Bibliometric S & T Indicators to Comply with Users' Needs

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Abstract

Homogeneous and easy to update scientometric indicators for a wide spectrum of problems were obtained making use of the bibliographic database Current Contents. The procedures adopted and the major factors which can affect the accuracy of the results are reported and discussed.

Case studies are presented concerning: (i) international co-operation, (ii) foreign policy and (iii) vocation for industrial settlements, which provide examples of how these indicators can comply with a variety of needs.

Introduction

The escalation in the economic and industrial competition and the consequently increasing demand of innovation, investments, partnerships and technology transfer, lead to exploit the contribution of science and technology indicators in order to face a wide number of problems (H.F.Moed, 1989 and L. Leydesdorff, 1995). Recently, Gomez et al. (2000) faced the issue of developing interactive and user-friendly *tools* allowing *end-users (or, Internet-users)* to monitor activities such as the assessment of the international co-operation or the determination of the scientific productivity in nations, regions, universities or research institutions.

The availability of bibliographic or factual databases over the Internet, on a wide range of media (networked CD-ROMs or Web Servers) and the effort spent by information providers to design user-friendly GUI (Graphical User Interface, see Mangiaracina and Marchetti, 1998), has increased the number of users that may retrieve information not-mediated by other people, such as

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information specialists or librarians. As a consequence, the spectrum of needs that could be addressed and satisfied has tremendously widen up (Balestri and Mangiaracina, 1998), and largely exceeds the one of academic research evaluation.

The case studies presented in this work provide examples of different applications of bibliographic databases retrieval. In fact, these databases lend themselves to provide indicators and useful information concerning issues which are increasingly relevant in the present world. Suitable indicators should be easy to update, easy to verify and compare. Monitoring the evolution of the outcomes of such indicators over time is also of primary importance, because of the rapid change of our environment.

We show that elementary publication indicators to comply with specific information users' needs can be obtained with a great degree of reliability. These indicators outcomes are easy to update and apt to scan the scientific activities at the national, regional and local level or, respectively, to quantify the productivity of the single institution or laboratory.

Methods

A three-dimensional space such as the one depicted in Fig.1 can be used to describe all kinds of bibliometric questions that can be phrased in terms of "discipline", "geographic area" and "institution". Along the geographic dimension it is possible to reach different levels of granularity: world, nations, regions, provinces, towns; similarly, institutions can be subdivided in state-wide ones, local universities, single branches of laboratories, firms.

We made use of the bibliographic database Current Contents (CC) published by the Institute for Scientific Information (ISI). ISI publishes 7 different Editions of CC on CD-ROMs covering all scientific disciplines; the CD-ROMs are updated weekly.

The procedures adopted to exploit the dimensions in Fig.1 deal with two different fields available in the CC CD-ROMs featuring the Ovid™ software, namely the fields "CC categories" and "Institution". The field "CC categories" allows to disaggregate the total number of papers included in a specific CC edition into classes of research subfields or disciplines, e.g. the set of papers referenced in the CC edition "Physical, Chemical & Earth Sciences" can be divided in 11 separate subsets of papers belonging to the "Earth Sciences", "Physics" "Chemistry", "Materials Sciences", etc... subfields. Papers are classified in a given discipline on the basis of the journal they belong to. It is worth to notice that, in a given CC Edition, papers are uniquely classified. However, since the subfields may change over time, care has to be taken to avoid discrepancy when trends are to be analysed. The field "Institution" contains up to 25 different addresses of institutes, corporate or laboratories, corresponding to authors' affiliations. They are not standardised by ISI, with the

only exception of the name of the country (e.g. Italy, France,...).

The discipline data can be very easily extracted and then combined with specific countries in order to assess their scientific productivity.

A problem encountered when extracting data referred to a geographic area is how to group papers at intermediate levels between countries and towns. For example, in order to aggregate papers of the 18 "Italian regions", it is necessary to build a list of all the locations (towns) included in a CC yearly edition and to group them by region. This result can be obtained performing the following steps:

1. select the set of Italian papers;
2. combine set n.1 AND all Italian main cities;
3. group in OR all sets found in step n.2;
4. combine set n.1 NOT set n.3;
5. identify all the locations of set n.4 in order to assign them to the belonging regions;
6. group in OR all the locations of set n.2 by specific region with the minor locations of set n.5, in order to build the final list.

The list which is reported in the Appendix shows, as an example, the queries that have to be performed in order to find all the papers with at least one author in a given Italian region. The procedure described above has been iterated for the period 1995-1999 for the CC edition "Agriculture, Biology & Environmental Sciences".
It is worth to note that such a procedure cannot be fully automatized, since steps n.2 and n.5 require human recognition and knowledge of the territory. Zip codes were not used because they are often missing or wrong. Erroneous denominations of locations occur too and need to be identified (see the example of "San Michele all'Adige" in the region Trentino Alto Adige).

Likely, in order to exploit the institution dimension, care has to be taken in order to recognize all the different denominations of the same entity, because they are also not fully standardized. As an example of a state-wide institution, the Italian National Research Council (Consiglio Nazionale delle Ricerche, C.N.R.) appears in eight different ways which are reported in Table 1. A similar situation holds for the specific research laboratories: e.g. the TESRE Institute of the CNR, i.e. the Institute for the Technologies and Study of the Extraterrestrial Radiations, is also indicated in eight different ways.

1	**NCR**
2	**CONSIGLIO NAZL RIC**
3	**CONSIGLIO NAZL RICERCHE**
4	**CRN**
5	**NATL RES COUNCIL**
6	**AREA RIC**
7	**ITALIAN COUNCIL SCI RES**
8	**CONSIGLIO NTL RIC**

Table 1

To attain accurate results in this type of research is time consuming. Hopefully these difficulties should be reduced, or overcome, in the future as authors become more aware of the importance of this requirement for scientometric analysis, or intelligent softwares, capable to parse the database in order to identify objects and to group them, will be implemented, to reduce human intervention.
The recognition of the site of the Institute or Laboratory can also be a source of inaccuracy. As an example, Universities and research Institutes of the city of Lyon are situated in the adjacent Villeurbanne. So, a detailed survey of the area under consideration is needed in order to reduce errors.

In the next paragraph we will present and discuss some case studies performed by using the above methods.

Case Studies

International cooperation

The International Centre for Theoretical Physics (ICTP) has set up, since over a decade, a fellowship scheme for training and research in Physical Sciences. The TRIL Programme (Training and Research in Italian Laboratories) offers to scientists from the Developing World the opportunity to widen their experience by performing research work in laboratories of the Italian Universities, public research Institutions and enterprises. The average duration of the stays is about one year.

The purpose of the Programme is to enhance physical science research in the Developing Countries, in the broader framework of the relations between the North and the South. A measure of the programme success is offered by the good standard of the published works, and the fact that a TRIL fellowship is often instrumental for the researcher's career advancement. Moreover, in some cases, TRIL has triggered the joint participation of the hosting laboratory and the institution of origin to bilateral or to European Union co-operation programmes.
To appreciate the long term effectiveness and the fall-out of a training programme is a difficult

task. We used bibliometric indicators to evaluate the impact of TRIL on the bilateral scientific co-operation with the Developing Countries.

India was chosen for this analysis due to its importance among the Developing Countries and on account of its relevant traditions in pure and applied sciences. In addition, until recently the cultural and scientific relations between India and Italy were scarce, consequently the impact of the present activities can result in clearer evidence.

The number of papers co-authored by Indian and Italian scientists, in the Edition "Physical, Chemical & Earth Sciences" of CC, is reported in Fig. 2 for the two-year periods 1996-97 and 1998-99 respectively. The discipline "Physics" holds the first position and accounts, alone, for the 50% of the co-authored papers. This figure of merit attains the 65% by also taking into account the "Applied Physics, Materials Science" discipline. The relevance of these disciplines for the bilateral scientific co-operation, and the trend shown in Fig. 2, are confirmed by the histograms, which are not reported for simplicity, of the fractional output, i.e. the ratio of the number of co-authored papers and the total number of publications, in the same discipline, from Italian authors.

To compare these results with the ones of similar European countries, we also determined, on the same line as in Fig. 2, the number of papers co-authored with Indian researchers by Spanish or French scientists respectively, in the two-year period 1998-1999. The percentages of co-authored papers, with respect to the total number of publications from the national scientists result in the following order: Spanish (1.2%), French (2.3%), Italians (2.4%) for the discipline 'Physics', and respectively Spanish (0.4%), French (0.64%), Italians (0.84%) for the discipline 'Applied Physics, Materials Science'.

These results are a valuable indication of the effectiveness of the TRIL Programme. The initiatives of the International Centre for Theoretical Physics are in fact the major event affecting the cooperation between India and Italy in the field of physical sciences.

Foreign policy

Science is playing a strategic role in the relations amongst countries, resulting in an increasing synergy between scientific research and foreign policy. Making use of bibliographic databases to assess external relations is becoming increasingly attracting, as it allows to obtain, besides important S&T indicators, unique information not accessible in other ways.

Indicators related to this case study are reported in Fig. 3, which shows the histograms of the number of papers co-authored by Swedish and Italian scientists in the two-year periods 1996-97 and 1998-99 respectively, in the C.C. Editions "Life Sciences","Physical, Chemical & Earth Sciences", "Engineering, Computing & Technology" and "Agriculture, Biology & Environmental

Sciences".

These histograms show the output of the research work we performed for the Italian Embassy in Stockolm, with the aim to take advantage of bibliometric indicators to promote the scientific and technical co-operation. The procedures adopted can in fact provide, with a high degree of updateness for the specific disciplines, accurate quantitative information on the scientific research performed in the host country. The nature and extent of the bilateral co-operation can also be analysed in details. As it is shown in Fig. 4 for 'Life Science', the CC Editions in Fig.3 can in fact be disaggregated, on the same line as shown in Fig. 2, into the corresponding disciplines, and the co-authored papers can be determined and monitored, thus providing a detailed picture of the elements of strength and weakness in the scientific co-operation. Accurate figures can be obtained, up to the single institution, thus offering a real time photography of the research activity. Moreover the participating authors and institutions can be identified, an appropriate condition to start co-operation initiatives (Italian-Swedish Collaborations, 2000).

Vocation for industrial settlements

The third case study concerns the role of bibliometric S&T indicators in localising the vocation for industrial settlements, i.e. as a tool for choosing amongst competing alternatives for the allocation of public resources.

Policy makers are increasingly aware that offering financial incentives for industrial investments is not sufficient for promoting full employment and sustainable economic development. Capital, in fact, freely moves across borders in an increasingly integrated market. Moreover, the most dynamic companies are relocating their activities in those areas which better comply with their market needs or where they can maximise profits. Increasing attention is consequently being devoted to those factors and conditions which can stimulate companies, particularly innovative ones, to take deep root in a given location.

There is an increasing consensus for the idea that innovation is an interactive learning process and that industrial development and the settlement of new productive activities can be favoured by the presence of other companies active in allied sectors, as well as by scientific laboratories performing research in related fields.

The environment in which companies operate is essential for their learning capabilities, hence the availability of a skilled and educated workforce - able to promote links between the research system and industry- and the proximity of specialised knowledge centres and of innovation services has been shown to be of outstanding importance (Boekholt, 1997).

The role of universities and active research organisations is a central one in all the

methodologies available to planners responsible for evaluating the innovation potential of a given region (Nauwelaers, 1997). This conclusion enhances the importance of bibliometric indicators. In fact, the number of scientific publications and their evolution over time also provide information on the environment in which companies operate.

Our study concerned the vocation of the Region Emilia Romagna to further expand the food industry. This is a very dynamic and innovative sector as shown also by the tremendous increase in the variety of products derived from a single raw material. This field is undergoing rapid expansion together with a fierce competition and there are risks that well-established high renowned productive activities be relocated elsewhere.

The discipline *Food Science and Nutrition* is the one representative of the research work currently being carried out in this sector. Figure 5 shows the histograms of the number of papers for the two-year periods 1996-1997 and 1998-1999, respectively, in the CC Edition *Agriculture, Biology and Environmental Sciences* for Emilia-Romagna, disaggregated into the specific disciplines. *Food Science and Nutrition* is amongst the leaders, with a regional share of over 15 % and a positive ongoing trend.

Comparison with the other Italian regions was performed by using the same bibliometric indicator, as a relative figure of merit was required. The procedure adopted to group the scientific papers by regions has been discussed in the previous section.

Figure 6 shows the distribution of publications in *Food Science and Nutrition* for the eighteen Italian regions, and Emilia Romagna ranks in second position, with a number of publications which attains about 15% of the national output. These results testify the vocation of the Region.

It is worth noting that the indicators from bibliometric analysis are only able to shed light into partial aspects of the innovation process (M.Dogson and S.Hinze, 2000), hence they cannot alone provide conclusive evidence for a choice between competing alternatives. However, the validity of an analysis performed using these indicators can be remarkably improved by specific technical knowledge, i.e. by considering in detail the features of the sector under observation and the problems which the manufacturing process has to face due to the evolution of the market or by the perspectives of research.

In the case under consideration, the food industry increasingly evolves towards Computer Integrated Manufacturing (CIM) and Total Quality Management (TQM) techniques, to comply with the increasingly severe health, hygiene and market requirements such as quality control and constancy of organolectic properties. This demands increasing automation, the development of appropriate process modelling, the availability of suitable sensors, particularly advanced chemical sensors and close interaction with the producers of automation.

In addition, qualified technical experts are required, in fact automation must be tailored to the specific needs of the manufacturer. From this point of view Emilia Romagna is in a favourable position as over 20% of all Italian producers of automation and flexible manufacturing systems (fms) are located in the northern part of this region. This information, which is relevant in order to define the vocation to further expand the sector under consideration, can be obtained from an analysis of existing industrial directories and databases.

However, valuable insight can also be obtained from bibliometric indicators. To this end we have considered the disciplines *Electrical and Electronic Engineering* and *Chemical Engineering* in the *Engineering, Computing and Technology* Edition of CC as well as C*hemical Analysis* in the *Life Sciences* Edition. Over the three-year period 1997-1999 Emilia Romagna produced 16%, 10% and 21%, respectively, of the entire national output of publications. This result is in keeping with the indications reported above.

Further refinements of this analysis can be obtained, for example, by a suitable selection of the scientific journals used, as well as by attributing a weighted value to the various disciplines considered.

Conclusions

Novel information for a spectrum of issues were obtained by using accessible and constantly updated bibliographic databases.

We reported examples of the procedures set up to analyse:

a) The impact of training foreign scientists on the scientific relations with the host country.

b) The scientific co-operation between nations.

c) Vocation of an area for a specific industrial settlement.

Further work has to be done to fully automatize the described procedures and to achieve a really interactive tool capable to answer specific users' questions. Our plan is to experiment with software packages that, making use of artificially intelligence techniques, may reduce the need of a human expert intervention for object identification and grouping.

Analysis based on a single type of indicators should be considered with caution. However scientometric indicators from bibliographic databases are verifiable, not subjective, homogeneous and consequently comparable, i.e. they present the features typical of the scientific properties.

Acknowledgements

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S. Mangiaracina, P.G. Marchetti (1998), "WWW interface Design, Driven by Heuristic Evaluation: the EINS-Web Project", Proc. 8th Delos Workshop on User Interfaces in Digital Libraries, Stockolm, 18-21 October 1998, pp.45-53, also see URL: "http://www.ercim.org/publications/ws-proceedings/"

Italian-Swedish Collaborations (2000), see URL : http://www.itemb.se/science/scientific_publications.html http://www.ambitalia.no/science/scientific_publications_norway.html

P. Boekholt (1997) , "Innovative Networks in Regional Economies: Enhancing Infrastructures for Technology Creation and Transfer" in *Innovation and Economic Development* J. Mitra and P. Formica Ed. Oak Tree Press. London, (1997) p.119-139.

C. Nauwelaers (1997), "Evaluating Regional Innovation Potential: Assessment of Trends and Implications for Policy", *ibidem,* p.217-233.

M.Dogson and S.Hinze (2000), "Measuring Innovation" Res. Evaluation 8, 2000, p.101-114.

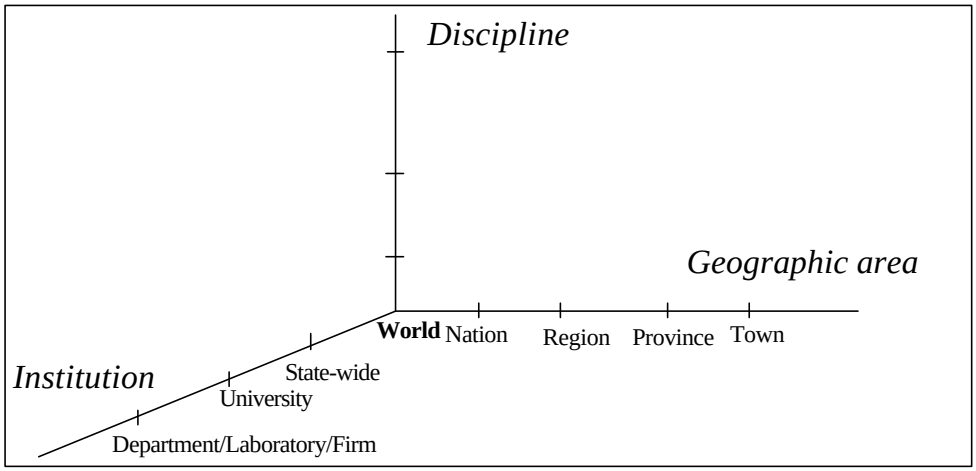

Fig.1. Procedures have been set up to exploit this three-dimensional space

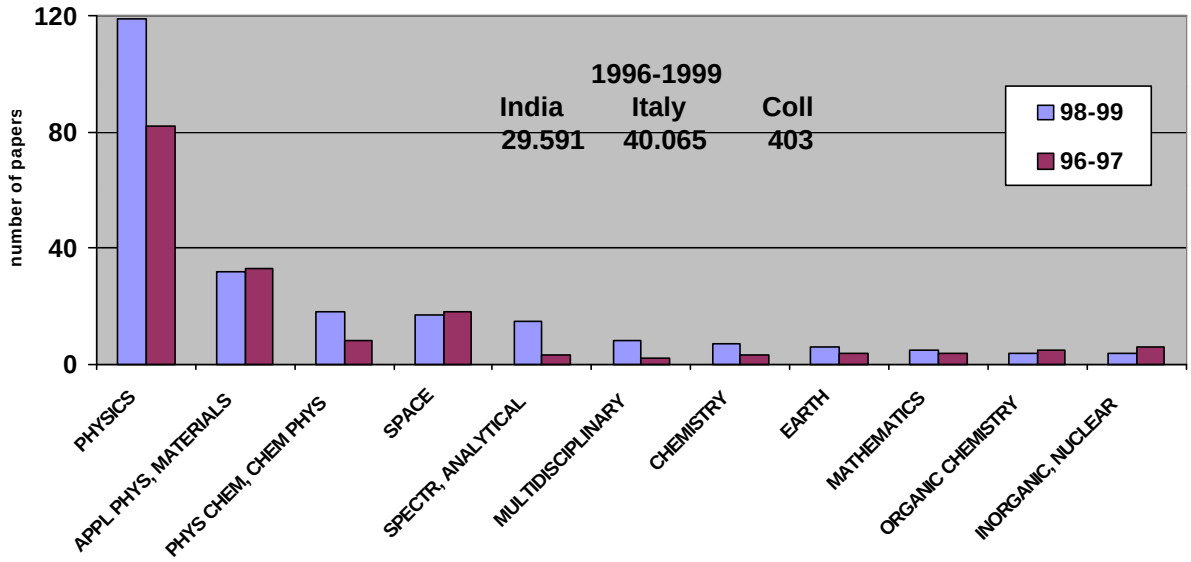

Fig. 2. Distribution among the disciplines of the CC edition "Physical, Chemical & Earth Sciences" of the papers co-authored by Indian and Italian scientists in 1996-97 and 1998-99 respectively. The figure under India (or Italy) indicates the total number of papers in the four years with at least one Author from that nation, the figure under Coll the number of co-authored papers.

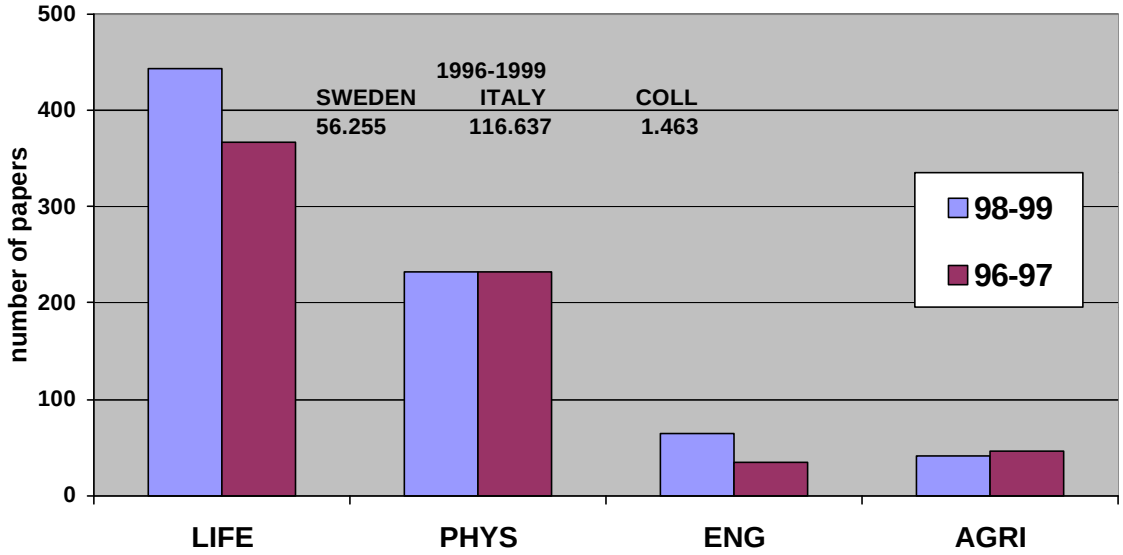

Fig. 3. Papers co-authored by Swedish and Italian scientists in 1996-97 and 1998-99 respectively in the CC editions "Life Sciences", "Physical, Chemical & Earth Sciences", "Engineering, Computing & Technology" and "Agriculture, Biology & Environmental Sciences" . The figure under Sweden (or Italy) indicates the total number of papers in the four years with at least one Author from that nation, and the figure under Coll the number of co-authored papers.

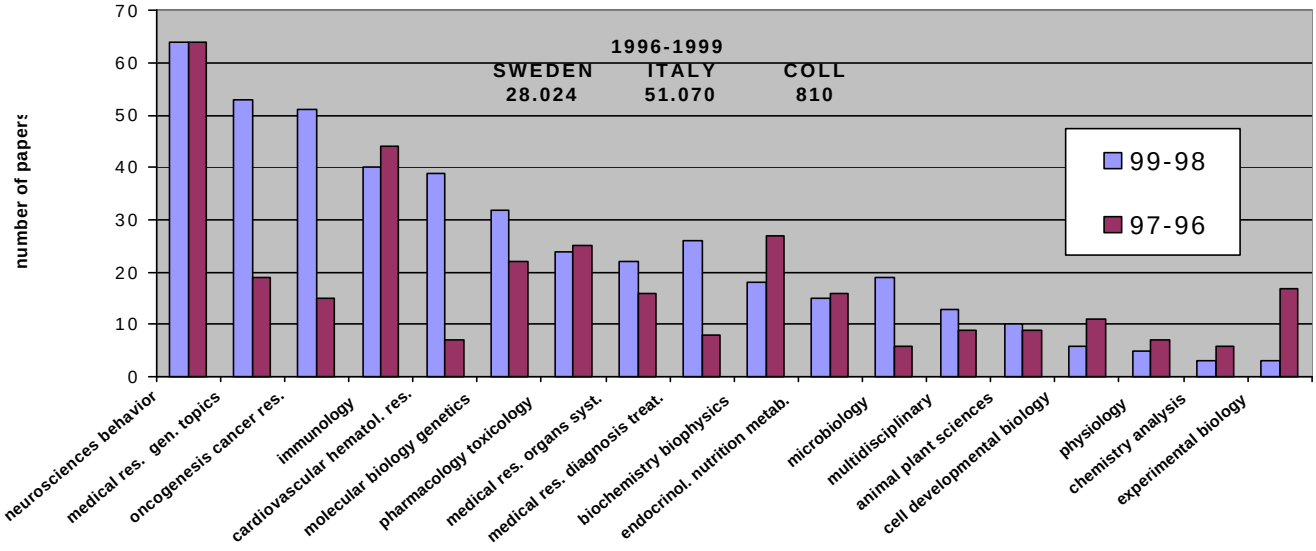

Fig. 4. Distribution of the Swedish and Italian scientists' coauthored papers concerning only the disciplines of the CC edition "Life Sciences" shown in Figure 2. The figure under Sweden (or Italy) indicates the total number of papers in the four years with at least one Author from that nation, and the figure under Coll the number of co-authored papers. It is necessary to note that ISI added a few disciplines in 1997. The difference between 96-97 and 98-99 observed e.g. in "Medical Res. Gen. Topics" and "Oncogenesis Cancer Research" are due to such modification.

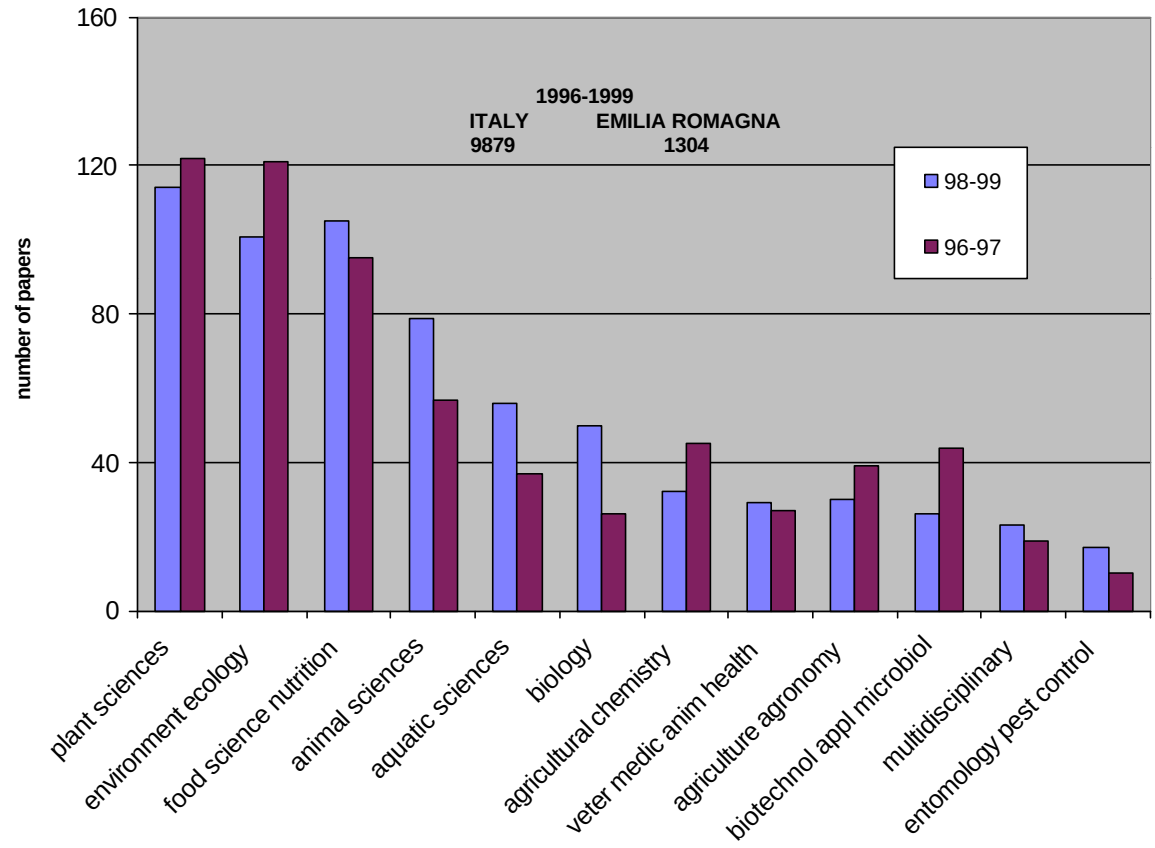

Fig. 5. Number of papers in the Region Emilia Romagna for the disciplines in the CC edition "Agriculture, Biology & Environmental Sciences" in 1996-97 and 98-99.

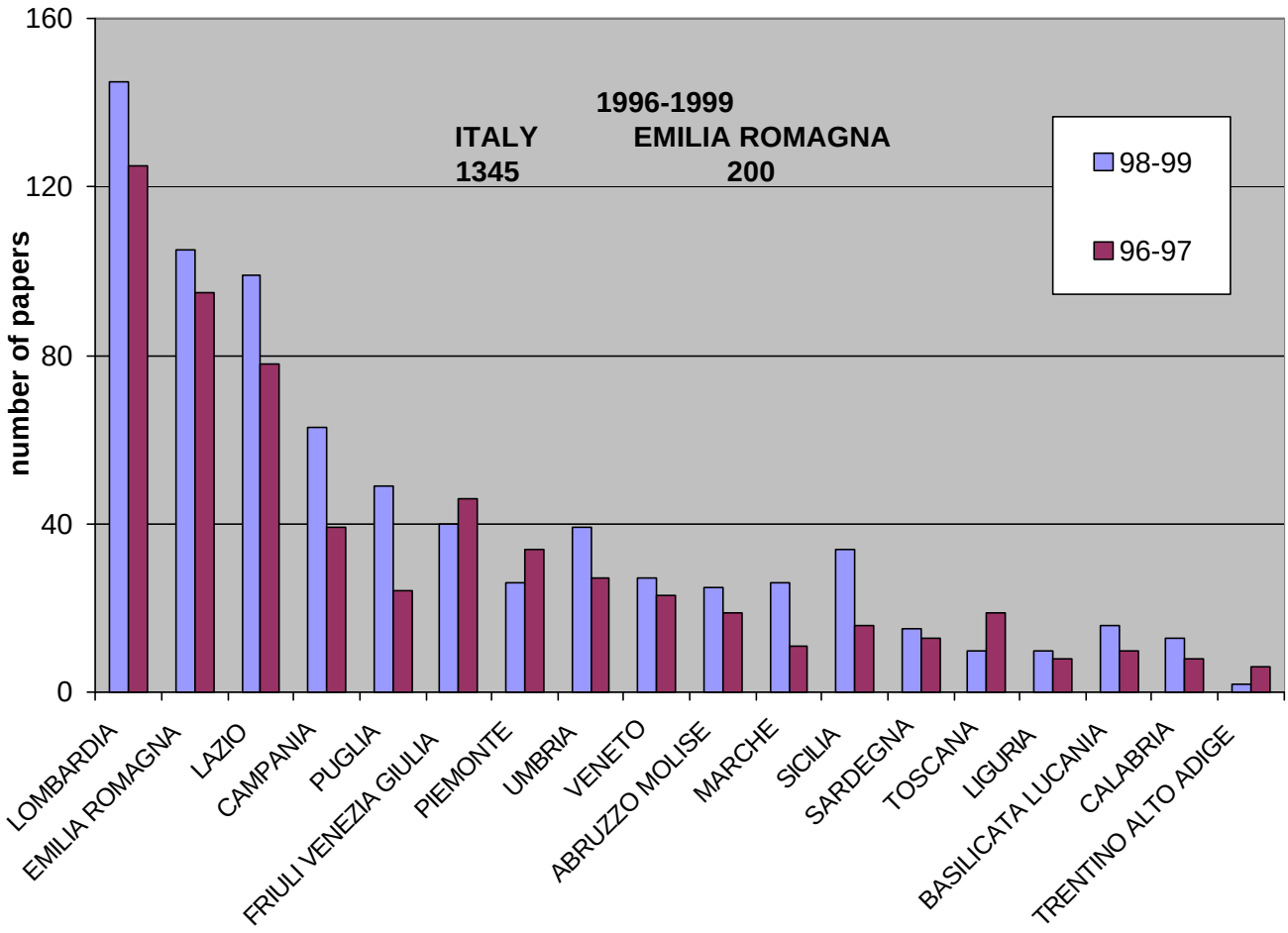

Fig. 6. Number of papers in the Italian Regions, for the discipline "Food Science & Nutrition" of the CC edition "Agriculture, Biology & Environmental Sciences" in 1996-97 and 98-99.

APPENDIX Extracting geographic data

TOWNS CITED IN CC-AGRI (1995→ 1999) GROUPED IN THE 18 ITALIAN REGIONS

#**ABRUZZO**
(LAQUILA or PESCASSEROLI or MONTELUCO or CELANO or COPPITO or TERAMO or PIANO DACCIO or CAMPOBASSO or CAMPOBASCO or ISERNIA or POZZILLI or MOLISE or CHIETI or PESCARA or CITTA S ANGELO or IMBAR?).in and italy.in

#**CALABRIA**
(COSENZA or CATANZARO or ARCAVACATA or RENDE or MONTALTO UFFUGO or CALABRIA or CALALBRIA or GALLINA DE REGGIO or MARINA DI GIOSA JONICA or MARINA GIOIOSA JO or CASTIGLIONE SCALO or S GREGORIO).in and italy.in

#**CAMPANIA**
(AVELLINO or CASERTA or MONTE VERN? or PIANNA MONTE VERN or AVERSA or NAPLES or NAPOLI or PORTICI or ISCHIA or STABIA or PONTICELLI or SAN SEBASTIANO or CAIVANO or ARCO or S SEBASTIANO VESU or ERCOLANO or SORRENTO or SALERNO or PONTECAGNANO or ANGRI or FISCIANO or BENEVENTO or POMPEI or SCAFATI or PORTIA).in and italy.in

#**EMILIA ROMAGNA**
(BOLOGNA or OZZANO DELL EMILIA or OZZANO EMILIA or OZZANO DELLEMILIA or OZZANO TARO or IMOLA or GRANAROLO EMILIA or BAGNAROLA DI BUDR or QUARTO INFERIORE or CUSA LECCHIO RENO or BAZZANO or BUDRIO or CASALECCHIO or FERRARA or FORLI or GATTEO or MODENA or PARMA or TROVERSETOLO or PIACENZO or FIORENZUOLA DARDA or FIORENZUOLA ARDA or PIACENZA or RAVENNA or FAENZA or CONSELICE or REGGIO EMILIA or CADELBOSCO SOPRA or RIMINI or CESENATICO or DIEGARO or CAVRIAGO or CREVALCORE or SANTA SOFIA or COVIOLO or CASTELRUOVO or CESENA or CASTELNUOVO RANGO).in and italy.in

#**FRIULI VENEZIA GIULIA**
(GORIZIA or TRIESTE or UDINE or POZZUOLO or PAGNACCO or BASALDELLA or OPICINA or PORDENONE or AVIANO or S CROCE).in and italy.in

#**LAZIO**
(LATINA or BORGO SABOTINO or RIETI or ROME or ROM or MARIA GALERIA or CIAMPINO or LADISPOLI or FRASCATI or POMEZIA or MONTEROTONDO or MONTELIBRETTI or CAMPAGNANO DI ROM or ROMA or VITERBO or MONTEFIASCONE or GAETA or FROSINONE or CASSINO).in and italy.in

#**LIGURIA**
(GENOA or SANTA MARGHERITA LIGURE or IMPERIA or SAN REMO or LA SPEZIA or LERICI or SAVONA).in and italy.in

#**LOMBARDIA**
(BERGAMO or TREVIGLIO or BRESCIA or COMO or CASTELNUOVO BOZZE or CREMONA or CASALMAGGIORE or MILAN or ANGELO LODIGIANO or BRUGHERIO or ZELO BUO? PERSICO or LODI or MONTANASO or MILANO or PADER?O DUGNANO or NERVIANO or MONZA or PARABIAGO or RHO or S ANGELO L or SEGRATE or NOVATE MILANESE or PASTURAGO VERNATE or CORMANO or PAVIA or GIUSSAGO or CORTEOLONA or S MARTINO SICCOMA or SONDRIO or VARESE or GALLARATE or ISPRA or GERENZANO or ORRIGIO or FINO MORNASCO or SALO or LOMBARDIA or RIVOLTA DADDA or OGGIONO or DONATO MILANESE or SESTO or MANTOVA or VIADANA).in and italy.in

#**BASILICATA LUCANIA**
(MATERA or METAPONTO or ROTONDELLA or POTENZA or POTERZA or TITO or BELLA or POLICORO or BASILICATA).in and italy.in

#MARCHE

(ANCONA or JESI or MONTE DAGO or ASCOLI PICENO or SAN BENEDETTO TRONTO or CHIETI or MACERATA or MATELICA or CAMERINO or PESCARA or CITTA S ANGELO or MONSAMPOLO or APIRO or URBINO or FRONTALE DI PIRO).in and italy.in

#PIEMONTE

(NOVARA or PALANZA or PALLANZA or VERBANIA or ALESSANDRIA or ALESANDRIA or ALLESANDRIA or CASALE MONFERRATO or CASSANO SPINOLA or VALENZA or AOSTA or ASTI or COCCONATO DASTI or CUNEO or RACCONIGI or TURIN or GRUGLIASCO or PIOSSASCO or ORBASSANO or VILLARBASSE or TORINO or IVREA or CHIVASSO or SETTIMO TORINESE or VERCELLI or OLMO or LUSEMA or GR?GLIASCO).in and italy.in

#PUGLIE

(BARI or MOLA DI BARI or VALENZANO or FOGGIA or LESINA or LECCE or TARANTO or FRANCAVILLA or BRINDISI).in and italy.in

#SARDEGNA

(CAGLIARI or TEMPIO or ORISTANO or ORISTARO or SASSARI or OLMEDO or SARDINIA).in and italy.in

#SICILIA

(AGRIGENTO or BIVONA or CATANIA or VALVERDE or ACIREALE or MESSINA or SANT AGATA or PALERMO or COLLECCHIO or TRAPANI or MAZARA or MAZARO or CASTELLAMMARE or CALTAGIRONE or ERICE).in and italy.in

#TOSCANA

(FLORENCE or SCANDICCI or PRATO or FIRENZE or GROSSETO or LIVORN? or MARCIANA MARINA or PIOMBINO or MARINA DI CAMPO or PISA or SAN PIERO A GRADO or GHEZZANO or PONTEDERA or PISTOIA or SIENA or POGGIBONSI or AREZZO or CASTIGLIONCELLO or LUCCA or AULLA or RADICONDOLI or GAGGIANO or SOLVAY).in and italy.in

#TRENTINO ALTO ADIGE

(BOLZANO or BOZEN or BRESSANONE or BRIXEN or TRENTO or POVO or TRENT or MICHELE ALL ADIGE or MONTE BONDO or BONDONE or SAN MICELE ALL ADIGE or CALLIANO or S MICHELLE A A or SAN MICHELE ALL or SAN MICHELE ALLAD or SAN MICHELE ADIGE or S MICHELE ADIDGE or ROVERETO or SCHLANDERS or VAHRN or KALTERN).in and italy.in

#UMBRIA

(PERUGIA or TODI or FRATTA TODINA or TERNI or PORANO or URBINO or CITTA DELLA PIEVE or PANTALLA).in and italy.in

#VENETO

(BELLUNO or PADUA or LEGNARO or AGRIPOLIS or LEGNANO or ABANO TERME or GALLIERA VENETA or MONSELICE or ROVIGO or TREVISO or VENETO or VENICE or MESTRE or VENEZIA or VERONA or BOVOLONE or ALBARO or SANGUINETTO or VICENZA or ARCUGNANO or LOZZO ATESTINO or CONTARINA or MONTEFORTE or VELO or ALTIVOLE or CHIOGGIA or ALPONE or BUSSOLENGO).in and italy.in