scores within the same areas. To compare the variability of scores in the areas 10–14, we calculate the coefficient of variation (CV[3]), a standardised measure of dispersion of frequency distribution.

[3] CV is the ratio of the standard deviation to the mean.

It is clear that variability greatly differs across areas. Taking a closer look at score peculiarities, we examined the distribution by discipline, or Settori Scientifico Disciplinari (SSD). The analysis of the scores, aggregated for 154 scientific disciplines, shows a distribution that differs from the aggregate area.

The SSDs with a CV lower than 20 are: L-OR/14 "Philology, Religions and History of Iran" (CV = 12.8), L-OR/01 (CV = 14.1) "History of the Ancient Near East", L-OR/03 "Assyriology"(CV = 14.4), L-OR/07 "Ethiopian Languages and Literatures" (CV = 18.2), L-OR/13 "Armenian Studies, Caucasology, Mongol Studies and Turkology" (18.6), and L-OR/19 "Modern Languages and Literatures of the Indian subcontinent" (CV = 19.5). They belong to the same CUN AREA (area 10), and the sub-group "Cultures of East and Africa", and represent "small fields which are dying", composed by a minimum of 6 to a maximum of 9 scholars, super specialised in peculiar aspects of African and East culture. Their products are always evaluated with high scores.

The first quartile includes all the SFs with very high scores and low variability. They belong to area no.10, except for Agricultural Law (IUS/03 –area 12), Econometrics (SECS-P/05 – area 13) and Maritime Law (IUS/06 – area 12). In the second quartile, the SAs are assessed with medium scores and low variability, mainly including SAs of the areas 11 and 12. The third quartile includes SAs evaluated with low scores and high variability, primarily SAs of the areas 13 and 14. Figure 3 points out that there are some outliers with CV greater than 130. Table 3 consists in a list of SAs with denomination and CUN area.

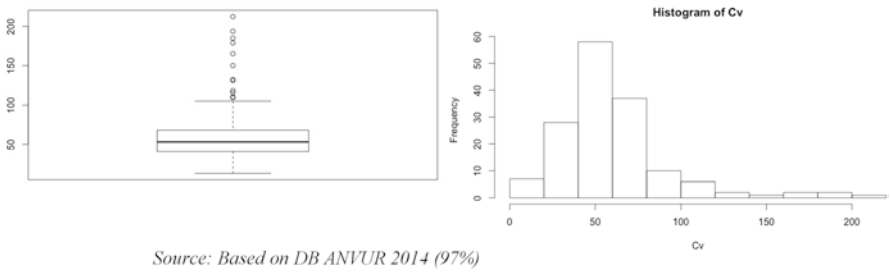

Fig. 3 Distribution of CV scores by CUN area (Source: Based on DB ANVUR 2014 (97%))

Table 3 Outliers in the coefficient of variation by SA

CUN AREA	SA	Denomination	CV
Area 13	SECS-S/03	*Economic Statistics*	131,0
Area 13	SECS-S/04	*Demography*	132,3
Area 13	SECS-P/13	*Commodity Science*	150,0
Area 13	SECS-P/08	*Economics and Business Management*	165,2
Area 13	SECS-S/05	*Social Statistics*	178,9
Area 13	SECS-P/09	*Business Finance*	185,0
Area 13	SECS-P/11	*Financial intermediaries*	193,8
Area 13	SECS-P/07	*Business Administration*	212,5

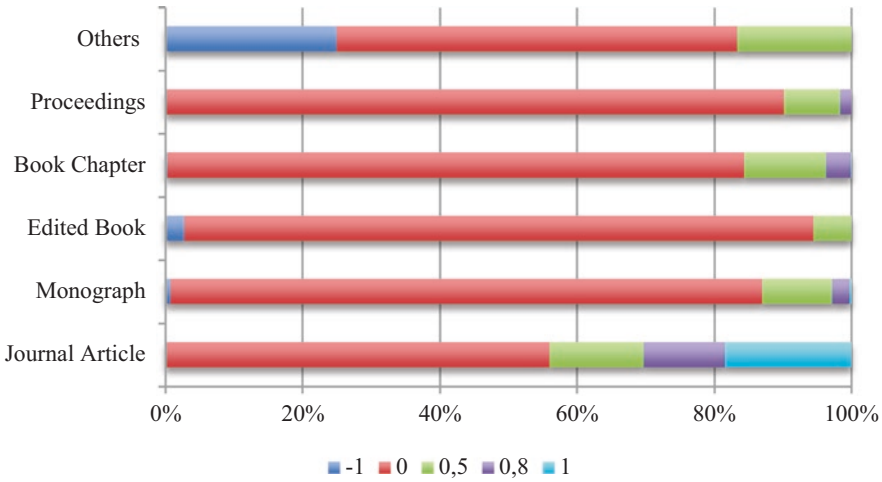

Fig. 4 Score by products for the outlier group

In this class, there are 8 disciplines that belong to area 13, with a very low score and high variability. In those sectors, almost all scholars have low scores (about zero), and few have high grades (from 0.5 and 1).

Figure 4 shows that 56% of the papers have a score equal to zero, 14% of 0.5, 12%, equal to 0.8 and 18%, equal to 1. Those who have submitted a journal article have had a higher average rating than other products. In 87% of cases monographs were evaluated with a score of zero, as were book chapters in 84% of cases. There are statistically significant differences in the scores and the type of product (X-squared = 732.52, df = 9, p-value <2.2e-16). Those who wrote a journal article had more chance of receiving a good evaluation. Assessment of the VQR product is based on three parameters: originality, relevance and internationalisation measured in scores from zero to 9. The distribution of the parameters shows positive skewness[4] in all distributions and a median value of 6. The first quartile is 3 for internationalisation assessment, while a value of 4 for originality and importance (Fig. 5). So at least half of the work has a sufficient evaluation for the three parameters, while the first 25% has a low rating up to 4 or 3 in the case of internationalisation.

These parameters are strongly correlated (Table 4). So, if the work is of good quality for originality, it will be the same value for importance and internationalisation. The average by product type has values close to 5, so there are no large differences between types of publications. The analysis becomes more interesting if the analysis is broken down by CUN area. In area 10, the average rating is between 6.5 and 6.3 for all parameters with a very low standard deviation (SD); in areas 11 and

[4] A distribution is said to be asymmetric if its form does not present symmetry with respect to the central position. An elongated tail to the right characterises positive asymmetry.

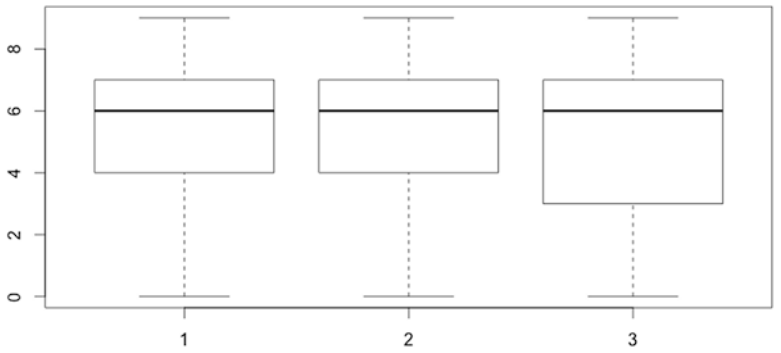

Fig. 5 Distribution of originality, significance, and internationalisation (Legend: 1 = originality, 2 = significance; 3 = internationalization)

Table 4 Correlation matrix of originality, significance, and internationalisation

	Originality	Significance	Internationalisation
Originality	1	0.92	0.87
Significance	0.92	1	0.89
Internationalisation	0.87	0.89	1

Table 5 Mean and Standard deviation of originality, significance, and internationalisation by CUN AREA in SSH

CUN AREA	Originality	Significance	Internationalisation
Area 10	6.53 (SD 0.09)	6.34 (SD 0.14)	6.34 (SD 0.11)
Area 11	6.40 (SD 0.14)	6.10 (SD 0.16)	5.82 (SD0.12)
Area 12	6.10 (SD 0.16)	5.99 (SD 0.28)	5.64 (SD 0.34)
Area 13	4.32 (SD 0.55)	3.81 (SD 0.49)	3.22 (SD 0.52)
Area 14	1.88 (SD 0.12)	1.45 (SD 0.18)	1.77 (SD 0.12)

12, the rating decreases to around 6 and less than 0.35 SD; in area 13 it is between 3 and 4 (with SD less than 0.5); in area 14 it is always less than 2, and the SD less than 0.20 (Table 5).

The average ratings are independent of the type of product, while there is a strong relationship with the CUN area.

Area 14 has evaluated all the products in a very severe manner, but the overall evaluation is on average 0.5, therefore, higher than that of area 13. So in all areas there is a strong correlation between overall score and the three parameters, except for area 14.

4 Do We See a Strategy in Selecting the Type of Publication? An Analysis of VQR Research Products and of Journal Articles

4.1 In Search of Patterns of Publication Types in VQR Data: A Multivariate Analysis

In this process, SSH areas submitted for the VQR 49,712 scientific products, distributed in area 10 (13,737 products from 76 disciplines), area 11 (9185 from 24), area 12 (11,565 from 21), area 13 (11,272 from 19), area 14 (3953 from 14). Each discipline has its own specificity not only for the content but also for the number of scholars. The smallest group has six scholars, the largest one several hundred. It is therefore clear that small groups, working on niche topics, find it very difficult to even find a reviewer who has the skills to be able to assess. Being able to find the criteria to standardise very different situations in an objective way is challenging.

Table 6 shows the number of products by type (scientific paper, monograph, curatorship, chapters in a book, article published in proceedings, other products such as patents, maps, software) selected for the evaluation (VQR 2004–2010). For all areas, except for area 13, articles, monographs, and chapters or contributions in a book are the most important products. In area 13, articles are the dominant product.

Table 7 shows the percentage distribution for SSH areas by products. We can see that in the various areas, except area 13 where the production is concentrated in

Table 6 VQR 2004–2010. Number of products submitted by type. CUN areas 10–14

CUN AREA	area 10	area 11	area 12	area 13	area 14
Article	3608	2193	3786	6943	1110
Monograph	3102	3021	2988	1451	1344
Edited book	241	167	86	70	115
Chap. Book	4547	3050	4172	2306	1300
Proceedings	1960	648	359	459	70
Other	279	106	174	43	14

Source: Our elaboration on DB ANVUR 2014 (97%)

Table 7 VQR 2004–2010. Percentage of products submitted by type. CUN areas 10–14

Area	area 10	area 11	area 12	area 13	area 14
Article	26.26	23.88	32.74	61.6	28.08
Monograph	22.58	32.89	25.84	12.87	34.00
Edited book	1.75	1.82	0.74	0.62	2.91
Chap. Book	33.10	33.21	36.07	20.46	32.89
Proceedings	14.27	7.05	3.10	4.07	1.77
Other	2.03	1.15	1.50	0.38	0.35

Source: Our elaboration on DB ANVUR 2014 (97%)

articles published in journals (61.6%), there is high similarity. In fact, the production is focused in a balanced manner on three main products: papers in journals, monographs or scientific treatises and chapters and/or contributions in a book. The curatorship, proceedings or "other" have a residual weight. The shares of the three main products are roughly similar across the disciplines.

Data show that in area 10 young scholars choose as a flagship product the monograph (31.7%), while other scholars prefer book chapters. A similar pattern is found in area 11. In area 12, young people mostly publish in journals, while scholars older than 40 spread their research through journals but also in book chapters. In area 13 the pattern is completely different: the article is for all age categories the most important way to disseminate research results. In area 14, half of young people focus their activities on scientific treatises or monographs (48.3%) and about one third on articles (27,1%). The group 41–55 distribute, fairly evenly, their production: about a third on monographs (32,8%), articles (31,0%) and book chapters (31.2%). The more mature show a slight propensity to publish in book chapters (37.3%), but they also consider monographs to be an important research product (32,3%).

As regards the collaboration with foreign co-authors, areas 10, 11, 12 and 14 have a low propensity to publish with non-Italian colleagues. International collaborations merely refer to edited books. Once again area 13 shows special features, since contributions by scholars who work abroad are abundant on all products: 17.2% for journal articles, 11.4% for edited books, 7.0% for proceedings, 5.2% for book chapters.

To display the associations between the product type in the different areas and the language used for the publication, we have applied the Multiple Correspondence Analysis (MCA) (Blasius and Greenacre 1994; Greenacre 2007).[5] We utilised the first two latent dimensions for the construction of the factorial map that explain 91.5% of the inertia (Fig. 6). The first dimension summarises 81.1% of the variability and represents the most relevant type of publication by area (label PUBB) and language (label LANG). The second axis is the residual type publications, synthesising 10.4% of the inertia. The analysis of these three variables simultaneously highlights the peculiarities of the different areas.

On the left side of the first axis is placed area 13, with the article journals (PUBB journal article) written in English (LANG ENG), while on the right side are the other areas. Areas 11, 12 and 14 are placed close to each other in the lower right quadrant in which monographs, edited books, and book chapters are located, as well as the Italian language. Area 10, despite being in the same area for the main publications (right side of the graph), is characterised by a group of residual other products (upper side of the graph) that are typical of Arts and Humanities (such as scientific translations, critical editions, exhibition catalogues and the like). In fact, area 10 has a particular position close to proceedings and other products in other languages. In

[5] For the implementation of the MCA, PCA and Clustering, we used the R software, library ca (Greenacre and Pardo 2006; Nenadic and Greenacre 2007), and FactoMineR (Husson et al. 2010).

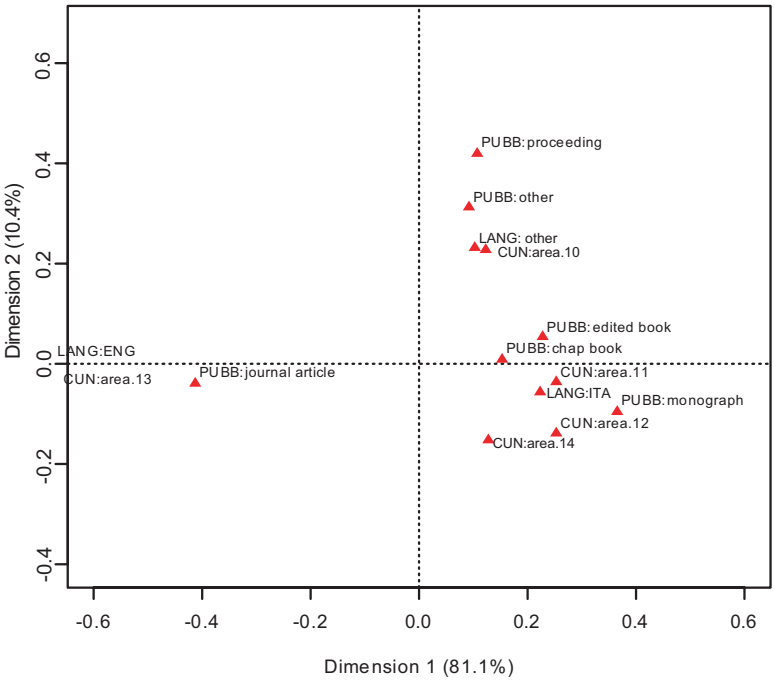

Fig. 6 Multiple Correspondence Analysis (MCA) of publications, language and scientific areas. Plane of the two axes

this area, scholars use many different languages to publish, such as Italian and English, but also Spanish, German, French, Russian, Arabic and many others.

We find a statistically significant relationship between the type of product and the language used (*p-value* < 0.001): English is the preferred language for a journal article, Italian for monographs, and other languages for proceedings. It is interesting to note that the age of the scholar has an impact on the choice of dissemination channels. There is also a statistically significant relationship with the age of scholars across areas (X^2 = 3858.9, df = 8, p-value <0.001). The CUN areas with a higher percentage of young people are area 12 (19.8%) and area 13 (20.1%), while the other areas (10, 11 and 14) have, respectively, 6%, 7% and 8% scholars aged less than 41 years and affiliated with universities with an academic position. In areas 10 and 11, on the contrary, there are more mature scholars: the age exceeds 55 years for 48% and 52% of academics, respectively. Area 14 has a large number of academics between 41 and 55 years old (48.5%).

It is interesting to ask whether different disciplines (at the disaggregated level of SSD, or *Settori Scientifico Disciplinari*, n = 154 in the SSH areas) follow the same publication patterns. We aggregate the data in order to detect latent profiles of each discipline, using Principal Component Analysis (PCA) (Jolliffe, 1986) and cluster analysis (Everitt et al. 2011). The results of PCA for 154 sectors show that there are

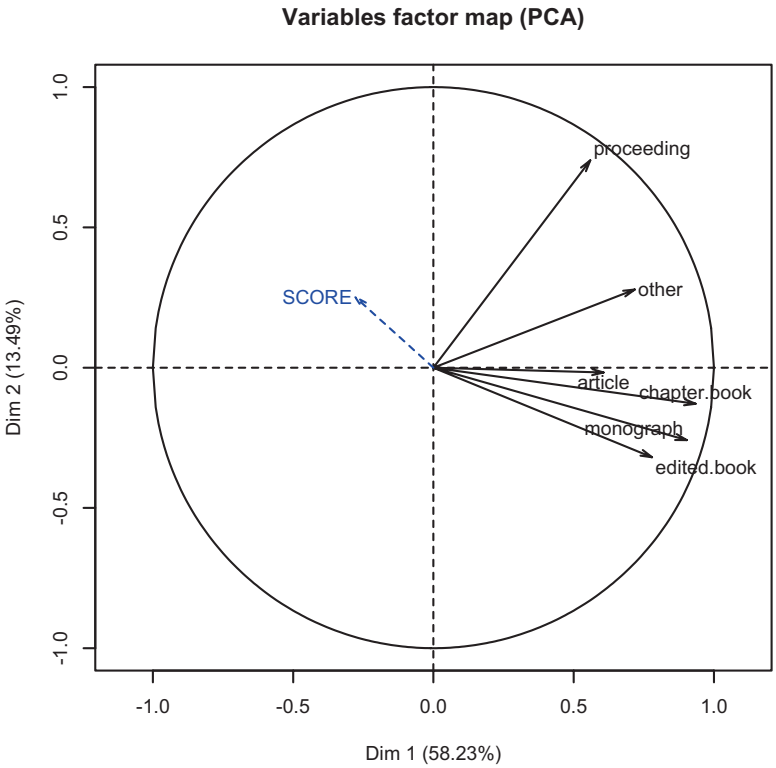

Fig. 7 Correlation circle. Illustrative variable

two latent dimensions: the factor of the publication products and the residual. The first factor explains 58.23% of variability and summarises the analysis for edited book, book chapter, monograph and article, while the second factor, explaining 13.49% of the variability, represents proceedings. The score, which we included as a supplementary variable, has a very low weight (Fig. 7).

We perform an agglomerative hierarchical clustering (Ward method) on the results from the two identified factors. The clustering analysis detects five groups, not corresponding to CUN areas (Fig. 8). Indeed, the CUN areas are located close to the centre of the orthogonal axis.

Figures 9 and 10 show that the cloud of points (representing single disciplines, or SSD) has the shape of a triangle. In correspondence with the vertex coincident with the first axis there is a greater concentration of points, therefore the SSDs belonging to it have similar characteristics: they are very small fields, mainly belonging to area 10. The products that characterise them are article, book chapter, and edited book. Cluster 2 prefers journal article and monograph and the SSDs belong to the areas 10, 12, 11 and 13. Cluster 3 selects journal articles and edited books, and here we find disciplines in areas 10, 12, 13 and 14. Cluster 4 chooses

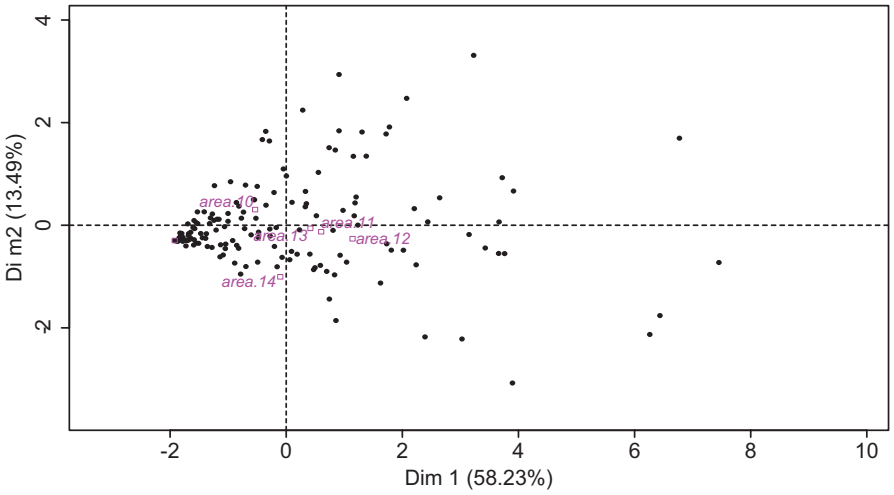

Fig. 8 Plane of the first two axes from the Principal Component Analysis. Illustrative variable: CUN area

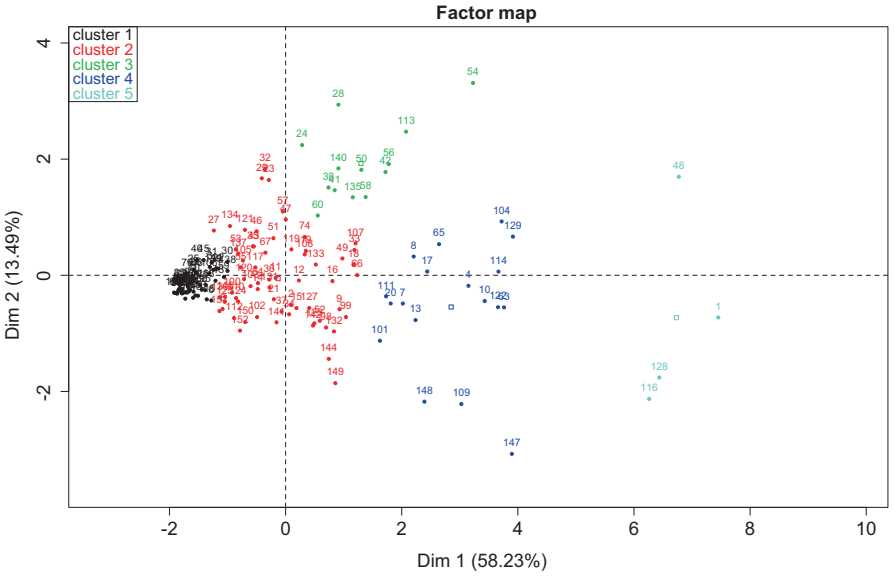

Fig. 9 Plane of the first two axes from the PCA – Individual points labelled by cluster

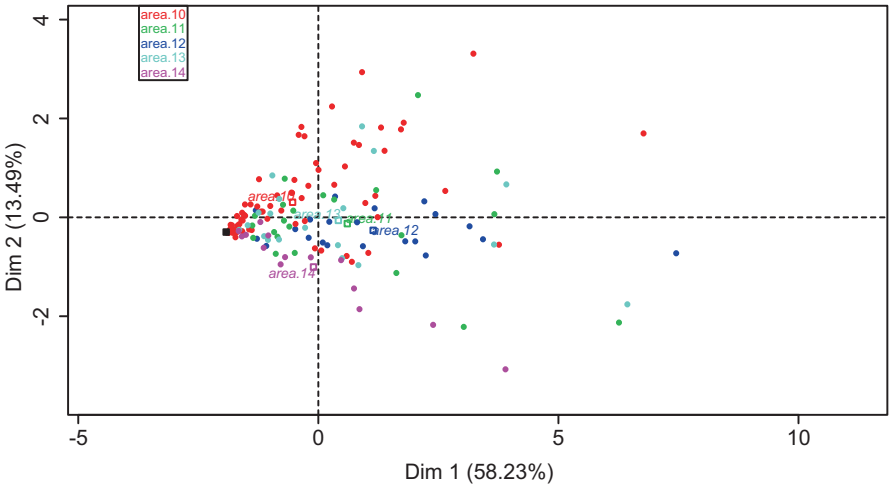

Fig. 10 Plane of the first two axes from the PCA – Individual points labelled by CUN area

articles and chapter books, and the SSDs belong to the areas 10, 12, 13 and 14. Finally, in cluster 5, the scholars indicate only journal articles: the disciplines here are part of areas 10, 11, 13 and 14.

It is quite clear that scientific production in the SSH is not dependent on the CUN area, but the boundaries are to be found elsewhere. For this reason, the search for quality standards is very complex and should be sought in objective criteria to measure the quality of research products. This does not only apply to journal articles, but first of all to books and book chapters. Multivariate statistical analysis can contribute to the study of epistemic differences across disciplines, as discussed in the chapter by Bonaccorsi in this volume. In this section we have used these techniques on data related to types of publications and languages. In the future it would be important to extend to other descriptors of research products.

4.2 In Search of Patterns in Journal Publication. An Analysis of the Self-Reported Production of Scholars in SSH

While in the VQR scholars were asked to select a small number of products (three for university staff, six for staff at PROs), it is clear that scholars produce much more. An interesting opportunity to expand the analysis is offered by the access to the loginmiur database managed by Cineca, made available by Anvur in the context of the research project at the origin of this chapter. Anvur made available a subset of data referring only to the number of articles by name of journal. No individual researcher data were accessible. This is due to current restrictions, until the notion of publicly available national repository (called “Anagrafe della Ricerca” in the

Table 8 Descriptive analysis of journal articles by CUN area. Period 2004–2013

CUN AREA	Mean	Sd	Cv
Area 10	7.62	6.42	84.25
Area 11	8.16	6.16	75.49
Area 12	13.27	12.05	90.81
Area 13	7.87	6.53	82.97
Area 14	7.23	4.31	59.61

Source: Based on DB CINECA

Italian legislation) will be completed and enforced in the legal and administrative framework.

The database cover all scholars affiliated with Italian universities (full professor, associate professor, researcher fixed term, researcher short term). It is important to remind that these data are self-reported. Each person affiliated with an Italian university receives from Cineca the access to a personal site through which are received all official communications about academic procedures from the ministry. Each person creates his/her own personal archive of publications. The categories are imposed by Cineca, but there is no ex-post control based on library procedures. This means that the interpretation of publication categories is left to the author's responsibility. Table 8 shows the average number of articles published in the decade 2004–2013.

In the decade under analysis, scholars in area 10 published 3531 articles in 1001 different journals. The journals with the largest number of publications are:

- L'Indice dei libri del mese (60 papers)
- L'analisi linguistica e letteraria (39)
- Bryn Mawr Classical Review (24)
- Eikasmos (23)
- Iride (21).

In terms of average number, scholars published 7.62 articles in the decade, less than one per year.

In the first quartile (Q1), i.e., the 25% least productive, scholars published 5 articles in 10 years; half of the scholars (median Q2) published 6 articles and the most productive (third quartile, or Q3) 8 articles.

In area 11 we find 720 different journals and 2879 articles, a slightly larger average number per journal (4 articles per journal vs 3 in area 10).

Journals with the highest number of publications are:

- Giornale Italiano di Psicologia (48 papers)
- Psicologia della Salute (25)
- Nuova Secondaria (25)
- Neuroimage (24)
- Archivio Storico Italiano (23)

The inter-quartile distribution is slightly better than the one in area 10: 5 for the least productive, 6 median value, 9 most productive quartile.

The concentration of journals is higher in area 12. In legal studies we find 495 journals, which have published 3301 articles in the decade, or approximately 7 articles each.

The top five journals are as follows:

- Giurisprudenza Italiana (83 papers)
- Foro Italiano (81)
- Giurisprudenza Costituzionale (51)
- Guida al diritto. Il Sole 24 Ore (45)
- Diritto pubblico comparato ed europeo (42).

In this area we find a much larger average value (13.27). The inter-quartile distribution is as follows: only 5 articles for the lower quartile, but 9 for the median and 17 for the most productive quartile.

In area 13 there are 720 journals with 2430 articles (3 on average). With an average of 7.87 articles in the decade, the least productive quartile published as few as 4 articles, the median 6 and the most productive 8 articles.

The journals with the largest number of publications are:

- Rivista Italiana di Economia, Demografia e Statistica (32 papers)
- Economia e Management (31)
- Economia e Politica Industriale (25)
- Rivista di Politica Economica (21)
- L'Industria (20).

Finally, in area 14, the smallest in SSH in Italy, we identify 221 journals with 810 articles, approximately 4 articles each. The inter-quartile distribution is 5, 6 and 8, respectively. The top five journals are as follows:

- Il Mulino (26 papers)
- Rassegna Italiana di Sociologia (23)
- La rivista delle politiche sociali (15)
- Salute e società (15)
- Filosofia Politica (14).

The following conclusions can be drawn from these data. First, it appears that the concentration of publication in journals is indeed very low. With an average number of articles equal to 3–4 per journal, and the top journals accounting only for a few decades of articles, it is clear that overall journal production is rather fragmented. This seems to be a structural characteristic of SSH, although with slightly different patterns, in particular in the legal area. Second, all top journals by number of articles are written in Italian language. This is another reminder of the specificity of SSH areas. Third, scholars also include in their self-reported data journals that are non-scientific, or are mixed-type at best. To make a few examples, *Il Mulino* is an established authority in cultural and political debates, but is not a scientific journal; *L'Indice dei libri del mese* is a journal entirely devoted to book reviews. This point calls attention to the need to carefully classify journals in terms of their scientific and academic value, as has been done by Anvur (see the chapter by Bonaccorsi,

Ferrara, Malgarini and Tindaro in this volume). At the same time it is an indication of the way in which scholars in SSH perceive their academic duty, which sometimes seem to include communication to a wider audience.

5 Conclusions

The analysis of VQR publications has been a useful exercise to understand the different strategies adopted by scholars in choosing where to publish their results.

We have discovered a large diversity of practices, which is influenced by the broad disciplinary area (CUN area), but also by the smaller disciplinary field (SSD) and by age. We find confirmation of the crucial role of monographs and book chapters but we also discover that, in area 10, the area of language, literary and art studies, proceedings and other research products play a key role. The Italian language is the most frequent mode of publishing monographs, book chapters and edited books. At the same time many research products, particularly in the Other product category, are often published in a large variety of non-Italian and non-English languages. Area 13, covering economics and business, as well as statistics and applied mathematics, is an outlier under many respects. Journal articles written in English are the key product.

Finally, we find evidence that the publication strategies of scholars do not completely overlap with the administrative definition of disciplines, as proposed by CUN. Perhaps the macro-CUN areas should be redrawn on the basis of the new characteristics the disciplines have assumed, as witnessed at a microlevel by their publication strategies. The scientific societies that guide and offer suggestions to scholars might be a bridge with the national Agency and with CUN in order to reopen the issue of disciplinary boundaries.

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