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Master in International Economics and Management

**A Bibliometrics Portrait of Chinese Research
through the Lens of China Economic Review**

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Short Bio

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Abstract

There are few studies, which analyze the evolution of Chinese economics research, and the weight of international economics within it, by resorting to objective methods, namely bibliometrics. Bibliometrics is a powerful tool that includes citation analysis, co-citation analysis, the analysis of themes and types, to help us explore, organize and analyze large amounts of information in a quantitative perspective. Giving our focus on Chinese economics related research, we select to base our empirical analysis on the “seed journal” China Economic Review (CER), which is the most important economic journal especially concerned with the issues of Chinese economy. We classify and assess all the (522) articles that were published in CER from its genesis (1989) up to December 2010.

Based on these articles, and undertaking an exploratory statistical analysis on the three databases - bibliographic database (522 articles), ‘roots’ database (over 10 thousand citations) and ‘influence’ database (over 3 thousand citations), we concluded that: 1) beside ‘Economic Development, Technological Change, and Growth’; and ‘Economic System’, ‘International economics’ is one of the most important topics for Chinese economics literature; 2) the vast majority of papers published in CER resorted to the analysis of economic data by applying mathematical models or logical framework (i.e., adopted a “Formal plus empirical” approach); 3) ‘International economics’ topic does not influence or is being influenced by Chinese economics literature; 4) the range of influence of Chinese economics literature is quite (geographically) concentrated around China and the USA.

Keywords: Evolution of research; Economics; Bibliometrics; China Economic Review

JEL-Codes: B30; B40; C89; F00

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Introduction

Chinese economy has experienced rapid growth and development in the recent past two decades. Since 1978, when the first step of economic reform took place in China, the economy's average growth rate in the eighties and nineties reached 9.7% (McMillan and Naughton, 1992). This high growth rate is explained by the development of China's industrial sector and by the openness of the country's policy to international trade and investment, as well as its transformation from a centrally planned economy to a progressively more market oriented one. Indeed, in this period China has experienced price liberalization, fiscal decentralization, progressively more autonomy of state owned enterprises, a diversified banking system, the development of stock markets, and the rapid growth of the private sector (Ravenhill, 2006).

Not surprisingly, there are growing academic scientific interest in Chinese economy and economics being Chinese economy, which become one of the most researched topics in the recent years, compare with other BRIC member countries (namely, Brazil, Russia, India) (Calvani and Alderman, 2010).

Between 2007 up to November 2010 there were about 408 journal articles, published in hundred journals, which analysed and discussed Chinese economy (ISI Web of Knowledge, 2010). This data confirms that the evolution and performance of Chinese economy has attracted much attention from academic researchers. Additionally, Foreign Direct Investment (FDI) in China, which increased dramatically, from US\$ 1bn in 1980 up to US\$ 83bn in the end of 2007 (Fetscherin et al., 2010), has been one of the favourite researched issues, attracting the interest of many researchers within Chinese economics research (e.g. Giner and Giner, 2004; Fetscherin et al., 2010). Related with FDI, some authors examined several issues involving preferential policy, wage cost, labour market (Giner and Giner, 2004). Furthermore, after China officially joined World Trade Organisation (WTO) in 2001 (Wong, 2003), which reflected that not only China's economy is closer linked with the world economy, but also implied more liberalization of foreign trade in Chinese market (Anderson et al., 2004; Shafaeddin, 2004), several authors enlarged such research further into interrelated topics of international trade, such as free-trade area, regional agricultural, and manufacturing (Wong, 2003; Anderson et al., 2004).

From 2007 to the present times (2011), despite that the global financial crisis has triggered a liquidity shortfall in the United States banking system (Aloui et al., 2010), which impacted on other world economies, including China, Chinese economy is still one of the economic systems that attracted the most business and research attention (OECD, 2010).

In this context, it would be scientifically pertinent to know, in greater detail, how Chinese related economics has evolved, which kind of themes have been interesting to researchers on the Chinese subjects, who are the most important researchers in this area, and the (geographical) scope of influence of Chinese-related research. In brief, it would be useful to evaluate whether the dynamics of Chinese economics research is paralleling to the (economics and business) dynamics of Chinese economy. Moreover, it would be interesting to assess to what extent international economics related subject has been receiving increasing attention and how specific is this theme namely in terms of the type of research (i.e., degree of formalization).

In order to account for the evolution of Chinese economics both in research topics and type of research, bibliometrics, which has become a strand of tool to measure the science policy and research management in recently years (Uysal, 2010), seems to be a 'natural' choice in terms of tool of analysis (Silva and Teixeira, 2008).

Bibliometrics includes collecting, handling and analyzing quantitative literature data from scientific publications (Skoie, 1999; Rafael et al., 2004). Through this technique, the activation of research and usage of scientific information can be more intensively assessed (Silva and Teixeira, 2008). Indeed, this approach widely refers to methods of mathematical and statistical analysis that analyzes articles appeared in the publications and documents within journals, conferences and organizations (King, 2004). Nowadays, the bibliometrics method, as a tool, has been successfully applied to the analysis of different scientific areas, such as innovation management, research evaluation, knowledge management, operations management research and engineering (Skoie, 1999; Teichert and Shehu, 2010). The main method of bibliometrics normally contains citation and co-citation analysis, and the usage of journal impact factor (Skoie, 1999).

Citation analysis is based on the premise that authors cite some given articles that are reflecting the importance they attribute to them for the development of their research

(Rafael et al., 2004). Similarly, co-citation analysis is used to measure the number of documents that have been cited by any given pair of documents (Rafael et al., 2004). These methods related to the citation and co-citation analysis enable us to identify the groups of authors and topics, and can help us understand the way in which these groups interrelate to each other. In addition, journal impact factor studies, which also named as journal-ranking studies, have been conducted in many different fields (Linton and Thongpapanl, 2004). The journal ranking studies are a fundamental citation-based measurement for significance and performance of scientific journals (Glänzel and Moed, 2002). The typical methods of journals ranking studies are based on opinion surveys of researchers and on conducting the citation analysis of relevant journals (Linton and Thongpapanl, 2004).

Based on the “advancement of knowledge” perspective, the bibliometrics can be applied to research on the roles of articles published in international journal (Skoie, 1999). There are many important and interesting studies which use bibliometric techniques to analyze the fields of technology, medicine, and social sciences, namely in this latter case economics (e.g., Culnan et al., 1990; Rafael et al., 2004; Robert et al., 2007; Wong et al., 2007). However, to the best of our knowledge, up to the present date, there are few or no studies that investigate and assess Chinese economics research by resorting to bibliometrics methods in order to analyze the evolution of topics (e.g., Macroeconomics, Microeconomics, International Economics), types of methods (e.g., ‘Empirical’, ‘Formal’, ‘Appreciative’, ‘Formal plus Empirical’, ‘Empirical plus Appreciative’, and ‘Surveys’), and scope of geographical influence of that same research area.

Accordingly, the present study/dissertation aims to overcome this gap by contributing with an overall assessment of Chinese economics research. Given this purpose, our empirical analysis focuses on the ‘seed journal’ China Economic Review (CER). This is one of the most major outlets for research in Chinese economics (Ravenhill, 2006). It is indexed in ISI with an impact factor of 1.066 (year of reference 2009), ranking in 31st position among 247 journals from the economics research area. Using bibliometrics methods we read and classify all (around 520) original articles that were published in CER from 1989 (first volume) up to December 2010. Thus, from a quantitative

perspective, we are able to assess the importance of the international topic, within China economics related research, most specifically to CER's research and researchers.

Summing up, through the lens of CER, we seek to answer three main research questions: (1) What is the evolution of Chinese economics related research by themes and type, and what is the dynamics of the international topic within it? (2) Who are the most cited researchers and studies in Chinese economics literature? (3) What is the scope of influence of Chinese economics literature?

The present dissertation is structured as follows. In Chapter 1 we present a brief discussion on the literature relating the study of the evolution of (social) sciences by applying bibliometric methods; additionally, we describe the main sub-scientific areas in the research field of economics, and present a summary of main types of methodologies in scientific fields. Chapter 2 is dedicated to discuss the methodological underpins, namely why we choose China Economics Review (CER) as the seed journal, and explain how we built the three bibliographic databases to answer the three research questions of the present study. The empirical analysis of the state of the art of Chinese economics research field, using CER as the reference journals is presented in Chapter 3. Finally, in Conclusion it summarized the main contributions of this research project and its limitations.

Chapter 1. Analyzing the evolution of a research field through the use of bibliometrics tools: a review of the literature

1.1. Initial considerations

In this chapter, our primary task is to review several literatures that are related with the analysis the evolution of social scientific fields, encompassing Economics, Management, Business and Marketing, by using bibliometric methods. In the same line, we also describe the main sub-topics within economics and the main types of methodologies in the scientific research field.

Thus, this chapter is structured as follows. In the next sections we undertake a literature review regarding to the usefulness of bibliometrics in describing the evolution of a scientific area in social science (Section 1.2), and the main sub-topics of Economics (Section 1.3). Additionally, in the Section 1.4, we present the main types of methodologies.

1.2. Bibliometrics as a tool for studying the evolution of scientific areas

The term bibliometrics was firstly introduced by Pritchard (1969), who explained that the term bibliometrics “deals with relationships among number of scientific paper, numbers of patents, amounts of exports and other quantities” (Prithchard, 1969: 348-349). Other authors proposed additional definitions for bibliometrics. For instance, Boyce and Kraft (1985: 163-170) claimed that “bibliometrics is the quantitative study of written communication through its physical realization”. Donohue (1972: 4, in Broadus, 1987) also published a short and clear definition for bibliometrics as a “quantitative analysis of gross bibliographical units such as books, journal articles, and the like”.

In recently years, the using of bibliometrics, which is a common research method to analysis literature and “trends” in research, has grown significantly (Willett, 2007). The bibliometrics generally involves counting citations in publications in a given area of research using these counts to develop statistical distributions (Culnan, 1986; Willett, 2007). In addition, bibliometrics analyzes the science research activity and represents a relatively new form of “meta-review” of the literature (Kim and McMillan, 2008).

As a tool, bibliometrics citation analysis evaluates the evolution of a research area and the empirical development of that field (Glänzel and Moed, 2002). Furthermore, citation analysis also is a measure of impact and not necessarily the intrinsic value, although the two may often coincide (Culnan, 1986).

Using citation bibliometric methods, Wong et al. (2007) analyzed the development of nano-technology based on scientific publications and citations studies, whereas Robert et al. (2007) assessed the impacts of physiology, biochemistry and endocrinology on the sleep science. Meanwhile, bibliometrics has been also used to analyze some phenomena like the identification of key researchers (Fetscherin et al., 2010), and the extent to which different journals assemble the most-cited articles on a given matter (Culnan, 1986; Linton and Thongpapanl, 2004). Finally, researchers can identify the centers of influence and the research related to a relevant field by applying a simple counting of publications (Moed, 2002).

In what concerns the latter issue, it is a fact that the characteristics of modern science include the development of new and fast changing interdependencies within a field of research while at the same time the scope of the science field is not clear (Cahlik, 2000). Therefore, to understand the evolution of a scientific research area, we should identify and classify the social science field by using bibliometrics methods. In order to perform the analysis of the scientific field we should define its structure in cognitive and social layers (Cahlik, 2000).

The cognitive layers can be defined as an aggregation of scientific fields, which are nets of scientific themes while the scientific themes are nets of keywords or citations (Beckmann and Persson, 1998; Cahlik, 2000). The social layer includes scientists, researchers and other actors tied with financial, informational flows. The cognitive and social layers can be analyzed, according to Cahlik (2000), by applying bibliometric methods.

The social sciences research fields have been quite under explored in what refers to the analysis of the scientific field, in particular the field of Economics, Management, Business and Marketing (Liebowitz and Palmer, 1984; Culnan et al., 1990; Dubois and David, 2000; Baumgartner and Pieters, 2003). Nevertheless, there are some key studies on this latter areas that use bibliometrics tools. In Table 1, we present those studies and

provide some information on the characteristics of social sciences areas, namely Economics, Management, Business and Marketing.

In the field of Management, Culnan et al. (1990) explored the structure of organizational behavior (OB) by applying co-citation and quantitative bibliographic tools. This study identifies the subfields of OB research that are represented by the authors who constitute them. The unit of analysis is articles associated with 52 OB researchers (as sole or first authors), more specifically, joint citation counts of 52 OB researchers during 1972-1984.

Later, Phelan et al. (2002) focused on *Strategic Management Journal* (SJM), assessed the changes in the contents over a twenty year period by applying the method of bibliometrics to relevant articles published in this journal. This study concluded that these articles had grown in size over the years; cite more references, use larger samples and more and more co-authorship. Also within the Management research of field, Rafael et al. (2004) wrote an article aimed to gain an opinion of strategic management research and its evolution by considering the literatures of a huge number of researchers in this field. This paper analyzed all original articles published in the *Strategic Management Journal* (SMJ), from 1980-2000, using the citation and co-citation analysis. Meanwhile, these authors consider that citation and co-citation analysis could be used as a tool to identify the authors, documents and journals that are most widely read among the researchers in a given discipline and detect relational links between them.

In the area of Business, Inkpen and Beamish (1994) analyzed the twenty-five years of research published in the *Journal of International Business Studies* (JIBS). They examined the relative contribution of authors to JIBS and discussed the development of the JIBS by performing analyzes of authors, editors and reviewers. These authors considered that JIBS has become a major journal for the business research field and interdisciplinary research. Later, Dubois and David (2000) analyzed and ranked the quality of 30 international business journals using a citation analysis and a survey approach. These authors concluded that the slow development of the Business area could be explained by the fact that some authors did not desire to investigate such a risky subject; instead, they would prefer to study other more conservative areas of international business.

Table 1: Studies that use bibliometrics tools in some areas of the social sciences

Area	Bibliometrics analysis types	Title	Times Cited	Authors	Year	Journal	Journal Impact Factor
Management	Citation analysis	The First Twenty Years of the Strategic Management Journal	13	Phelan, S.E.; Ferreira, M.; Salvado, R.	2002	Strategic Management Journal	4.464
	Co-citation analysis; Citation analysis; Strategic management research	Changes in the Intellectual Structure of Strategic Management Research: A Bibliometric Study of the Strategic Management Journal,1980-2000	39	Rafael, A.; Rodriguez, R.; Navarro, J.R.	2004	Strategic Management Journal	4.464
	Co-citation analysis; Quantitative bibliographic	Intellectual Structure of Research in Organizational Behavior, 1972-1984: A Co-citation Analysis	59	Culnan, M.J. ; O'Reilly, C.A.; Chatman, J.A.	1990	Journal of the American Society for Information Science	2.300
Business	Journal ranking; citation analysis; survey approach	Ranking the International Business Journals	64	Dubois, F.L.; David, R.	2000	Journal of International Business Studies	3.766
	Assessment of the Journal's influences by analyzing number of authors per article, names of most published authors and nationality of author's country	An analysis of Twenty-five Years of Research in the Journal of International Business Studies	45	Inkpen, A.C.; Beamish, P.W.	1994	Journal of International Business Studies	3.766
Marketing	Citation analysis; Assessment of the journal's influence by using opinion survey	The Structural Influence of Marketing Journals: A Citation Analysis of the Discipline and Its Subareas Over Time	67	Baumgartner, H.; Pieters, R.	2003	Journal of Marketing	3.779
	Citation analysis; Analysis the diversity of journals	In Search of Diversity: the Record of Major Marketing Journals	32	Tellis, G.J.; Chandy, R.K.; Ackerman, D.S.	1999	Journal of Marketing Research	3.099
	Citation analysis; Expert surveys	Assessing the Quality Ranking of the Journal of Advertising,1986-1997	27	Zinkhan, G. M.; Thomas, L.W.	1999	Journal of Advertising	1.165
Economics	Journal ranking; Citation analysis	Assessing the Relative Impacts of Economics Journals	191	Liebowitz, S. J.; Palmer, J.P.	1984	Journal of Economic Literature	6.919
	Citation analysis	The Relative Impact of Economics Journals:1970-1990	143	Laband, D.J.; Piette, M.J.	1994		6.919
	Citation analysis; Classification articles by abstracts	The Evolution of the Cluster Literature: Shedding Light on the Regional Studies-Regional Science Debate	0	Cruz, S.; Teixeira, A.A.C.	2010	Regional Studies	1.462
	Classification articles by themes and types; Citation analysis; Co-citation analysis	On the divergence of Evolutionary Research Paths in the Past 50 Years: A Comprehensive Bibliometric Account	1	Silva, S.T.; Teixeira, A.A.C.	2009	Journal of Evolutionary Economics	0.947
	Citations and co-authoring analysis	Surveying Structural Change: Seminal Contributions and A Bibliometric Account	5	Silva, E.G.; Teixeira, A.A.C	2008	Structural Change and Economics Dynamics	-

In the field of Marketing, using citation analysis, Baumgartner and Pieters (2003) investigated the influence of a comprehensive set of marketing and marketing-related journals during a 30-year period. Specifically, they assessed the influence of each journal in the marketing sciences and in five specific sub-areas: Core marketing, Consumer Behavior, Marketing Applications, Marketing Education and Managerial Marketing. Overall, the result of this article shows that citation analysis can evidence the journals' influence as well as, more broadly, the creation and diffusion of scholarly knowledge within a discipline. In the same the field of scientific, Tellis and Ackeman (1999) relied on citation analysis to analyze the publication of major marketing journals on the basis of their diversity relative to each other. The important finding of these authors included that although each marketing journal focuses on different scientific areas, they are related to each other. The issue of quality and status was analyzed by Zinkhan and Thomas(1999) focusing on *The Journal of Advertising* (JA) and embracing a comprehensive set of general and specialty advertising, marketing, and business areas. They primarily aimed at analyzing the quality of *The Journal of Advertising* by applying citation analysis. They concluded that the cited, cited-to-citing ratio influence the journals ranking.

Finally, in the area of Economics, Liebowitz and Palmer (1984) explored the influence of journal rankings on the writings of academics authors in the economic professional by using journal impact factors. These authors attempted to control for both journal size and age in constructing a measure of journal impact and consider this procedure to be a significant improvement over previous methods. Also in Economics, Laband and Piette (1994) examined the changing extent of the market for scientific knowledge in terms of both pages published and citation to the literature. They additionally investigated the changing concentration of citation among the premier journals and market penetration by new journals.

Most of the studies that use bibliometrics in the area of social science, and most particularly in economics, resort to those techniques to evaluate the intellectual structure of a given area (e.g., Culnan et al., 1990; Rafael et al., 2004) or journals ranking (e.g., Liebowitz and Palmer, 1984; Laband and Piette, 1994; Tellis et al, 1999). More recently, some studies proposed a new research direction in academic field of

economics by using bibliometrics. Specifically, they analyze the evolution of given scientific areas, such as regional science (Cruz and Teixeira, 2010), evolutionary economics (Silva and Teixeira, 2009), and structural change (Silva and Teixeira, 2008) by resorting to the classification of articles' abstracts published in the corresponding areas' seed journals (Silva and Teixeira, 2008; Cruz and Teixeira, 2010) or in a given scientific area within economics (Silva and Teixeira, 2009).

Cruz and Teixeira (2010) critically assessed the evolution of the literature on regional studies and regional science by researching the evolution of the cluster literature. This article is based on two main bibliometrics methods: citation and themes classification. The study involved the analysis of 5000 citations analysis and the classification of almost 3000 abstracts from 1962 to 2008. Through use of these methodologies, they concluded that although the innovation of research comes from regional science and regional studies areas, the 'convergence' between regional science and regional studies methodologies is a chimera (Cruz and Teixeira, 2010).

In the area of structural change, which has an important tradition in economic theory, Silva and Teixeira (2008) organized some literature from its early foundations until a more recent period. Apart from a survey of the economic articles on structural change that emphasized the 'seminal' contributions, they also interpreted the most recent trends in that literature. The authors analyzed citations and co-authoring, taking *Structural Change and Economic Dynamics* as the 'seed journal'. Furthermore, by using bibliometrics, they concluded that "most contributions [within structural change] put great emphasis on technology-driven growth and lack an appropriate treatment of the demand side" (Silva and Teixeira, 2008).

Through a quantitative review of all theoretical and empirical articles on evolutionary economics that were published in journals included in the Econlit database over the past 50 years, Silva and Teixeira (2009) explored the main research paths and contributions in this scientific area. Silva and Teixeira (2009), similarly to Silva and Teixeira (2008), used bibliometrics by classifying articles by themes and types but this time using a myriad of journals instead one 'seed journal'. They studied the evolution of a scientific area through abstract classification, co-citation analysis and co-authoring analysis, which permitted to measure the influence of authors and articles. The two authors

pointed out, the evolutionary economic research area needs to combine economic theory with empirics. They demonstrate that in reality the evolutionary economic research field focuses on rather conceptual and even formalized research, lacking studies of empirical type. Therefore, these authors argue the need to redirect the evolutionary research agenda towards quantified evidence.

In the present study, we resort to a similar methodology of these three later studies, namely by categorizing an area of research (Economics) into main topics (e.g., Macroeconomics, Microeconomics, International Economics) and types of methods used ('Formal', 'Formal plus Empirical', 'Empirical', 'Empirical plus Appreciative', 'Appreciative' and 'Surveys'), but focusing on a rather unexplored context, the Chinese scientific economics production.

In what concerns Chinese related research and the use of bibliometrics, we might point that many researchers (e.g., Chen et al., 2006; Meng et al., 2006) have already used bibliometrics to analyze the development of science, technology, education and culture in China. For example, Chen et al. (2006) analyzed China's research output in the medical area by using medical journals that are included in Science citation index expanded and related databases. Meanwhile, Meng et al. (2006) investigated Chinese Research and Development (R&D) through bibliometrics methods. Furthermore, Ma et al. (2009) assessed main research directions of information science in China by using author co-citation analysis. However, most of studies that used bibliometrics in this context (e.g., Chen et al., 2006; Meng et al., 2006; Ma et al., 2009), focused only on the classification of the technological dynamics of China as reflected by the scientific output, neglecting in their analysis the evolution of Chinese social science, most particularly, Chinese economics. Given the recent prominence of Chinese economics related trajectories and performance this stands as a key subject to be explored.

By focusing on all articles published in *Chinese Economics Review* (CER), from its inception to December 2010, we classify, following Silva and Teixeira (2008; 2009) and Cruz and Teixeira (2010), the articles published in CER by topics/themes (e.g., Macroeconomics, International Economics), types of methods (e.g., 'Empirical', 'Formal', 'Appreciative'), aiming to assess the dynamics of Economics and, within it, the international topic. Additionally, we analyze who are the most cited researchers and

studies in Chinese economics literature, and the scope of influence of this same literature.

1.3. The main sub-scientific areas of Economics

Nowadays, all articles in economic journals are usually classified through use of JEL classification codes, whose system was proposed by the Journal of Economic Literature (JEL). Hence, in order to clarify the classification system used in our research, we briefly describe the main sub-sciences areas of economic by using JEL classification system.

JEL considers 19 main areas:¹ A - General Economics and Teaching; B - History of Economic Thought, Methodology, and Heterodox Approaches; C - Mathematical and Quantitative Methods; D - Microeconomics; E - Macroeconomics and Monetary Economics; F - International Economics; G - Financial Economics; H - Public Economics; I - Health, Education, and Welfare; J - Labor and Demographic Economics; K - Law and Economics; L - Industrial Organization; M - Business Administration and Business Economics; Marketing; Accounting; N - Economic History; O - Economic Development, Technological Change, and Growth; P - Economic Systems; Q - Agricultural and Natural Resource Economics; Environmental and Ecological Economics; R - Urban, Rural, and Regional Economics; Y - Miscellaneous Categories; Z - Other Special Topics.

Today, economics has developed to be one of the most specialized social sciences. It can analyze the production, distribution, and consumption of goods and service (Mcmillan and Naughton, 1992; Ravenhill, 2006). Until now, economic has extended to other disciplines such as psychology, sociology and religion (Ravenhill, 2006).

Articles related to general economic and teaching are normally classified as ‘A’. One example of an article classified in JEL ‘A’ is the one from Rae (2010), who considers that the education of economics should continue to change in order to adapt themselves to the development of economics.

The field of JEL ‘B’ focuses on the History of Economic Thought, and Heterodox Approaches. Adam Smith is often cited as the father of modern economics for his

¹ In http://www.aeaweb.org/journal/jel_class_system.php, accessed on September 2010.

treatise *The Wealth of Nations* (Hosias and Madigan, 1999). Then, other economists such as Ricardo (1817, in Hollander, 1982) and Keynes (1930, in Hosias and Madigan, 1999) proposed different views of the economy beside classical and neoclassical. Moreover, after 20th century, some economic researchers expound more diversification views on economics. For instance, Stiglitz (1993: 112) studied information economics and showed that “information economics represents a fundamental change in the prevailing paradigm within economics”. Meanwhile, Krugman (1979) testified the influence of the economics of scope. Therefore, according to the JEL classification system, most of the literature related to the history of economic thought appeared in this area, as well as some articles related to heterodox approaches.

Economic methodology is the study of methods, usually scientific methods (Lazear, 2000), which are related to econometric and statistical methods and methodology, econometric modeling, mathematical methods, programming models, etc. The JEL classification code also classifies articles related to economic methods in the area ‘C’.

Moreover, microeconomics is a branch of economics that researches the behavior of family, consumer and firm, as well as allocation of resources (Field, 1984; Blundell and Duncan, 1998). Indeed, the relationships between the company with its consumers are very close (Dmitri and Ying, 2010; Tine and Patrick, 2010). In general, the firm sets up its market structure, defines the price of product, and needs to investigate the consumer behaviors (Tine and Patrick, 2010). Thus, in this area ‘D’ of JEL classification code it is highlighted some literature related to the general microeconomic behavior, household behavior and family economics, market structure and pricing. Additionally, other articles that are related to welfare economics, analysis of collective decision-making, information, knowledge, and uncertainty are also included in area ‘D’.

Macroeconomics and Monetary Economics is in ‘E’ code of the JEL classification system. It includes Money and Interest Rates, Monetary Policy, the Supply of Money and Credit, Macroeconomic Policy, Macroeconomic Aspects of Public Finance. In general, macroeconomic mainly researches the performance, structure, behavior and decision-making of the entire economy that includes national, regional, or global economies (Galor and Zeira, 1993; Blaug, 1997). Meanwhile, some authors (e.g. Clarida et al., 2000) consider that macroeconomics mainly studies aggregated indicators

such as GDP, unemployment rates to understand how the whole economy functions. Additionally, the field of 'E' also contains some articles relevant to aggregative models in the field of macroeconomics.

International economics (JEL code 'F') includes international trade and finance; it focuses on economic activity of international differences in productive resources and consumer preferences that affect them (Krugman, 1979). From a macro perspective, it analyzes trade, finance and business in different countries (Redding and Venables, 2004). According to JEL, some studies that related trade, international factor movement, international finance, macroeconomic aspects of international trade and international political economy are included in area 'F'.

Financial economics is also a branch of economy (Blundell and Duncan, 1998); it mainly analyzed some issues within financial crisis, financial market, financial institution and services, corporate finance and governance. Thus, studies related to similar topics belong to the field 'G' of JEL.

Furthermore, public economics, which is included in 'H' JEL code, studies issues such as fiscal policies and behavior of economic agents, national budget in public sectors such government (Hammond, 1988).

Articles published in subjects of health, education and welfare are classified in JEL code 'I'. Health economics is a branch of economics (Arrow, 1963; Blundell and Duncan, 1998), which mainly researches health care system, social welfare, and their impacts on each person (Briggs et al., 1994). Articles related to research education system or institutions also appear on this area 'I', focusing on the development of economic within a local, regional or national extent by analyzing the output of their knowledge-producing organizations such as universities or R&D institution (Moore and Suffrin, 1974).

Labor and demographic economics are two different areas of research which appear in code 'J'. In fact, the objective of labor economics is to analyze the function of labor market and its dynamics. It mainly researches the relationship between suppliers of labor services (workers) and demanders of labor services (employers) in the aspect of wages, labor costs and labor contracts (e.g., Heckman et al., 1999; Nickell and Layard, 1999). Demographic economics is also included in this area and stands as the

application of economics to demography, including demographic trends and forecasts; marriage; fertility and economics of the elderly (Nickell and Layard, 1999).

Law economics encompasses the analysis of laws within business law, contract law and tax law by applying the methods of economics (Nickell and Layard, 1999), which belongs to the scope 'K' in the JEL system. In this domain, for example, Rose (2010) considers that property rights protect the rights of the asset owners, whereas Odell (2010) points out that given that the World Trade Organization (WTO) has some laws, this leads to the reduction of small states negotiation advantages in the trade.

Industrial Organization is also a field of economics (Blundell and Duncan, 1998), included in code 'L'. It studies the structures between firms and markets and firm strategy and market performance. It further investigates each company's objectives, organization and behaviors. Additionally, industrial organization analyses goals that the structures and behavior of each industry within manufacturing, primary products and construction, services and transportation. Caves (1980: 70) summarizes that "an industry's performance depends on the conduct of its firms, which then depends on the structure".

The code 'M' includes business administration and business economics, marketing, and accounting. Business administration includes production management, personnel management, IT management and international business administration; it can be defined as the process of organizing people and resources efficiently to directly reaching common goals and objectives (Chimhamhiwa et al., 2009). Furthermore, the relationship is very close between marketing and advertising. In fact, several corporate marketing activities for customers by advertising include television advertising, online advertising and newspaper or magazine advertising (Wymer, 2010). Marketing is used to identify the customer, to satisfy the customer, and to keep the customers (Wymer, 2010). Advertising is a tool to attract more customers (Chimhamhiwa et al., 2009; Wymer, 2010). Thus, several articles related to business administration and business economics; marketing and advertising are published in code 'M'. Additionally, other literature that have something to do with accounting and personal economics also appear on in this area.

‘Economic History’, ‘N’ JEL code, studies the evolutionary of economic phenomena from an historical perspective (North, 1978); its main research fields include macroeconomics, financial markets and institutions, welfare, government, natural resources and regional and urban history. Schumpeter (1947) combines historical methods, statistical methods and economic theories analysis in economic history. Meanwhile, from regional perspective, in this JEL code, the economic history research is divided into six regions: United States, Europe, Asia, Latin America, Africa and Oceania.

Economic development refers to the social and technology progress; it aims to study the development of both low and high developed economies (Blundell and Duncan, 1998). Economic development research considers several issues such as macroeconomic analyses of economic development (Mafafo, 2001), microeconomic analyses of economic development (Wainger and Price, 2004), agriculture, natural resources (Wainger and Price, 2004), financial market, human resources. Research related to economic development is classified in the ‘O’ JEL code. In addition, some articles related to the development, planning, and policy, technological change, economic growth and economy wide country studies also are included in this code.

Economic system, such as capitalist systems, socialist systems, transitional economies, socialist institutions and comparative economic systems, encompassing the structure of production, allocation of economic inputs, distribution of economic outputs, and consumption of goods and services in an economy (OECD, 2010), are included in JEL code ‘P’.

The code ‘Q’ includes articles related to agricultural and natural resource economics; environmental and ecological economics, such as renewable resources, energy, nonrenewable resources and conservation, and technological innovation in environmental.

Table 2: The description of JEL codes

JEL-Codes	Description	Areas included	Autors (date)
A	General Economic and Teaching	Role of economic;Economic Education Collected writings of individuals	Mcmillan and Naughton, (1992); Ravenhill, (2006)
B	History of Economic Thought, Methodology, Heterodox Approaches	The history of economic (classical, neoclassical)	Hoas and Madigan, (1999); Krugman, (1979)
C	Mathematical and Quantitative Methods	Econometric and statistical methods; Programming models	Lazear, (2000)
D	Microeconomics	General microeconomic behavior; Household behavior; Family economic; Market structure; Pricing	Field, (1984); Dmitri and Ying, (2010)
E	Macroeconomics and Monetary Economics	Money and interest rates; Monetary policy; Macroeconomic policy; Macroeconomic aspects of public finance	Blaug, (1997); Galor and Zeira, (1993)
F	International Economics	International trade; Finance; The analysis of finance and trade in a macro perspective	Redding and Venables, (2004); Krugman, (1979)
G	Financial Economics	Financial crisis; Financial market; Financial institution and services; Corporate finance and governance	Blundell and Duncan ,(1998)
H	Public Economics	Fiscal policies; Behavior of economic agents, National budget in public sectors	Hammond, (1988)
I	Health, Education, and Welfare	Health care system; Social welfare; Education system or institutions	Blundell and Duncan,(1998)
J	Labor and Demographic Economics	Function of labor market and its dynamics; The application of economics to demography	Heckman et al., (1999)
K	Law and Economics	Business law, Contract law; Tax law	Nickell and Layard, (1999)
L	Industrial Organization	Structures between firms and markets; Firm strategy; Market performance	Caves, (1980)
M	Business Administration and Business Economics; Marketing; Accounting	Marketing; IT management; Advertising	Chimhamhiwa et al., (2009); Wymer, (2010)
N	Economic History	The evolutionary of economic phenomena from historical perspective such as: macroeconomics, welfare, government; The economic history research can be divided into six regions from regional perspective	North, (1978); Schumpeter, (1947)
O	Economic Development; Technological Change; Growth	Macroeconomic/Microeconomic analyses of economic development; Natural resources; Financial market;	Blundell and Duncan, (1998); Mafafo, (2001); Wainger and Price, (2004)
P	Economic Systems	Capitalist systems; Socialist systems; Transitional economies; Socialist institutions; Comparative economic systems	OECD, (2010)
Q	Agricultural and Natural Resource Economics; Environmental and Ecological Economics	Renewable resources; Technological innovation in environmental; Energy; Nonrenewable resources and conservation	Long, (2010)
R	Urban, Rural, and Regional Economics	Regional economic activity; Housing market; Transportation system; Production analysis; Finance in urban and rural economies;	Armtrong and Taylor, (2000)
Y	Miscellaneous Categories	Economic book reviews; Economy data; General economy topic discussion	
Z	Other special topics	Economics of the arts and literature; Economic sociology; Economic anthropology;	Baumol and Bowen, (1968)

Long (2010: 20) argued that “Natural resource economics is a field of academic research within economics that aims to address the connections and interdependence between human economies and natural system, as well as, environmental and ecological economics aims to solve the interdependence and evolution of human economies and natural ecosystems”.

Regional economics analyzes economic issues within urban, rural, or regional (Armstrong and Taylor, 2000). Topics in regional economics include not only regional economic activity, econometric and input–output models, but also housing market, transportation system, production analysis and regional government analysis. Some articles related to the problems of regional economics, such as finance in urban and rural economies, government and private investment analysis, housing supply and markets, are also included under the JEL code ‘R’.

In code ‘Y’ it is included studies about economic book reviews, economy data, and general economy topic discussion, whereas code ‘Z’, includes special economics topics like economics of the arts and literature, economic sociology; economic anthropology; social and economic stratification. Economics of the arts and literature studies the “economics of creation, distribution, and the consumption of works of art and literature.”(Baumol and Bowen, 1968:,300-320).

1.4. Main types of methodologies

Nelson and Winter (1982, in Silva and Teixeira, 2009) proposed a distinction between formal and appreciative types of research. Later, Silva and Teixeira (2008, 2009) extended it to include additional types such as ‘Empirical’, ‘Formal plus Empirical’, ‘Empirical plus Appreciative’ and ‘Surveys’. In order to encompass the difference between theoretical arguments which follow a mathematical logic from those that do not follow any model, Silva and Teixeira (2008, 2009) considered that “formal” would include the logic of a structured theorization, whereas “appreciative” can be suggested as a more intuitive form based on value judgments and common sense” (Nelson and Winter, 1982: 9, in Cruz and Teixeira, 2010).

Thus, in present study, the articles are classified as “*Formal*” when they include mathematical models or are based on an analytical or logical framework. When the “formal” literatures include the analysis of economy data in their models, they are

classified as “*Formal and Empirical*”. If the article was substantially concerned with the econometric or statistical testing of data, it was classified approach as “*Empirical*”. Further, articles are classified as “*Appreciative*” when they include critiques, value judgments, appraisals, assessments and theoretical arguments. Articles containing appreciation or comments on empirical data analysis are classified as “*Empirical plus Appreciative*”. Finally, articles that assess a literatures review or overview form special scope of research are classified as “*Survey*”.

Chapter 2. The Evolution of Chinese Economics through the Lens of CER: Methodological Considerations

2.1. Initial considerations

We aim to analyze all articles published in China Economic Review (CRE), from its genesis (1989) until December 2010, by using bibliometrics methods, which include citation analysis, and classification of articles by themes and types of methods used in this chapter. Specifically, we seek to answer the following questions: (1) What is the evolution of Chinese economics by themes and type, and what is the dynamics of the international topics within it?; (2) Who are the most cited researchers and studies in Chinese economics literature?; (3) What is the scope of influence of Chinese economics literature?

The present chapter is structured as follows. In Section 2.2, we fundament our choice regarding the “seed” journal considered, China Economic Review (CER). Moreover, in Section 2.3, we describe the construction of the three databases which are used to respond our research questions.

2.2. The reasoning for choosing CER as the ‘seed’ journal

We choose to focus our empirical research on journal articles because these are considered as “certified knowledge” (Rafael et al., 2004), which is the term commonly used to describe knowledge that has been submitted to the critical review of fellow researchers. The use of citations from articles in research journals is a standard practice that enhances the reliability of results (Boyce and Kraft, 1985; Rafael et al., 2004).

Given that the main objective of the present work is to analyze Chinese economics literature, our ‘natural’ choice was China Economic Review (CER). This journal is considered as the ‘seed journal’ (Leydesdorff, 2007) of Chinese economics research because it is one of the most important journals in the area of economics with an explicitly focus on China. CER is the official journal of The Chinese Economists Society and in its scope it is explicitly referred that it “... publishes original works of scholarship which add to the knowledge of the economy of China and to economies as a discipline.”² CER is also indexed in ISI Web of Knowledge and it is ranked in 86th

²This information is from Elsevier. Elsevier is world’s leading publisher of science and health information. We accessed this webpage on 20 November 2010.

place out of 247 economic journals with an impact factor of 1.066 (2009 reference year).

In summary, the reasoning behind the choice of CER's articles can be summarized as follows: (1) According to their nature, all the published articles focus on Chinese economics related issues; (2) CER is one of the scientific economic journals which explicitly analyzes Chinese economic related issues; and (3) CER is regarded as an important source by researchers who are researching this field.

Since 1989, the date of the first issue of CER, the journal has been characterized as a multidisciplinary outlet focused on Chinese related macroeconomics issues, foreign trade system, high-tech innovation industry and industrial firms (Liang and Klein, 1989; Shan, 1989; Simon, 1989). Chinese economy has been observing a continued development over the past ten years (Mcmillan and Naughton, 1992), as a result, several authors from CER introduced more Chinese economy related issues, such as labor market, agriculture, intellectual property rights (Johnson, 2001; Wu, 2001).

In present the work, we highlight the internal change of publications over more than 20 years by analyzing the structural evolution of CER. The number of issues published on CER is growing steadily every year. The articles are published in issues with the periodicity as shown in Figure 1. As can be seen from Figure 1, from 1989 to 2010, the number of issues published in each volume has been increased from 2 (1989-1999) to 5 (in 2010).

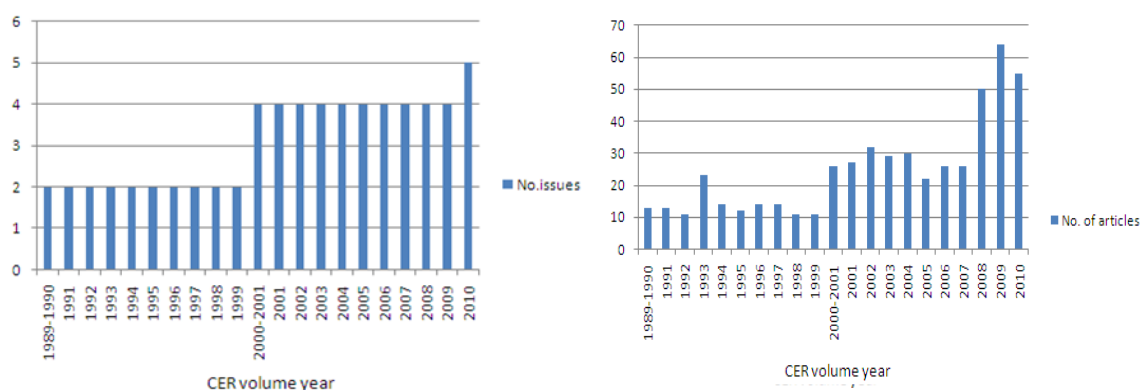


Figure 1: The number of issues and articles per volume in China Economic Review, 1989- 2010

Source: In <http://www.Sciencedirect.com/subject>, accessed on 29 December 2010.

The number of articles in each volume has been steadily increasing (cf. Figure 1). In fact, more than 522 articles were published from spring 1989 to 2010, of which 387

articles were published between 2000 and 2010. This represents nearly 74% of the total of published articles.

2.3. Describing the main bibliographic databases used

The research work is conducted in three separated interrelated steps, which addresses our three main research questions.

By analyzing all articles published in CER, it is noted that 512 original articles were published on CER, the rest of other items were identified as conference articles. Thus, we based our research work on the 512 original articles.

Firstly, we set up a bibliographic database with all articles that were published in CER. This database includes information regarding the number of authors, authors' affiliation, and research field. Then, we classify all Chinese economics related articles using JEL codes for identifying the themes/topics and we also classify them by type of method used (formal, appreciative, empirical, formal and empirical, appreciative and formal, survey). Such database, and the corresponding analysis, will permit us to respond to our research question 1: 'What is the evolution of Chinese economics by themes and type, and what the topics within the dynamics of the international economy are?'

Departing from the first database containing all the papers published in CER, we set up another database, the 'roots' database, which contains the references/citations of those papers. As a result, we classify and investigate more than 15000 citations from all articles that were published in CER. This second database encompassing 15000 citations, permits to answer our second research question: 'Who are the most cited researchers and studies in Chinese economics literature?'

Finally, based on who cites the papers published in CER, we built a third database (the 'influence' database) which includes the studies that cited articles published in CER. This third database permits to respond to our third and last research question: 'What is the scope of influence of Chinese economics literature?'.

Chapter 3. A Bibliometrics Portrait of Chinese Research through the Lens of China Economic Review: Empirical results

3.1. Initial considerations

This chapter analyzes and assesses in detail the evolution of Chinese economics research in the past twenty years. Given this aim China Economic Review (CER) has been selected as our “natural” choice concerning the basis for the empirical analysis.

We collected the data based on all original articles published in CER from its genesis (1989) until December 2010; meanwhile, three separated interrelated databases were constructed. The first database, named “bibliographic” database, includes information regarding to the authors, research field, the themes/topics of each article and type of methods that are used in each published article. A second database, namely “roots” database, which contains about 15 thousand references/citations were cited 512 articles published in CER. Moreover, based on who cites the published articles in CER, the third database, the “influence” database, was created. This latter database contains the studies that cited articles published in CER.

In terms of structure, the present chapter includes a brief exploratory data analysis based on these three separated interrelated database. Thus, the next section (Section 3.2) assesses the evolution of Chinese economics by themes and type using bibliographic database. We in particular assess the evolution and relevance of ‘International Economics’ topic. Section 3.3 analyzes the roots of Chinese economics research by analysing who are the most cited researchers, outlets (namely, journals), and studies by the papers published in CER. Finally, in the Section 3.4, by applying the “influence” database, the scope of influence of Chinese economics literature is overviewed namely in a geographical/international perspective.

3.2. The evolution of Chinese economics by theme and type

In this section, we aim to analyze the evolution of Chinese economics by themes and types using the ‘bibliographic’ database. Based on the analysis of this database, which involves 512 articles, published in CER between 1989 and 2010, 1390 JEL codes entries were indentified.

By theme

Aggregating the common entries in terms of JEL Codes, we observed that most of the articles published concerned the subject of *Economic Development, Technological Change, and Growth (O)*, which represents nearly 19% of the total of JEL codes referred (cf. Figure 1), followed by *International Economics (F)*, with 13.7%, and *Economic Systems (P)*, with 11.1%. Indeed, these three research areas have appeared more than 600 times, which account for approximately 43% of the total of JEL codes referred (cf. Figure 1).

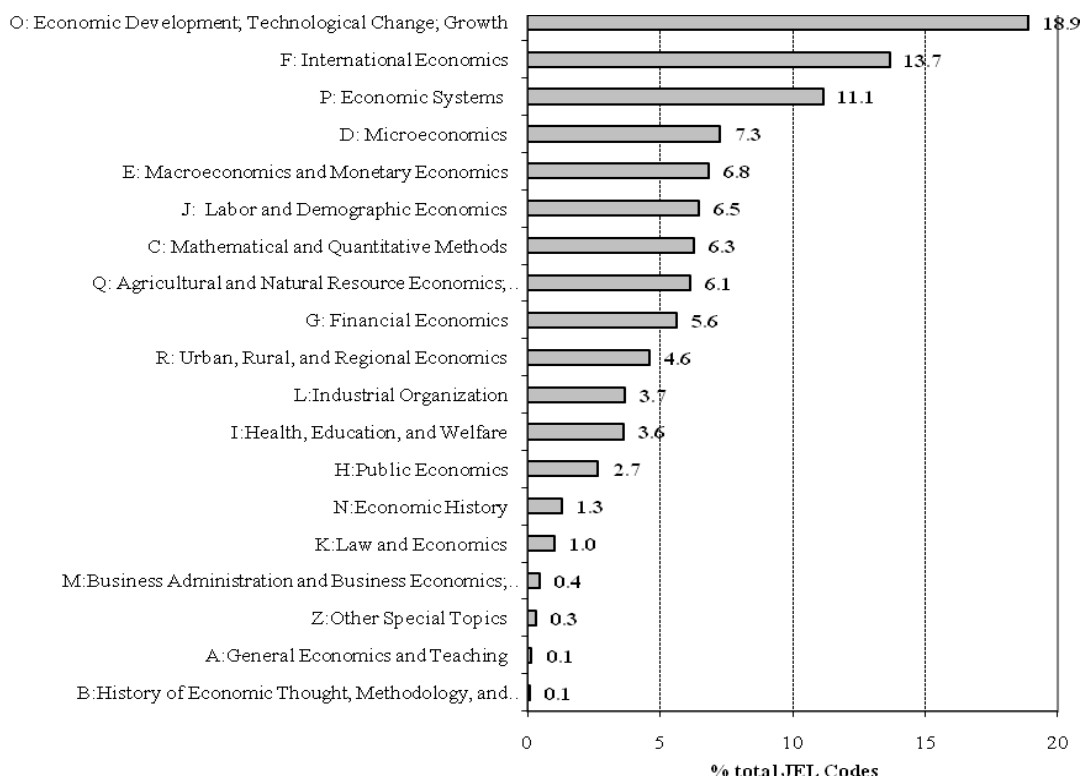


Figure 2: Distribution (% total) of articles published in CER by JEL codes, 1989-2010

Source: Author's own computation

Indeed, the relative higher importance of these subjects is likely to be related with the rapid development of Chinese economy, which foster authors' research interests on given topics in the research field of *Economic Development, Technological Change, and Growth (O)*, namely the government policies impact to productivity (Pandey and Dong, 2009), an empirical analysis of the growth performance of Chinese economy (Tian et al, 2010), assess the difference of growth of regional economy (Jia and Gan,

2010). In the same line, several researchers are attempting to analyze many issues related to the topic of *International Economics (F)*, for instant, Goetz and Grethe (2010) interest in the evolution of price system for food contains fresh fruit and vegetable exports from China to EU, document that export price varies with the season. Moreover, the performance of foreign direct investment in China, namely from Japan, EU and USA, is concerned by several authors (e.g., Salike, 2010; Zhang and Song, 2001). Regarding to this latter, Chen (2006) highlights the WTO affect on Chinese industries. In addition, some topics, such as the behaviour of state-owned enterprise (Hu et al., 2006) and agricultural (Rozelle and Swinnen, 2009) on the period time of economic restructuring, respected the research field of *Economic System (P)*.

Regarding the remaining JEL codes, we observe that *Microeconomics (D)* takes up 7.3% of the total of referred JEL codes, followed by *Macroeconomics and Monetary Economics (E)* (with 6.8%), *Labor and Demographic Economics (J)* (with 6.5%), *Mathematical and Quantitative Methods (C)* (with 6.3%), *Agricultural and Natural Resource Economics (Q)* (with 6.1%), *Financial Economics (G)* (with 5.6%), *Urban, Rural, and Regional Economics (R)* (with 4.6%) and *Industrial Organization (G)* (with 3.7%). These eight JEL codes categories encompass approximately 47% of total of JEL codes classification.

We thoroughly investigate the three most important fields with Figure 2 depicting the evolution of the sub-topics over period 1989- 2010. It is interesting to note that in the late 1970s, the Chinese leader, Deng Xiaoping, observed that the development of Chinese economic seemed to not adequately adapt to the existing “Soviet style economic system” (Balassa, 1987 and Perkin, 1988). Furthermore, since 1989, Xiaoping had been attempting to resort to a newer economic system, the “Socialist market economy system” (Gu and Shen, 2003), to replace the old system. As depicted in Figure 2, we note that during 1989 to 1992, which coincides with the transition of China's economic institutions, none/few of the articles published in CER focused on this issue. However, five years after the revolution, and based on the official statistics, real nation income increased by 12 percent, compare with the level of 1989 (Chow, 1993). The production sectors, namely agriculture and the state industries have been steadily growing, and the private enterprises were flourishing (Wang, 1993). At the same time, in the scientific area, several authors showed a great interest in the topics Socialist

market economy system performance (Chow, 1993), and the transition towards the market economy (Lee, 1993). Indeed, the weight of articles in this topic reached the highest point, with almost 15%, in the past twenty decades. Furthermore, between 1994 and 2008, the average weight of articles focusing on economic system has steadily increased from 5% to 9% with little fluctuation: there was a decrease to 1% in 1996 and 2% in 2003. In 2009, the number of papers related to this topic has increased to 9%.

The issue of reform has been at the core of Chinese social and economic life (Newbery, 1993). At the same time, *Economic Development, Technological Change, and Growth (O)* was also identified as one of the most key research areas in the field of Chinese economics research. From a global perspective, the average weight of articles published on this code in CER from 1989 to 1999 is less than that from the most recent period (2000-2010). More precisely, these articles includes subjects such as agriculture output (Mead, 2000), productivity growth (Szirmai and Ruoen, 2000), economic development-regional inequality (Lee, 2000 and Song, 2000), which account for almost 6% of the corresponding total, which is four times more than in 1999. Furthermore, in 2001, the weight of these articles decreased to 5%, increasing again after that to 9% in 2002. In 2009 the weight of these articles reached 15%.

Regarding *International Economics (F)*, and for the period 1989 to 2000, the average weight of published articles is lower than the corresponding average weight in the following period (2001 to 2010). The recent research interest in the International Economics topics is likely to be associated with recent events on Chinese economy, such as the joining to the World Trade Origination (WTO) in 2001 (Wong, 2003). Indeed, joining the WTO had a great effect on Chinese political and economic reforms (Zhang, 2001) - based on the provision of WTO agreements, the structure of its market became more liberalized and opened in almost all industries, for instance at the level of agriculture trade policy, high-tech industries and manufacture industries, HR management in foreign enterprise, openness and trade policies, and the relationship between Chinese economy and WTO (Johnson, 2001; Liu and Woo, 2001; Chen and Feng, 2001; Wu, 2001). However, after 2001, the weight of published articles related to international topics significantly decreased to only 5%. Since 2005, the weight of published articles steadily increased from 5% to almost 16% in 2009, constituting one

of the favorite topics issues related to nuclear export, Chinese and world equity markets, and FDI (Faria and Mollick, 2009; Lin et al., 2009).

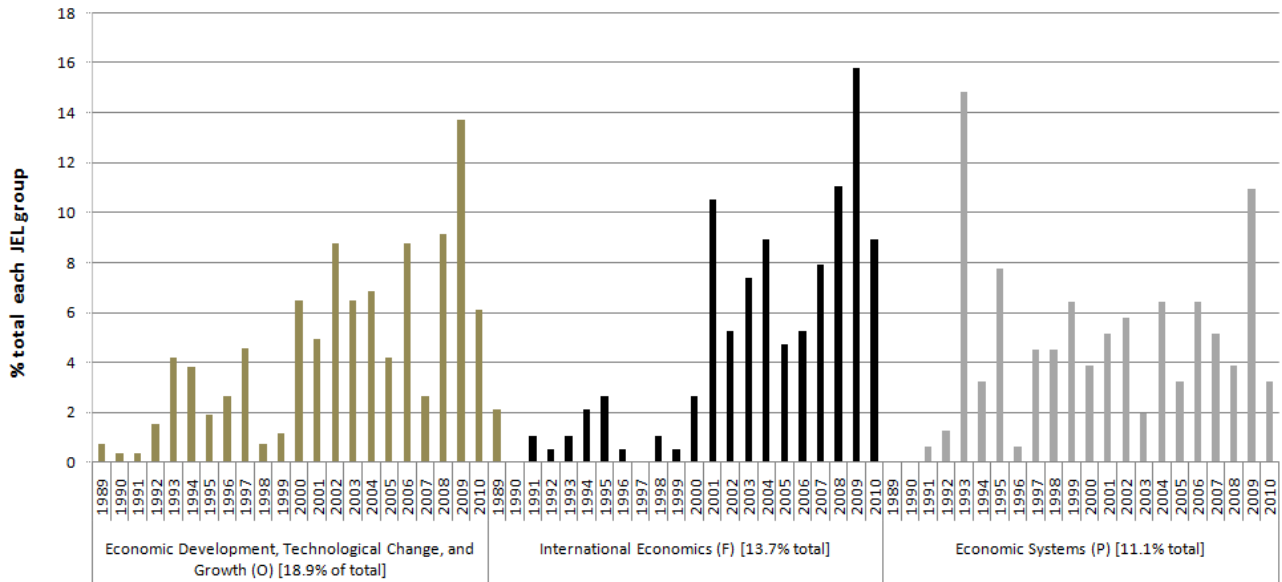


Figure 3: Distribution (%) of JEL code in the three most important fields, 1989 to 2010

Source: Author's own computation

Analyzing these three main JEL codes categories by-sub codes/topics, it is noted that *Economic Development* (O1), encompassing research on the differences in economic growth among cities in China (Chen, 2010), the development of Chinese manufacturing (Guan and Chen, 2009), corresponds to 36% of the total published papers in the 'O' code, followed by *Economy wide Country Studies* (O5), which includes studies on economy within the country (China) during 1980s (Brun et al., 2002), represents 32.1% of the total published papers.

Regarding to *Economic Systems* (P), more than 43.9% articles are related to *Socialist Systems and Transitional Economies* (P2), including, for instance, the development of Chinese economy in the period of economic transformations (Rozelle and Swinnen, 2009). It is followed by the sub-topic/code *Socialist Institution and their Transactions* (P3) (with 32.9%) which includes studies on the evolution of tax system between 1970s and 2000s (Lin, 2008).

Finally, as regards to *International Economics* (F), the bulk of the published papers relates to *Trade* (F1) (31.1%) and *International Finance* (F3) (24.7%). It is interesting

to note that trade, international business, and foreign exchange were considered key factors in the fast development of Chinese economy (Liu et al., 2001 and Shi, 2002). More specifically, several articles focus on the trade relationship between China and the EU or the US (Baak, 2008; Goetz and Grethe, 2010), the agricultural products liberalization based on Doha Round (Gomes et al., 2010), and the evolution of exchange rate policy (Bagnai, 2009).

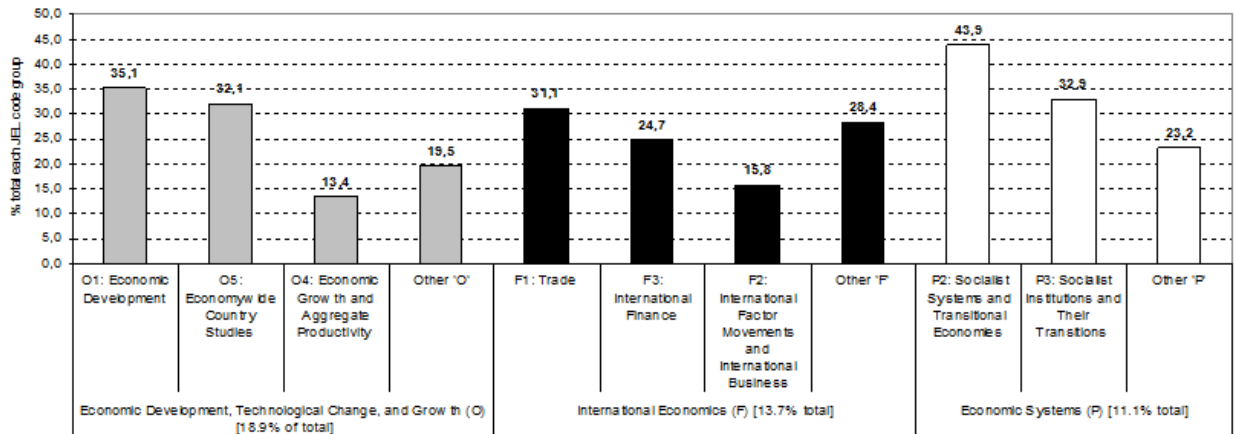


Figure 4: Distribution (%) of JEL code in the three most important fields

Source: Author's own computation

By type

In accordance with the original categorization of methods proposed by Nelson and Winter (1982), then extend by Silva and Teixeira (2009) and Cruz and Teixeira (2010), there are six different types of papers (regarding the methods used): 'Formal', 'Formal plus Empirical', 'Empirical', 'Empirical plus Appreciative', 'Appreciative', and 'Survey'.

Figure 5 reflects the ratio of articles related to 'All topics' and the 'International topic' by applying the main types of methodologies. One can observe that in the past twenty years, articles related to 'All topics' are mostly "Formal plus Empirical" (45%), followed, at some distance, by the "Empirical plus Appreciative" type of articles, with 17.4%, and the "Empirical", with 14.8%. The corresponding share for "Survey" type of articles is only 2.9%. This distribution is similar to that of the 'International topic'. In fact, almost 49% of the articles in this area are "Formal plus Empirical", being the share of "Empirical plus Appreciative" around 15%, the "Empirical" at around 13%. The

remaining proportion (21%) goes to “Appreciative”, with 11.2%, “Formal”, with 9.7%, and “Survey”, with 0.7 %.

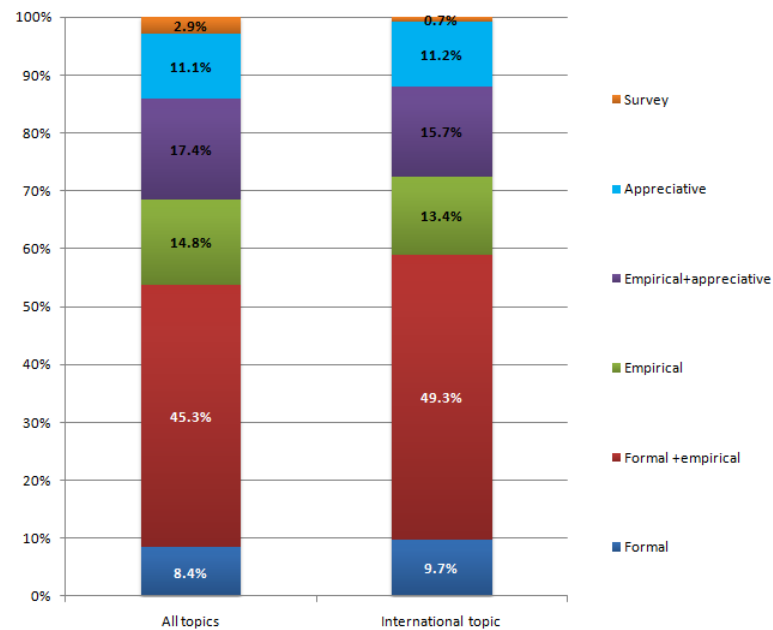


Figure 5: Distribution (%) of articles related to ‘All’ and ‘International’ topics by using main method for the whole period (1989-2010)

Source: Author’s own computation

Dividing the whole time period into five-year periods: 1989-1994, 1995-1999, 2000-2004 and 2005-2010 (cf. Figure 6), it is noticeable the tendency for the dominance of “Formal plus Empirical” approach, particularly in the ‘International’ topic.

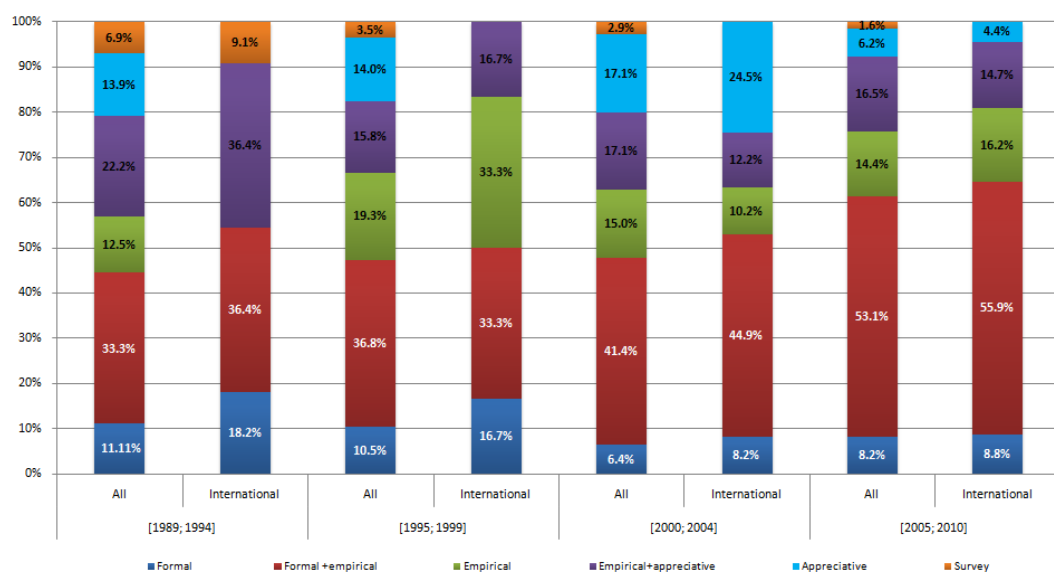


Figure 6: Distribution (%) of articles related to ‘All’ and ‘International’ by using main type of method, 1989-2010

Source: Author’s own computation

In fact, the weight of ‘Formal plus empirical’ increased from 33.3% to 53.1% from the initial period year (1989-1994) to the most recent period (2005-2010). This is likely to reflect the trend, in Chinese economics research, for increasing “rigor”, often associated to formal articles and mathematical model (Silva and Teixeira, 2011). The tendency for increase is even more pronounced in the international topic, which evolved from 36.4% in 1989-1994 up to 55.9% in 2005-2010.

One interesting aspect is that during the initial period (1989-1994), none of the articles which focus on the ‘International’ topic employed “Empirical” methods. However, in the second period (1995-1999), it abruptly reached to 33.3%. At the same time, before 2000, there are few papers published in CER which resort to “Appreciative” method, but during the period 2000-2004, “appreciative” articles reached 24.5%, having, nevertheless, been reduced to 4.4% in the last period year (2005-2010).

Trade (F1), International Finance (F3) and International factor movements and International business (F2) were identified as the three most important research sub-topics within *International Economics* (cf. Figure 7). *Trade* and *International factor movement and international business* are more formalized than *International Finance* (for the whole period, the weight are respectively, 70%, 63% and 58%). Around 1/3 of the papers published in sub-topics *International factor movement and international business* and *International Finance* employ, in part on the whole, *Appreciative* methods.

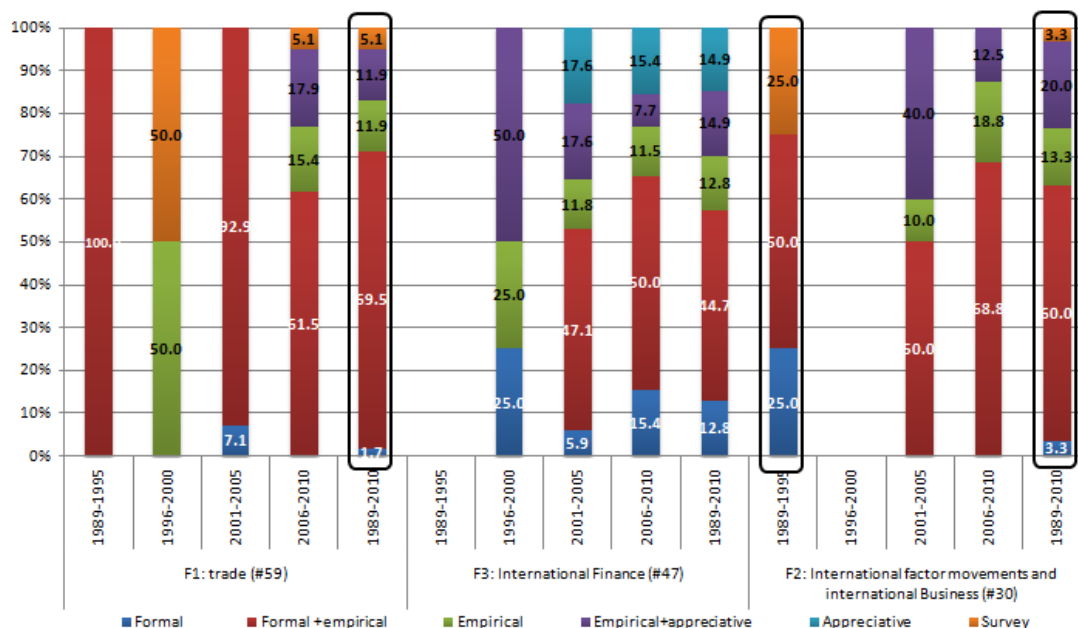


Figure 7: Distribution (%) of articles related to ‘International’ sub-topics by resorting main type of method, 1989-2010

Source: Author’s own computation

In dynamic terms, *Trade* became in the last two periods in analysis much more diversified, towards a more empirically led strand. In contrast, *International Finance* saw its weight of *Formal* methods almost trebled between 2001-2005 (with 5.9%) and 2006-2010 (with 15.4%). The trend towards formalization but associated with Empirical methods is also noticeable in *International factor movement and international business*. Indeed, the share of *Formal plus Empirical* type of methods increased from 50% in 2001-2005 up to 68.8% in 2006-2010.

3.3. The roots of Chinese economics literature

The intellectual basis of the literature published in CER between 1989 and 2010 is analyzed by responding to three sub-research questions: “Who are the most important cited researchers”, “Which are most important studies” and “Which are most major sources” cited by Chinese economics literature?.

Based on 512 articles published in CER, we obtained over 10 thousand references (10794). Those 10794 citations were cited by more than 8900 distinct studies. The top 30 most cited studies represents 0.3% of the total studies and were cited by almost 300 times, which account for 2.8% of the total citations.

In Table 3 it is presented the list of those top 30 cited studies which provides some information on the number of citations, research fields, type of document and JEL codes of the studies in analysis. Cited references might be published in academic journals, books and reports. Chinese economics literature's main outlets are academic journals. In additional, from the top 30 cited references list, we observe that journal articles encompass 93% of the studies listed, which contrasts with 7% of Books.

Concerning the research topics, we encounter ten main research fields, namely: Economic Development–regional inequality (Jian et al, 1996; Fleisher and Chen, 1997); Economic growth (Mankiw et al, 1992; Chow, 1993); Econometrics (Engle and Granger, 1987); Labor Market(de Brauw et al, 2002); Sectoral studies (Lin,1992); SOEs reform (Groves et al, 1994); Economic Development (McMillan et al, 1989); Education (Mincer, 1974); Industrial Economics (Dixit and Stiglitz, 1977); International Economics (Poncet, 2003).

Table 3: Top 30 cited references by articles published in China Economic Review

Rank	Cited references	Number of citations	Research fields	Type of document	JEL
1	Lin, J.Y., Rural reforms and agricultural growth in China (1992) American Economic Review, 82 (1), pp. 34-51	19	Sectoral studies	Journal Article	O47;P27;Q11
2	Fleisher, B., Chen, J., The coast-no coast income gap, productivity, and regional economic policy in China (1997) Journal of Comparative Economics, 25 (2), pp. 220-236	18	Economic Development – regional inequality	Journal Article	O15;O18; O47; O53
3	Chen, J., Fleisher, B.M., Regional income inequality and economic growth in China (1996) Journal of Comparative Economics, 22 (2), pp. 141-16	17	Economic Development – regional inequality	Journal Article	
4	Jian, T.L., Sachs, J.D., Warner, A.M., Trends in regional inequality in China (1996) China Economic Review, 7 (1), pp. 1-21	15	Economic Development – regional inequality	Journal Article	O10;O40;O53
5	Kanbur, R., Zhang, X., Which regional inequality? The evolution of rural-urban and inland-coastal inequality in China from 1983 to 1995 (1999) Journal of Comparative Economics, 27 (4), pp. 686-701	12	Economic Development – regional inequality	Journal Article	O10
6	Mankiw, G.N., Romer, D., Weil, D.N., A contribution to the empirics of economic growth (1992) Quarterly Journal of Economics, 105 (2), pp. 407-437	12	Economic growth	Journal Article	
7	McMillan, J., Whalley, J., Zhu, L., The impact of China's economic reforms on agricultural productivity growth (1989) Journal of Political Economy, 97 (4), pp. 781-807	12	Economic Development	Journal Article	O10
8	Chow, G.C., Capital formation and economic growth in China (1993) Quarterly Journal of Economics, 108 (3), pp. 809-842	11	Economic growth	Journal Article	O10
9	Engle, R.F., Granger, C.W.J., Co- integration and error correction: Representation estimation and testing (1987) Econometrica, 55 (2), pp. 251-276. , March	11	Econometrics	Journal Article	C20
10	Groves, T., Hong, Y., McMillan, J., Naughton, B., Autonomy and incentives in Chinese state enterprises (1994) The Quarterly Journal of Economics, 109 (1), pp. 183-209. , February	11	SOEs reform	Journal Article	L
11	Groves, G.T., Hong, Y., McMillan, J., Naughton, B., China's evolving managerial labor market (1995) Journal of Political Economy, 103 (4), pp. 873-892	10	Labor Market	Journal Article	J4
12	Jefferson, G.H., Rawski, T.G., Zheng, Y., Growth efficiency and convergence in China's state and collective industry (1992) Economic Development and Cultural Change, 40 (2), pp. 239-266	10	Economic Growth	Journal Article	O1
13	Dixit, A.K., Stiglitz, J.E., Monopolistic competition and optimum product diversity (1977) American Economic Review, 67 (3), pp. 297-308	9	Industrial Economics	Journal Article	C10
14	Greene, W.H., (2003) Econometric analysis. (5th ed.), , Prentice Hall, Upper Saddle River, NJ	9	Econometrics	Book	
15	Wang, Y., Yao, Y., Sources of China's economic growth 1952-1999: Incorporating human capital accumulation (2003) China Economic Review, 14 (1), pp. 32-52	9	Economic Growth	Journal Article	O40; O15; O53
16	de Brauw, A., Huang, J., Rozelle, S., Zhang, L.X., Zhang, Y.G., The evolution of China's rural labor markets during the reforms (2002) Journal of Comparative Economics, 30, pp. 329-353	8	Labor Market	Journal Article	J2;O1;P2
17	Johansen, S., Juselius, K., Maximum likelihood estimation and inference on counteraction - with applications to the demand for money (1990) Oxford Bulletin of Economics and Statistics, 52 (2), pp. 169-210	8	Econometrics	Journal Article	C0
18	Kanbur, R., Zhang, X., Fifty years of regional inequality in China: A journey through central planning, reform and openness (2005) Review of Development Economics, 9 (1), pp. 87-106	8	Economic Development – regional inequality	Journal Article	D63; O18; P27

(...)

Rank	Cited references	Number of citations	Research fields	Type of document	JEL
19	Lucas, R., On the mechanics of economic development (1988) Journal of Monetary Economics, 22 (1), pp. 3-42	8	Economic growth	Journal Article	C50
20	Mincer, J., (1974) Schooling, Experience and Earnings, New York: Columbia University Press for the National Bureau of Economic Research	8	Education	Book	
21	Poncet, S., Measuring Chinese domestic and international integration (2003) China Economic Review, 14 (1), pp. 1-21	8	International Economics	Journal Article	F02; F14; F15; O52; R58
22	Raiser, M., Subsidizing inequality: Economic reforms, fiscal transfers and convergence across Chinese provinces (1998) Journal of Development Studies, 34 (3), pp. 1-26	8	Economic Development – regional inequality	Journal Article	
23	Romer, P.M., Increasing returns and long-run growth (1986) Journal of Political Economy, 94 (5), pp. 1002-1037	8	Economic growth	Journal Article	C30
24	Yao, S., Zhang, Z., Regional growth in China under economic reform (2001) The Journal of Development Studies, 38 (2), pp. 167-186	8	Economic Development – regional inequality	Journal Article	O18
25	Arellano, M., Bover, O., Another look at the instrument variable estimation of error-components models (1995) Journal of Econometrics, 68 (1), pp. 29-52	7	Econometrics	Journal Article	C3
26	Bai, C., Li, D., Tao, Z., Wang, Y., A multi-task theory of the state enterprise reform (2000) Journal of Comparative Economics, 28 (4), pp. 716-738	7	SOEs reform	Journal Article	
27	Chow, G.C., Li, K.W., China's Economic Growth: 1952-2010 (2002) Economic Development and Cultural Change, 51 (1), pp. 247-256	7	Economic growth	Journal Article	O18
28	Dickey, D.A., Fuller, W.A., Distribution of the estimators for autoregressive time series with a unit root (1979) Journal of the American Statistical Association, 74 (366), pp. 427-431	7	Econometrics	Journal Article	C2
29	Fan, S., Effects of technological change and institutional reform on production growth in Chinese agriculture (1991) American Journal of Agricultural Economics, 73 (2), pp. 266-275	7	Sectoral studies	Journal Article	O40
30	Fan, S., Zhang, L., Zhang, X., Growth, Inequality and Poverty in Rural China: The Role of Public Investments (2002) International Food Policy Research Institute, Research Report, pp. 125	7	Economic Development-regional inequality	Journal Article	R1

Source: Author's computations based on citations from all articles were published on CER.

Three out the ten research fields - 'Economic development/regional inequality', 'Economic growth', and 'Econometrics' -, have emerged as the most influential research topics for articles published in CER. Specifically, several authors focus on China's economic development caused by the inequality encompasses income, rural-urban (Jian et al, 1996; Fleisher and Chen, 1997).

'Economics development-regional inequality' accounts for 26% of the total of top 30 cited references list, 'Economic growth' field accounts for 23%, followed by Econometrics which involve approximately 16% of the total. In addition, the research field of 'Labor market', 'Sectoral studies' and the 'Reforms of SOEs' were influential in the Chinese economics literature, have equally partition of 6.7% of total of top 30 cited references. The remaining studies (nearly 12% of the total) refer to a variety of fields, such as economic development, education, industrial economics and international economics.

However, the research field of 'International Economics' does not emerge as a core influential field of research to Chinese economics literature. The only study which focuses on international related subjects is the one by Sandra Poncet "Measuring Chinese domestic and international integration". This paper published in 2003 received 8 citations and describes a "new set of provincial trade flow to analyze and compare the magnitude and evolution of Chinese provinces' engagement in domestic and international trade by computing all-inclusive indicators of trade barriers." (Poncet, 2003: 1).

As regards to the majority of the most cited authors (cf. Table 4), there are 22 authors affiliated in top universities, including Stanford University, University of Princeton and University of California in United States, which represents nearly 73% of the total of the top 30 cited researchers, followed by 5 authors affiliated in institutions from China with 17% of the total top 30 cited researchers. The rest of authors are affiliated in institutions from UK, Canada and Australia. Although the most cited authors are from USA, it is worthy to point out that among them stand Chinese authors, accounting for 40% of the corresponding total, who are affiliated in universities and Institutions located in the USA. According to data gathered, we observe that the most cited authors from USA are those with the greatest impact on the articles published on CER.

Table 4: Top 30 most cited researchers by articles published in China Economic Review

Rank	Authors	Number of citations	Country	University/Institution	Research field
1	Rozelle, S	90	USA	Stanford University	Agricultural policy; the evolution of market; the economics of poverty and inequality focused on China
2	Lin, J.Y	82	USA	World Bank	Economics, Econometrics and Finance Social Sciences
3	Naughton, B	69	USA	University of California	Industry, Trade, Finance; The relationship between foreign trade and investment and regional growth in China
4	Jefferson, G.H	64	USA	University of Brandeis	Institutions; Technology; Economic growth and China's economic transformation
5	Huang, H.Z	62	USA	Department of Research, Washington	Economics, Econometrics and Finance
6	Yao, S.J	61	China	University of Nottingham	Development and agricultural economics; Economic development in China
7	Knight, J	56	UK	University of Oxford	Labor markets, income distribution, human capital, with application to China and Africa
8	Barro, R.J	50	USA	University of Harvard	Economic growth; Monetary policy; Budget deficits
9	Rawski, T.G	50	USA	University of Pittsburgh	Economy of China and Japan; Dynamics of Economic Systems; Economics of Technological Change
10	Chow, G.C	44	USA	University of Princeton	China's Economic Transformation,
11	Fleisher, B.M	43	USA	University of Ohio State	Economics; Econometrics and Finance Business; Management and Accounting ;Social Sciences
12	Woo, W.T	43	USA	University of California	International and Domestic Macroeconomics, Economic Growth, Comparative Economic Systems
13	Fan, S	40	USA	International Food Policy Research Institute (IFPRI)	Food policy; Grain issues
14	Sachs, J.D	40	USA	University of Columbia	Combining economic development with environmental sustainability
15	Lardy, N.R	39	USA	The Peterson Institute for International Economics	Asia economy
16	Yang, D.T	38	USA	Virginia Polytechnic Institute and State of University	Development and Growth; Labor and Demographic Economics; Chinese Economy and Transition
17	Wang, Z	37	USA	George Mason of University	Chinese economies, international trade
18	Shleifer, A	36	USA	University of Harvard	Corporate governance, Law and finance, Behavioral finance, and institutional economics
19	Young, A	36	USA	University of Chicago	Productivity growth and international trade
20	Zhang, L.X	36	China	Chinese Academy of Sciences	Business; Management and Accounting ;Environmental Science
21	Zhang, X	35	USA	International Food Policy Research Institute (IFPRI)	Economic growth, income distribution, public investment and rural industrialization in China and other developing countries
22	Xu, X.N	34	China	China Europe international business school	Finance ; Financial Institutions and Financial Markets
23	Zhao, Y	33	China	China Centre for Economic Research	Labor Economics, Agricultural Economics, and Microeconomics
24	Bai, C.E	32	China	University of Tsinghai	Economics, Econometrics and Finance Business, Management and Accounting
25	Krugman, P.R	31	USA	University of Princeton	International economics(trade theory, economic geography, and international finance)
26	Qian, Y.Y	31	USA	University of California	Comparative Economics, Institutional Economics, Development Economics, Economics of Transition, Chinese Economy
27	Sicular, T	29	Canada	University of Western Ontario	China's Economy; China's Rural Economy; Income Distribution and Poverty in China
28	Wu, Y.R	29	Australia	The University of Western Australia	Development economics, international trade and applied econometric modeling
29	Berger, A.N	28	USA	University of Pennsylvania	G2 Financial Institutions and Services;E5 Monetary Policy; Central Banking and the Supply of Money
30	Feenstra, R.C	27	USA	University of California	International Economics (International Trade; FDI)

Source: Authors' own computations based on citations from all articles were published on CER.

Going deep into analysis of top 30 cited researchers, the most cited, with a total of 90 citations, is Scott Rozelle who is a professor of Chinese economy at the Stanford University (USA). Currently, Scott Rozelle's main research topics deal with China economy: agricultural policy; the evolution of market; the economics of poverty and inequality. He is followed by Justin Yifu Lin from the World Bank (USA) and Barry Naughton from the California University (USA), with 82 and 69 citations respectively. Justin Yifu Lin has specialized in research related to economics, finance and social sciences. Barry Naughton is a senior academic investigator whose main research topics include industry, trade and finance and China's transition to a market economy. He focuses on regional economic growth in China and the relationship between foreign trade, investment and regional growth in the recently years.

Out of the 30 most cited authors, 12 (40% of total top 30 authors) researches on topics directly related to China economy, particularly the issue of Chinese transformation and regional inequality. From these 12 authors only 2, Barry Naughton and Zhi Wang, focus on international economics. Additionally, regarding to international economics, three renowned authors are cited: Alwyn Young (University of Chicago), Paul Krugman (University of Princeton), and Robert C. Feenstra (University of California). Therefore, it seems that in what concerns most influential authors, international economics receives more attention from CER's published articles than international economics studies.

About 62% of total citations (i.e., 6726) are from journal articles. These referred to 950 distinct journals. The top-30 most cited journals (cf. Table 5) account for 53% of the total journals citations.

The most influential journal is (quite expectedly), *China Economic Review* (CER), with 415 citations, that is, about 4% of total citations (6% of total journal citations). It is closely followed by the *American Economic Review*, one of the most important journals in the Economics field of research.

Most of the journals which are cited by the Chinese economics literature are quite well renowned in the economics field. In fact, 8 of the top 30 list are more highly impact factors journals (with impact factor ranging from almost 2.000 – *Journal of Econometrics* - to 6.919 – *Journal of Economic Literature*). Among these we might include *American Economic Review*, *Journal of Political Economy*, *Quarterly Journal of Economics*, *Journal of Finance* and *Journal of Economic Literature*, which take up 26% of total top 30 most cited journals.

Table 5: Top 30 most cited sources by articles published in China Economic Review

Rank	Journal	Citations (% total)	Impact factor	Journal scopes
1	China Economic Review	415(3.84%)	1.066	The economy of China, and its relation to the world economy
2	American Economic Review	352(3.26%)	2.531	All economic issues
3	Journal of Comparative Economics	347(3.21%)	1.360	Comparative economics; The transition from socialism to capitalism
4	Journal of Political Economy	244(2.26%)	3.841	International trade ;monetary theory, fiscal policy, labor economics, development, micro- and macroeconomic theory
5	Econometrica	187(1.73%)	4.000	All branches of economics
6	Quarterly Journal of Economics	169(1.57%)	5.647	All fields of economic research
7	Journal of Development Economics	132(1.22%)	1.791	All aspects of economic development
8	The American Journal of Agricultural Economics	130(1.2%)	1.047	Economics of agriculture and food, natural resources and the environment, and rural and community development throughout the world
9	Economic Development and Cultural Change	127(1.18%)	0.863	Technological change, human resource investments and economic incentives
10	Journal of Finance	124(1.15%)	3.764	Bank Capital; Bank systems
11	China Quarterly	117(1.08%)	0.957	Anthropology/sociology, literature and the arts, business/economics, geography, history, international affairs, law, and politics.
12	Journal of Financial Econometrics	94(0.87%)	0.897	Relationship between econometrics and finance
13	World Development	94(0.87%)	1.225	Technological resources, trade; Payments imbalances; Unemployment
14	Journal of Econometrics	92(0.85%)	1.902	Theoretical and applied econometrics
15	Review of Economics and Statistics	89(0.82%)	2.555	Empirical economics
16	Journal of International Economic Studies	83(0.77%)		International Economic issues
17	Applied Economics	81(0.75%)	0.404	Applied economics
18	The Economic Journal	77(0.71%)	1.902	All economic issues
19	Journal of Banking & Finance	77(0.71%)	1.908	Financial institutions; the money and capital markets
20	Journal of Economic Literature	63(0.58%)	6.919	All economic sections
21	Journal of Monetary Economics	60(0.56%)	1.755	Macroeconomic field(banking, credit and financial markets, banking, credit and financial markets)
22	Economics Letters	52(0.48%)	0.359	All fields of economic research
23	European Economic Review	50(0.46%)	1.131	Development and application of economics in European;
24	Journal of Development Studies	49(0.45%)	0.899	Development economics, politics and policy
25	Journal of International Financial Markets, Institutions & Money	44(0.41%)		International financial markets; Foreign exchange markets; Determination of exchange rates; international investment banking
26	Economics of Transition	43(0.39%)	0.774	Transition economies of Europe and the CIS, China and Vietnam;
27	Review of Economic Studies	42(0.38%)	2.904	Theoretical and applied economics
28	Agricultural Economics	40(0.37%)	0.673	Agriculture economics; Food consumption and Nutrition
29	Oxford Bulletin of Economics and Statistics	40(0.37%)	1.092	All areas of applied economics; Economic policy; Empirical research on both developed and developing countries
30	Journal of Public Economics	39(0.36%)	1.236	Public economics; Public policy

Source: Authors' own computations based on citations from all articles were published on CER.

They are followed by intermediated impact factor journals, namely *China Economic Review*, *Journal of Comparative Economics*, *Journal of Development Economics* and the *American Journal of Agricultural Economics*, which encompass 40% of total top 30 most cited journals.

Again, ‘International Economics’ ranks low in terms of influence on Chinese economics literature. Indeed, only one journal from International economics appears among the top 30 most cited – *Journal of International Economic Studies*. This journal, however, is not indexed in ISI which reflects its low importance among economics literature. *World Development* although including some international related topics is not a truly international economics outlet.

3.4. The influence of Chinese economics literature

In order to evaluate what is the range of influence of Chinese economics literature, we build an additional database, denominated as “influences” database, which encompasses the studies citing articles published in CER.

There are 383 original articles published on CER that were cited by more than 3000 distinct studies, which represent 71.1% of total original articles (total 538 articles/conferences papers published on CER).

More precisely, from those 383 original articles, around 170 articles (45% of total) have been cited more than six times in more than 2700 distinct journals (with 4%), conferences (4.9%), reports (0.2%), and books (0.2%).

Accordingly, in the present research, by analyzing “influence” database, we identify which research areas were influenced by the Chinese economic literatures, authors from which countries affect the CER” and who are the most important researchers influenced Chinese economic literatures. Table 6 reflects that most important citing sources, namely top-34 journals and contains the corresponding number of citations, the research area of journal and impact factor in the “influences” database. The top-34 most citing journal involves more than 1220 citations, which account for approximately 44.7% of the total. There are five journals - *China Economic Review*, *China and World Economy*, *Frontiers of Economics and China*, *The Chinese Economy* and *China Agricultural Economic Review* – that cites the most the articles published in CER.

Among these journals, the one that cites more CER's articles is CER itself with 332 citations in the citing sources, that is, about 12.2% of total citations (27.2% of total top-34 journal citations). As referred earlier, the journal *China Economic Review* analyzes primarily all research areas related to Chinese economy, comments on the relationship between China economy and world economy. It is closely followed by the *Journal of Comparative Economics* with almost 3.4% of total citations (7.4% of total top-34 journal citations), one of the most important journals in the comparative economics field of research. After that, *China and the World Economy* also focuses on all field of Chinese economy with 2.1% of total citations (4.8% of total top-34 journal citations).

Most of the journals that were influenced by the Chinese economics literature are quite important within the field of economics. Nine journals of the top-34 list have highly impact factor (impact factor ranging from almost 2.430 - *Energy Policy* to 1.066 - *China Economic Review*). Among these stands, for example, *Journal of Comparative Economics*, *Journal of Development Economics*, *World Development*, *World Economy*, which takes up 26% of total top-34 major source list. They are followed by intermediated impact factor journals, such as *China and World Economy*, *Economic of Transition*, *Applied Economics*, *Asian Economic Review* and *Journal of the Asia Pacific Economy*, which are account for 44% of the top citing journals.

However, nine journals namely, *Journal of Asian Economics*, *Frontiers of Economics in China*, *Economic Change and Restructuring*, *The Chinese Economy*, *Applied Financial Economics*, *China Agricultural Economic Review*, *International Review of Economics and Finance*, *Journal of Contemporary China* and *Journal of International Development*, are not indexed in ISI, reflecting their low impact in the economic literature.

With regards to international economics, *World Development*, *World Economy*, *Economic Modelling* and *China Agricultural Economic Review*, although including several international topics, such as trade policy, agricultural trade and international models, are not truly international economic sources. None of the citing journals in top-34 source list concern specifically with topics related to international economics.

Table 6: The most important citing sources of the articles published in China Economic Review

Rank	Journal	Citations	Impact Factor	Journal Scopes
1	China Economic Review	332	1.066	The economy of China, and its relation to the world economy
2	Journal of Comparative Economics	91	1.360	comparative economics; The transition from socialism to capitalism
3	China and World Economy	58	0.424	All fields of Chinese economy
4	Journal of Development Economics	41	1.791	All aspects of economic development
5	Journal of Asian Economics	40		Innovation in Asian economics; the development of Asian economics; the relationship of economy between Asian and EU, USA
6	World Development	36	1.225	Technological resources; trade; Payment imbalances; Unemployment
7	World Economy	34	1.159	Trade Policy; International trade and the environment; Transition economies; Development economies; The issues of trade policy
8	Eurasian Geography and Economics	33	1.710	Macroeconomics/Monetary economics in Asia, East Europe and Russia; Urban development; Cultural Studies
9	Economics of Transition	30	0.774	Economics of structural transformation, institutional development, and growth; Transition economies of Central and Eastern Europe and the CIS, China and Vietnam
10	Energy Policy	29	2.436	Issues of energy supply, demand and utilization; all topics from national energy pricing to energy efficiency potential in the domestic sector
11	Review of Income and Wealth	28	0.770	National and economic and social accounting; the measurement and analysis of income and wealth; statistical methodology
12	Applied Economics	27	0.404	Applied economics
13	Frontiers of Economics in China	27		The achievement of Chinese economics; the issues of trade between China and other countries; agricultural economics, environmental economics, finance and investment,
14	Pacific Economic Review	27	0.244	All issues economics related to Asian-Pacific area
15	Urban Studies	25	1.301	All issues of social and economics in rural regional and urban regional
16	Asian Economic Journal	24	0.400	All issues of economics in East Asian regional
17	Economic Change and Restructuring	24		all economic and policy aspects of transitional economies
18	Economic Development and Cultural Change	24	0.863	Technological change, human resource investments and economic incentives
19	Journal of the Asia Pacific Economy	24	0.204	Developing economies within Pacific Asia and South Asia
20	The Chinese Economy	23		All fields of Chinese economy
21	The Developing Economies	22	0.125	All issues of social sciences related to developing countries
22	Journal of Policy Modeling	22	0.763	All aspects of economic development
23	China Quarterly	21	0.957	Anthropology/sociology, business/economics, geography, history, law, and politics.
24	Review of Development Economics	20	0.459	All issues of transition economics
25	Economic Systems	19		All developed, developing, emerging, and transition economies
26	Agricultural Economics	17	0.673	Agriculture economics; Food consumption and Nutrition
27	Economic Modelling	17	0.588	The analysis of economic modeling include: national macroeconomic models, growth models; international trade models
28	Post-Communist Economies	16	0.196	The analysis of post-communist economics
29	Applied Financial Economics	15		Financial market; foreign exchange market; corporate finance
30	China Agricultural Economic Review	15		All aspects of China agricultural economic such as: agricultural trade, agricultural investment
31	International Review of Economics and Finance	15		Economy macroeconomics, exchange rates and financial issues
32	Journal of Contemporary China	15		The issues of economics, law, culture, business, international relations, sociology and other social sciences and humanities
33	Journal of International Development	15		Economics, politics, international relations, sociology and anthropology
34	Oxford Bulletin of Economics and Statistics	15	1,092	All areas of applied economics; Economic policy; Empirical research on both developed and developing countries

Source: Author's computations based on citations from "Influence" database.

Moreover, analyzing the geographical origin/affiliation of the authors that cite articles published in CER, that is, the geographical range of influence of Chinese economics literature, we realize that the Chinese economics literature ‘influenced’ 2475 authors from 61 countries. It mainly affected economics researchers from ten countries/regions (Figure 8): China, USA, Australia, UK, Hong Kong and Japan, which account for approximately 85% of total count of countries.

Chinese economic literature have greater influence to authors from China (with 26.9% of total count of countries) and authors from USA (with 24.8% of total count of countries), embracing these two countries slightly more than half of the total of the top-10 countries.

Australia and UK authors, account for 7.3% and 7.4% respectively. They are followed by Hong Kong’s researchers, who account for 5.8%. The remaining share (almost 13%) includes Japan (3.1%), Taiwan (3.0%), France (2.7%), Canada (2.3%), and Germany (2.3%).

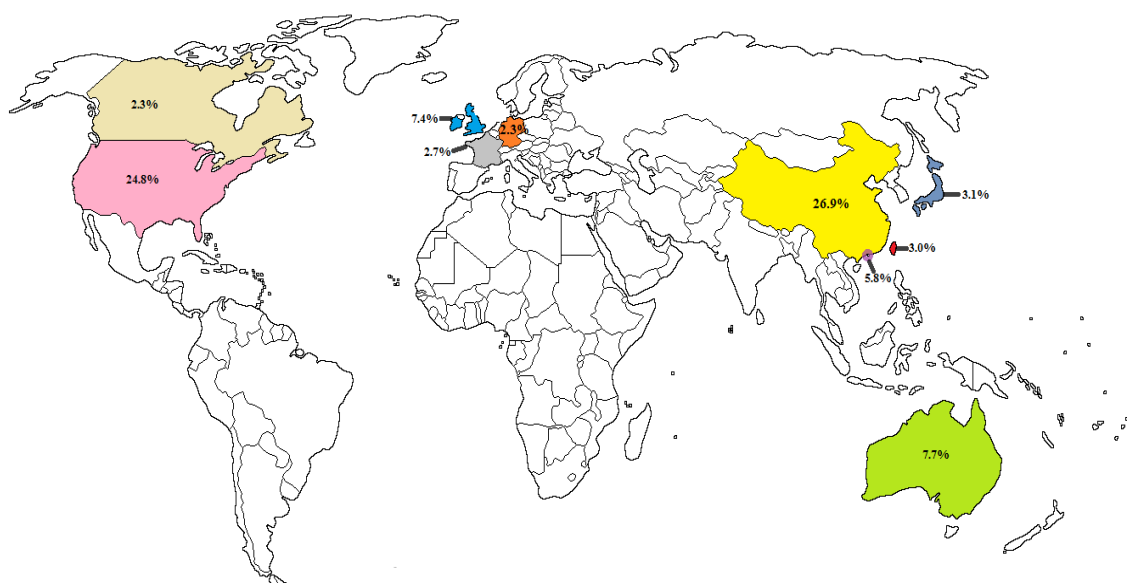


Figure 8: Geographical range of influence of Chinese economics literature

Source: Author’s computations based on citations from “influences” database

In order to further analyze who were influenced by the Chinese economics literature, we focus on the Top 31 authors that cited more CER’s articles (Table 7). Among these, there are 9 authors affiliated in universities/institutions from China, which represents nearly 29% of the total of the top 31 main authors, followed by 7 authors affiliated in universities/institution from USA with 22.5% of total top 31 main authors. The 16 authors from China and USA account for 51.5% of total top 31 authors.

Table 7: Top 30 citing authors of the articles published in China Economic Review

Rank	Authors	Country	Citations	Research fields
1	Smyth, R	Australia	66	Asian economies; Chinese economic reform; law and economics; applied time series econometrics
2	Rozelle, S	USA	53	Agricultural policy; the evolution of market; the economics of poverty and inequality focused on China
3	Wang, X	Hong Kong	38	Economics, Econometrics and Finance
4	Huang, J	China	37	China's agricultural and rural development includes agricultural R&D policy, water resource economics and trade policy
5	Narayan, P. K	Australia	34	Financial Econometrics; Applied Finance Energy; Transport and Financial Markets
6	Zhang, L	China	28	Agricultural policy; Economics, Econometrics and Finance
7	Dong, X. Y	China	26	China's economic development and transition in the areas of agricultural institutional reforms; gender and women issues, labor participation and industrial democracy
8	Chen, Y	Hong Kong	24	Business, Management and Accounting; Economics, Econometrics and Finance
9	Knight, J	UK	24	Labor markets, income distribution, human capital, with application to China and Africa
10	Nielsen, I	Australia	24	labor migration in Asia and Europe; work and life satisfaction in China
11	Hao, R	China	23	Social Sciences
12	Holz, C. A	Hong Kong	22	China's economy (in particular economic growth, regional economic development, Chinese statistics) and development economics, applied macroeconomics and monetary economics
13	Ravallion, M	USA	22	Economic policy and poverty issues
14	Wang, Y	USA	22	Economics, Econometrics and Finance
15	Yao, S	UK	22	Development and agricultural economics; Economic development in China
16	Li, X	China	21	Business, Management and Accounting
17	Liu, X	UK	21	Foreign direct investment and multinational enterprises; International business strategy; International trade and comparative advantage; China economy
18	Wang, Z	USA	21	Chinese economies, international trade
19	Yang, C. H	Taiwan	21	Economics, Econometrics and Finance
20	Zhang, X	USA	21	Business, Management and Accounting
21	Qian, X	Australia	20	Asian economies; Chinese economic reform
22	Wei, Z	UK	19	Social Sciences; Economics, Econometrics and Finance
23	Ma, H	China	18	Economics, Econometrics and Finance; Environmental Science
24	Zhang, Y	USA	18	Social Sciences; Economics, Econometrics and Finance
25	Zhang, Z	China	18	Economics, Econometrics and Finance
26	Li, D	Australia	17	Asian financial markets; Banking and insurance companies, international finance and international risk and insurance
27	Li, H	Hong Kong	17	Business, Management and Accounting ;Economics, Econometrics and Finance
28	Liu, H	China	17	Earth and Planetary Sciences; Economics; Econometrics and Finance
29	Putterman, L	USA	17	Economic organization, incentives, and institutions; long-run determinants of the level of economic development and the rate of economic growth
30	Zhang, C	China	17	Economics, Econometrics and Finance
31	Zhang, J	Hong Kong	17	Business cycles and economic growth; The nexus between corporate finance and macroeconomics and the role of money and banking in an economy

Source: Author's computations based on citations from "Influences" database.

Therefore, based on data gathered, Chinese economics literature has a larger influence on authors affiliated in universities/institutions from China and USA.

The author who cites more articles published in CER, with a total of 66 citations, is Russell Smyth who is a professor of Asian economy from Australia. Currently, his main research interests regards to Asian and China economies and law economics. He is followed by Scott Rozelle, who is a professor of Chinese economy at the Stanford University (USA) and Wang Xiaozhou from Hong Kong, with 53 and 38 citations respectively. Scott Rozelle's main research interests focus on three fields of China economy: agricultural policy; the evolution of market and the economics of poverty in inequality. Wang Xiaozhou has interests in several topics related to Economics, Econometrics and Finance. Also important citing authors are Huang Jikun, who is a senior academic investigator in research related to China's agricultural and rural development in China, with 37 citations, and Paresh Kumar Narayan, who is a professor from Australia with 34 citations, and whose research interests relates to financial econometrics and financial markets.

According to data gathered, we observed that 10 authors (32.3% of the total Top-31 most citing authors) focus on research fields directly related to China economy, particularly the issues of Chinese economic reform, Chinese agricultural and economic development, China's economic transition.

With regards to international economic topics, there are only two authors - Liu Xiaming, from UK and Wang Zhi, from USA -, who deal with the international economics topics, more specifically FDI, International business strategy, and international trade. Accordingly, Chinese economics literature seems to have little influence on the research field of international economics.

Conclusions

In the early 1990s, most particularly, in the past decade, research on the Chinese economy, namely China's economic system; the impact of economics policies in different sectors; Chinese international economics, has observed a noticeable dynamics. Despite that dynamics, and to the best of our knowledge, none of the articles on this domain has assessed the evolution of Chinese economics related research.

To fulfill this gap, the present dissertation resorted to bibliometrics tools and used *China Economics Review* (CER) as the 'seed' journal for analyzing the weight and dynamics of key topics/themes and type/methods of research associated with the articles published in CER between 1989 and 2010. Moreover, it analyzed the 'roots' and 'influence' of Chinese economics literature through the lens of CER seeking to perceive the relevance of the International Economics topic within that literature.

Two research areas - "Economic Development, Technological Change, and Growth"; and "Economic System" – emerged as particular relevant fields within Chinese economics, which parallel to these important subject on the recent economic evolution of the Chinese economy. Additionally, the research field of "International economic" was also one of the most researched topics by authors publishing in CER. We observe that the dynamics of scientific topics focused by articles published in CER is likely to be associated with recent matter on the Chinese international economy, most specifically the program of Chinese economic reform that ended the "Planned economic system" (Yeh and Wu, 1999), and eliminated price controls which opened China to foreign investment and international trade, and granted greater autonomy for state-owned enterprises. As regard to the main methods adopted by the articles published in CER, on the overall, more than 45% articles resorted to the analysis of economic data by applying mathematical models or logical framework (i.e., adopted a "Formal plus empirical" approach). Meanwhile, similar findings also can be observed at the international economic topics, with "Formal plus empirical" approach being applied by almost 49% of the international economics' papers.

The most influential research fields for Chinese economics literature (more rigorously, for all the articles published in CER) were "Economic development - regional inequality", "Economic Growth", and "Econometrics". The influence of the 'International economics' topic was found negligible. In terms of outlets *China*

Economic Review, is the most cited journal but other core and highly impact factor economic journals (namely, the *American Economic Review*) exerts a significant influence on Chinese economics research.

With regards to the scope of influence of Chinese economics research, we found the range of influence is quite (geographically) concentrated in China and the USA, with the weight of other Asian countries/regions such as Hong Kong, Taiwan and Japan assuming a reasonable share. Moreover, the outlets that cite more frequently the articles published in CER are not highly influential within economics (measuring this influence by the ISI impact factor). Finally, 'International economics' did not emerge as influenced by Chinese economics literature both in terms of outlets (journals) or authors. Summing up, our analysis showed that Chinese economics literature does not have much effect on the research on international economics.

It would be interesting, but would constitute another potential avenue for further research, to assess who, which journals devote more attention to Chinese economic issues. This would bring a more encompassing overview of the research in economics about China much more encompassing than the one performed in the present dissertation and would permit to find additional outlets of such scientific area.

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