



# Innovation and business research in Latin America: An overview<sup>☆</sup>



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## ARTICLE INFO

### Article history:

Received 1 June 2013

Received in revised form 1 July 2013

Accepted 1 July 2013

Available online 17 December 2013

### Keywords:

Innovation

Business research

Scientometrics

Research productivity

Latin America

Growth

## ABSTRACT

Innovation in Latin America is a challenge for achieving development. Several Latin American countries and businesses are attempting to increase innovation and entrepreneurship but they face substantial challenges and difficulties. Institutional, governmental and business policies and practices need to be enhanced in order to increase such innovation. Increasing business research in Latin America and university-business partnerships is probably key in such endeavor. This special issue provides some evidence regarding these challenges at the company level, industry level, and country level. This issue also includes three cases showing Latin American company experiences with financial, marketing and new product innovations and market changes.

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## 1. Introduction

Latin American countries and companies are attempting to increase innovation but they face substantial challenges. Innovation has been an important factor in all countries that have experienced fast and dramatic economic development. Finland, Korea and the USA are examples of how innovation may enhance economic wealth and quality of life for their citizens. Research has always been a key ingredient for innovation, therefore fostering innovation involves in many ways the promotion of high quality scientific research. In this article, we provide a rapid overview of innovation and business research in Latin America. How far or close are Latin American countries from other regions in the world in terms of innovation? Are there Latin American nations that are being more successful in the promotion of innovation? How are business schools accompanying this process through the production of quality business research? This introductory article provides some insights regarding these questions and the reader can gain an overall understanding of the state of innovation and business research in Latin America. Additionally, the article provides an overview of the contributions in this special issue.

## 2. Challenges for innovation in Latin America

### 2.1. Innovation in Latin America: a comparative analysis

Most countries implement public policies and devise strategies aiming at the stimulation of growth of their economies. Some reasons for this emphasis are that economic growth is key to alleviate poverty through an increase in employment opportunities and labor productivity (Klasen, 2008; Melamed, Hartwig, & Grant, 2011) and to foster development and welfare (Jones & Klenow, 2010).

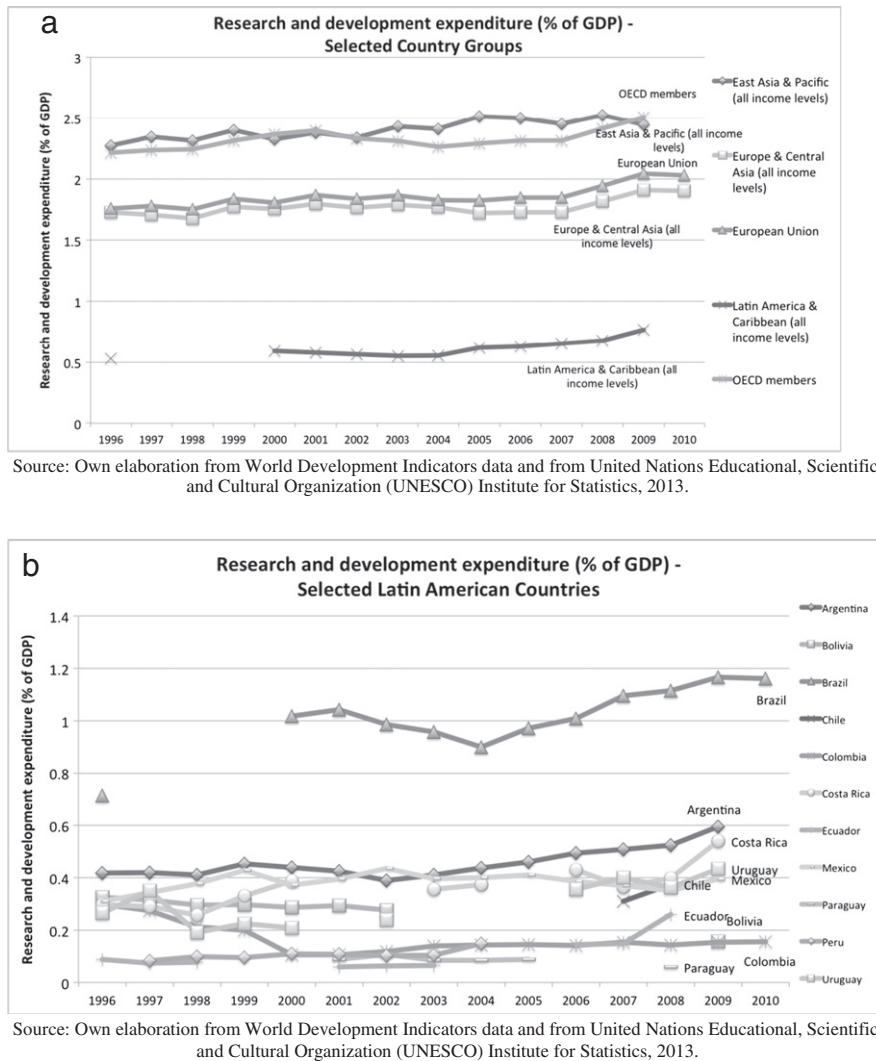
While at initial stages of country development the accumulation of capital is crucial, the economic theory and empirical evidence show that it only has a temporary effect on per capita growth. Indeed, since the seminal work of the Nobel Prize winning economist Robert Solow (1956) it is well known that long-run per capita growth is equal to the rate of technological progress (Barro & Sala-i-Martin, 2003). Hence, the real engine of long-run per capita growth is not accumulation of physical capital but innovation through research and development (R&D) that characterizes technological progress. In fact, the rise of the R&D industry-linking science and technology marks the beginning of sustained economic growth during the late 19th century (Mokyr, 2008, 2009).

Latin America today, faces important pressures to foster sustained economic growth, to reduce poverty and improve the standards of living of its population. In this context to assess the evolution and relative progress of innovation in the region becomes a key priority. In order to provide an overview of the state of innovation in Latin America we will analyze some standard indicators of innovative activity, which include (a) research inputs: amount of research and development expenditure

<sup>☆</sup> The authors thank Victoria Cruces for her excellent research assistance.

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**Fig. 1.** a. Research and development expenditure (% of GDP) – selected country groups. b. Research and development expenditure (% of GDP) – selected Latin American countries. Source: Own elaboration from World Development Indicators data and from United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics, 2013.

(% of GDP); and number of researchers in R&D (per million people); and (b) research outputs: number of patent applications, nonresidents; high-technology exports (% of manufactured exports); and number of Scientific and technical journal articles.

We analyze and discuss the evolution of these indicators at the global level for selected country groups (following the world Bank definitions) in East Asia & Pacific, Europe and Central Asia, European Union, OECD and Latin America & Caribbean; and at the local level considering selected Latin American countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Paraguay, Peru and Uruguay.

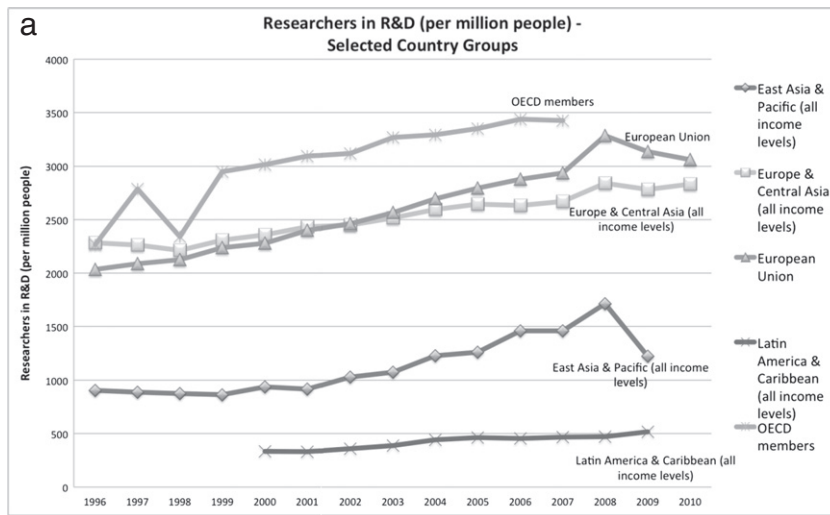
### 2.1.1. Research and development expenditures

Fig. 1a shows research and development expenditures, as percentage of GDP, for the selected country groups. This item considers current and capital expenditures (both public and private) on creative work undertaken systematically to increase knowledge, including the humanities, culture, and society, and the use of knowledge for new applications. R&D covers basic research, applied research, and experimental development. From this figure it can be inferred that for the period 1996–2010, East Asia & Pacific and the OECD lead R&D expenditure levels in the world reaching nearly 2.5% of the GDP on average. Europe & Central Asia and the European Union have reached nearly a 2% in recent years, while Latin America & Caribbean is still lagging well behind

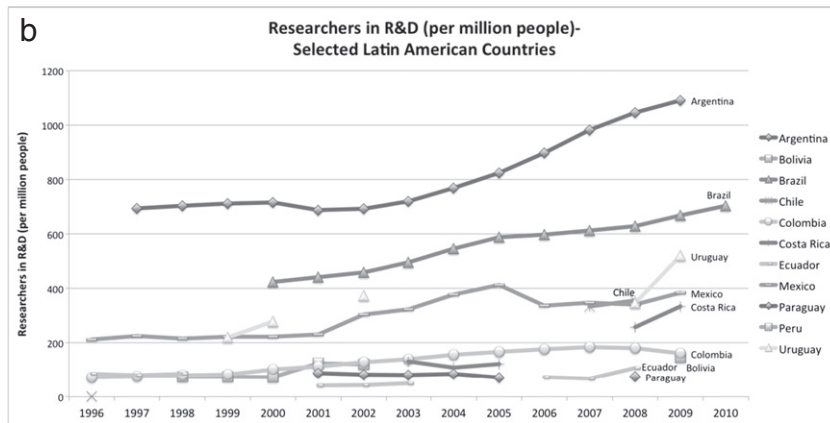
not even reaching a 1% of the GDP on average. Fig. 1b also shows an important difference among the selected Latin American countries, Brazil being very close to 1.2% of the GDP spent in R&D, followed by Argentina and Costa Rica respectively, with nearly a 0.6% of GDP.

### 2.1.2. Researchers

In terms of researchers in R&D per million people for the same period, the world leaders are the OECD members, with 3500 researchers per million people, followed by the European Union and Europe & Central Asia, with about 3000 researchers per million people (Fig. 2a). East Asia & Pacific has nearly half of this number, reaching 1700 researchers in 2008, taking a fall in 2009 with about 1200 researchers, most likely due to the 2008–2009 financial crisis (this fall was also notorious for the European Countries). Latin America & Caribbean is way below on this indicator as well, reaching 500 researchers per million people, being Argentina with nearly 1100 researchers per million and Brazil with 670, the leaders in the region (see Fig. 2b). An important fact is that despite sustained efforts by countries in East Asia & Pacific (see Fig. 1a), forming advance human capital in R&D takes time; and therefore for this region to catch up with the leading countries in this matter will not occur immediately. However, the growth rate of this variable for East Asia & Pacific during this period is impressive, showing a 90% increase.



Source: Own elaboration from United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics, 2013.



Source: Own elaboration from United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics, 2013.

**Fig. 2.** a. Researchers in R&D (per million people) – selected country groups (\*). b. Researchers in R&D (per million people) – selected Latin American countries (\*). (\*) Researchers in R&D are those professionals engaged in the conception or creation of new knowledge, products, processes, methods, or systems and in the management of the projects concerned. Postgraduate PhD students (ISCED97 level 6) engaged in R&D are included. Source: Own elaboration from United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics, 2013.

2.1.3. Research and innovation outputs

Do surprises occur in terms of R&D output with countries other than the ones that have been investing in inputs, such as R&D expenditure and researchers in R&D, that reach better performances?

A key innovation output variable to analyze is the number of patent applications (for residents) which are filed through the Patent Cooperation Treaty procedure or with a national patent office for exclusive rights for an invention, a product or process that provides a new way of doing something or offers a new technical solution to a problem. Fig. 3a shows consistency with research input data, with East Asia & Pacific and the OECD leading in this indicator for the period 1960–2011, with nearly 800,000 patents filed by each one of them in 2011. These country groups also led R&D expenditure levels and the OECD also was the one with more researchers in R&D in our analysis.

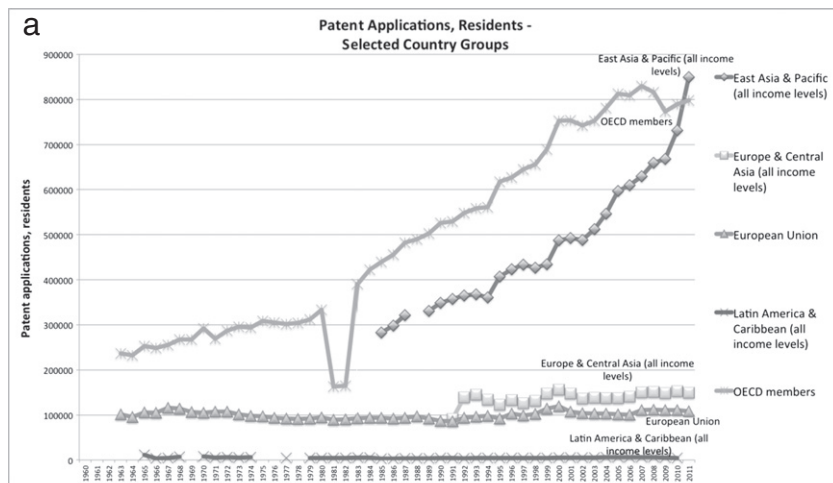
They are followed by Europe & Central Asia and the European Union, with about 150,000 and 100,000 patents respectively for the year 2011. For Latin America & Caribbean the numbers are really low in comparison with the other country groups, reaching only about 4000 patents in 2010, following a decreasing trend from the period 2005–2008 when averaged more than 6000 patents. Brazil leads this country group with 2700 patents in 2010, showing a decreasing trend from 2008 when reached about 4000 patents, see Fig. 3b. Brazil is followed

by Mexico that in contrast reached its highest performance with more than 1000 patents in 2011.

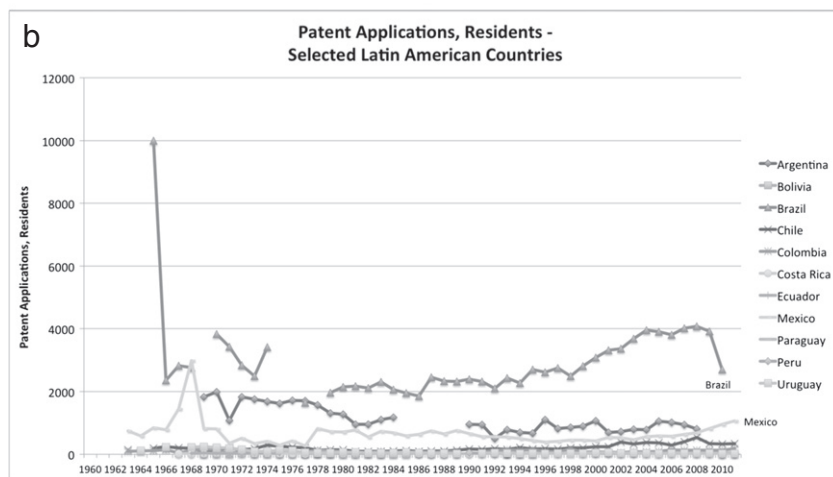
Fig. 3b shows an impressive effort by the leading country groups in terms of patent applications, leaving the other groups far behind, and increasing the gaps.

A second output variable to study is high-technology exports, measured as a percentage of manufactured exports, including products with high R&D intensity, such as aerospace equipment, computers, pharmaceuticals, scientific instruments, and electrical machinery. Fig. 4a again shows East Asia & Pacific and the OECD leading in this indicator for the period 1988–2011. However, in this case, the East Asia & Pacific country group shows a significant difference with respect to the OECD, with a 24% of its total manufactured exports devoted to high-technology against only a 16% for the latter (followed closely by the European Union with 15%). From this figure it can also be noted that in general the world did not recover in terms of high-technology production from the 2000 financial crisis associated with the Internet industry (the dot-com bubble).

For Latin America & Caribbean, Fig. 4b shows Costa Rica as the clear leader in this variable from the year 2000 (marked by the arrival of Intel to the country in 1997) and with 40% of its manufactured exports dedicated to high-technology. Costa Rica was also one of the leaders in R&D



Source: Own elaboration from World Intellectual Property Organization (WIPO), 2013.



Source: Own elaboration from World Intellectual Property Organization (WIPO), 2013.

**Fig. 3.** a. Patent applications, residents – selected country groups. b. Patent applications, residents – selected Latin American countries. Source: Own elaboration from World Intellectual Property Organization (WIPO), 2013.

expenditure in this country group (see Fig. 1b). Costa Rica is followed by Mexico with 16%.

A third key output variable is the production of scientific and technical journal articles, which refers to the number of scientific and engineering articles published in the following fields: physics, biology, chemistry, mathematics, clinical medicine, biomedical research, engineering and technology, and earth and space sciences.

Fig. 5a again shows the OECD leading in this indicator throughout the period 1985–2009 with about 610,000 articles in 2009, followed by Europe & Central Asia and the European Union, with about 290,000 and 250,000.

Latin America & Caribbean reach only about 24,000 journal articles in 2009, following an increasing trend from the period 1986–2009. Brazil led this country group with 12,000 scientific articles in 2009 (see Fig. 5b). Brazil is followed by Mexico and Argentina with 4000 and 3600 scientific and technical journal articles respectively in 2009.

## 2.2. Trends in business research in Latin America

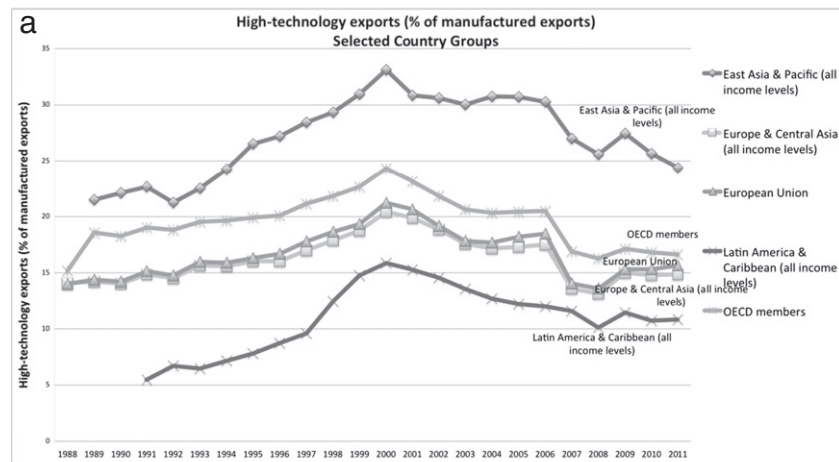
As a more specific indicator of innovative activity this section provides a general overview of the production of business research in Latin America. For this purpose we use the Web of Knowledge database from Thompson Reuters, which indexes all publication in ISI (Institute

for Scientific Information) from 1988 until now. The information comes directly from the database considering records from 1988 until 2012. Previous articles have used this index to assess Latin American research production (Koljatic and Silva 2001). All research pieces (articles, research notes, editorials, etc.) in the database that had one affiliation coming from one Latin American country are considered.

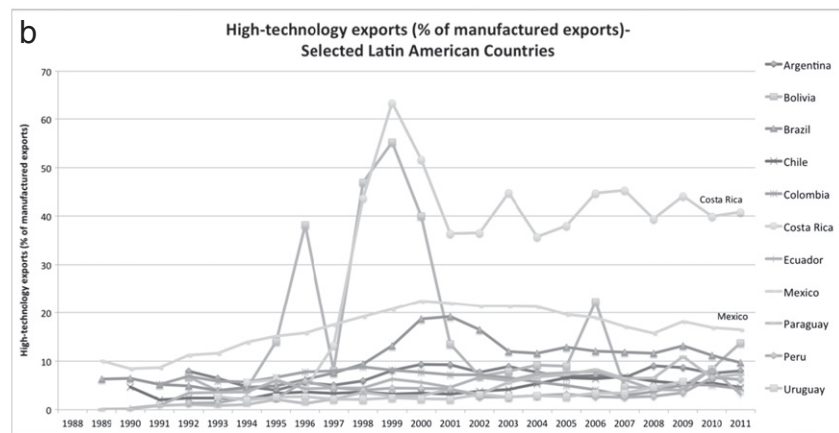
### 2.2.1. Latin American research output: business research compared to other sciences

Fig. 6a presents the evolution of business research in the Web of Knowledge compared to other sciences: *All Sciences* (Sciences, Social Sciences and Arts and Humanities), *Social Sciences*, and *Business and Economics* together. For computation of these numbers, results for *All Sciences* consider the whole database with Latin American affiliation (i.e., institutional address); results for *Social Sciences* consider only items included in the Social Sciences Citation Index (SSCI) database; results for *Economics & Business* consider only records in the SSCI database after refining by four web of knowledge categories: economics, business, management and business & finance. Finally, results for *Business* consider all items published in journals considered by the Web of Knowledge, with a Latin American affiliation included in three categories: business, management and business & finance.

Results show that the production of Business research in Latin America is very scarce and is proportionally low compared to research



Source: Own elaboration from World Development Indicators data and from United Nations, Comtrade database, 2013



Source: Own elaboration from World Development Indicators data and from United Nations, Comtrade database, 2013

**Fig. 4.** a. High-technology exports (% of manufactured exports) – selected country groups. b. High-technology exports (% of manufactured exports) – selected Latin American countries. Source: Own elaboration from World Development Indicators data and from United Nations, Comtrade database, 2013.

in other sciences in the region. Out of a total of 859,962 papers with Latin American affiliation published during 1988–2012 only 2805 belong to the business & management subcategories. When comparing with the United States a leading research nation in America, the research production in Business in Latin America is very low: 2805 vs. 128,990 papers, or 6 papers per million people compared to 461 papers per million people in the USA.

The participation of Business research to total research is also low: in Latin America is only 0.3% and in the USA is 1.3% (almost 4 times the participation). This result is much lower than the participation of Social Sciences research (7.1% vs. 17.6% in the USA) or when considering Economics and Business papers (1.0% vs. 2.5% in the USA), showing a considerable lack of business research in Latin America.

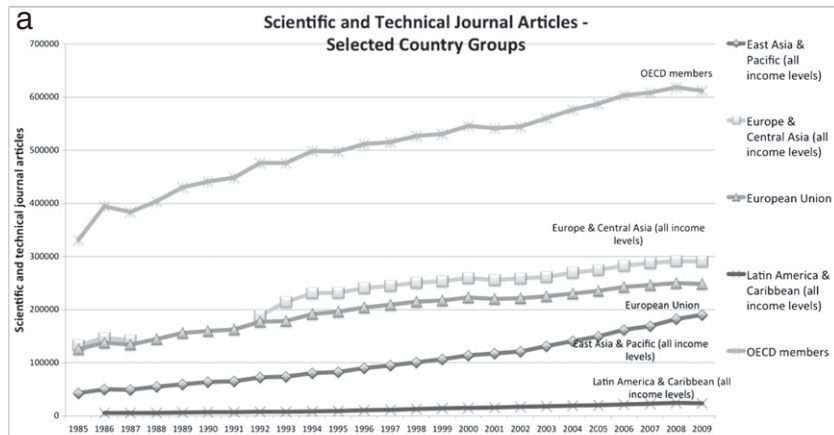
Another important fact is that although research in Business is growing in Latin America, the slope or the rate of increase is lower than other sciences. Three potential reasons for this phenomena are: the inclusion of a larger number of Latin American and emerging nations journals in All Sciences and Social Sciences compared to business journals (until 2011 only 4 Latin American Business-focused journals were covered by the ISI Web of Knowledge); the emphasis of Latin American Business Schools on teaching and professional training compared to research; and the lack of Ph.D. trained professors in Latin America. Additionally, the possibility to obtain financial aid to pursue studies and research in Business is lower compared to research and doctoral training support in Pure Sciences, Social Sciences and even Economics.

### 2.2.2. Business research in Latin America: by country

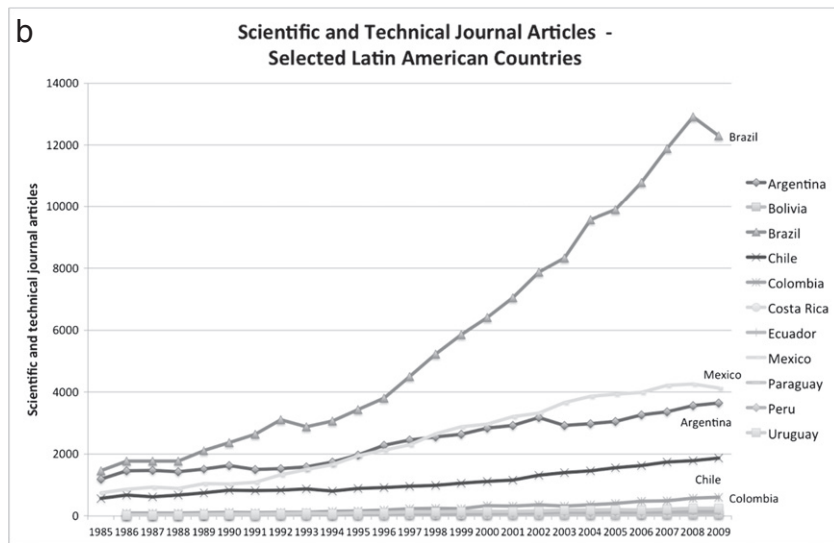
When analyzing the research production in business by country, data shows a concentration of paper production in three countries: Brazil (1066), Chile (449) and México (431). Research production by Country in Business does not follow the same trend as in All Sciences, were Argentina has a stronger position (see Fig. 5b).

These results show some indication that not only size is a key variable for producing business research, and additional structural factors can also be important such as the strength of Business Schools in the Country and the level of competition in the University and Business School market. For example, the strong position of Costa Rica and Nicaragua in the Central American region is the result of the strength of INCAE in those countries. The level of competition may also be a key determinant of research production in countries like Chile or increasingly in Perú, México and Colombia.

The level of GDP per capita of countries in Latin America is also correlated with the amount of research publications, in particular with economics and business publications ( $r = 0.54$ ) and business publications ( $r = 0.49$ ), compared to social sciences or all sciences ( $r = 0.37$  and  $0.39$  respectively). These results are somewhat consistent with previous findings by Ye (2007) on a certain relationship of research production and GDP. This may suggest that in the near future, business research production may increase in the region, particularly for those countries that are consistently growing in the region (i.e., Brazil, Chile, México, Perú, Colombia, and Panama).



Source: Own elaboration from National Science Foundation, Science and Engineering Indicators, 2013.



Source: Own elaboration from National Science Foundation, Science and Engineering Indicators, 2013.

Fig. 5. a. Scientific and technical journal articles – selected country groups. b. Scientific and technical journal articles – selected Latin American Countries. Source: Own elaboration from National Science Foundation, Science and Engineering Indicators, 2013.

### 2.2.3. Journal covering business research on Latin America

The absence of relevant outlets or journals is another potential explanation for the lack of business research in Latin America (Gómez, Sancho, & Fernández, 1999). This trend changed a little in 2006, when Thompson – publisher and owner of ISI and Web of Knowledge – decides to include a larger amount of global journals, considering some Latin American journals. From 2006 until 2012, ISI includes seven Latin American journals covering business research: *Academia Revista Latinoamericana de Administración* (2007, Colombia-Cladea), *Revista Venezolana de Gerencia* (2007, Venezuela), *INNOVAR* (2008, Colombia), *Revista de Ciencias Sociales* (2007, Venezuela – a general social sciences journal covering business research), *Revista Brasileira de Gestao de Negocios* (2008, Brasil) and *Revista de Administracao de Empresas* (2009, Brasil). These journals in addition to focus on business issues in Latin America, publish articles in English and local languages – Spanish and Portuguese – another limitation for researchers in the region to increase visibility of their works.

Since ISI indexed Latin American journals are relatively new and unknown, visibility may only increase in following years. In the management science and operational research sub-disciplines, however, key journals in the area provide relevant coverage of papers coming from Latin American universities. The same has

happened in other disciplines like economics. However in central or core areas of business (i.e., finance, marketing, strategy) only two journals are active in publishing relevant research coming from the region: the *Journal of Business Research* and the *Journal of Business Ethics* (see Fig. 7b).

Latin American business research is developing and growing in the last 5–10 years but is in its early phase. Challenges involve growing quantity and impact & quality of LatAm Business publications. The growth of Latin American schools being AACSB accredited or applying for international accreditations is helping the process, and will bring 20 to 30 more schools to the research game. Newer and younger professors trained in doctoral programs in the US, Europe and Australasia will bring research productivity increases in the near future. This requires of a firm leadership, a coherent strategy and a balanced and sound financial model, that allows for young Ph.D. graduates to come to Latin America, and to obtain enough funding to follow a balanced career publishing and at the same time accommodating heavier teaching loads compared to US and European schools.

The addition of new doctoral programs in prestigious Latin American universities and joint programs with international business schools may be another important piece of the equation for producing business research and supporting innovation and R&D in our nations.

**Latin American Research Production**  
**ISI-Web of Knowledge Database 1988–2012**

| YEAR             | All Sciences | Social Sciences | Econ & Business | Business |
|------------------|--------------|-----------------|-----------------|----------|
| 2012             | 76.820       | 7.847           | 1.058           | 410      |
| 2011             | 74.590       | 7.951           | 1.144           | 416      |
| 2010             | 70.667       | 6.525           | 884             | 387      |
| 2009             | 66.729       | 6.351           | 982             | 318      |
| 2008             | 63.549       | 5.633           | 747             | 258      |
| 2007             | 54.491       | 3.799           | 449             | 156      |
| 2006             | 45.730       | 2.442           | 334             | 106      |
| 2005             | 41.478       | 1.939           | 259             | 65       |
| 2004             | 39.368       | 1.724           | 200             | 46       |
| 2003             | 36.616       | 1.541           | 206             | 53       |
| 2002             | 34.204       | 1.375           | 179             | 62       |
| 2001             | 31.239       | 1.552           | 184             | 52       |
| 2000             | 29.814       | 1.747           | 190             | 61       |
| 1999             | 27.215       | 1.180           | 163             | 66       |
| 1998             | 24.527       | 1.079           | 174             | 55       |
| 1997             | 22.288       | 1.016           | 145             | 63       |
| 1996             | 19.739       | 1.357           | 140             | 41       |
| 1995             | 17.166       | 926             | 129             | 30       |
| 1994             | 14.568       | 752             | 114             | 32       |
| 1993             | 13.582       | 769             | 110             | 32       |
| 1992             | 12.422       | 720             | 100             | 25       |
| 1991             | 11.604       | 657             | 84              | 25       |
| 1990             | 10.994       | 712             | 84              | 19       |
| 1989             | 10.219       | 638             | 66              | 16       |
| 1988             | 10.343       | 624             | 75              | 11       |
| Latam            | 859.962      | 60.856          | 8.200           | 2.805    |
| %                | 100,0%       | 7,1%            | 1,0%            | 0,3%     |
| Papers p/Million | 1.703        | 121             | 16              | 6        |
| USA              | 10.147.188   | 1.788.862       | 249.041         | 128.990  |
| %                | 100,0%       | 17,6%           | 2,5%            | 1,3%     |
| Papers p/Million | 36.240       | 6.389           | 889             | 461      |

Sources: Web of Knowledge, Authors' elaboration

Fig. 6. a. Latin American Research Production ISI-Web of Knowledge Database 1988–2012.

### 3. This special issue (summary of papers)

The first two papers by Felzensztein, Brodt and Gimmon, and Cuervo Cazorra, Martin de Holan, and Sanz, address strategic collaboration at the industry and country level respectively.

In the first article of this special issue Felzensztein, Brodt, and Gimmon present an empirical study of the relationship between geographic proximity and the building of social capital and inter-firm cooperation in the strategic marketing of natural resource-based industries in Latin America. This paper addresses drivers of innovative collaboration practices in marketing, expanding previous work beyond technological industry and developed country settings.

They find interesting evidence regarding the importance of proximity and cluster belonging on manager perceptions of social capital building and attitudes toward cooperative marketing. Informal social contacts, interaction expectations and willingness to participate in trade associations appear to be key variables in this process.

The second paper by Cuervo-Cazorra, Martin de Holan, and Sanz, drawing from strategy and International business literature, they examine and propose a framework for location advantage creation at the country level using a co-evolutionary perspective (Levinthal and Myatt, 1994). The authors distinguish two types of co-evolutionary processes: emergent and guided. In the emergent processes location advantage is created as the result of agglomeration dynamics in both product and factor markets. In the guided (planned or nudged) process, location advantage is created as the result of infrastructure dynamics in institutions and endowments. The authors illustrate this framework

with an example of location advantage development in the Costa Rican industry.

The third paper by Fleury and Fleury, discusses the growing phenomenon of reverse takeovers in emerging countries, particularly in Latin America. Drawing on existing theories of global sourcing and production, strategy, and location/cultural advantage, they propose a revised explanation for this strategy, unthinkable in the past. They suggest that existing business model and practices in emerging countries generate specific and idiosyncratic knowledge that might explain productivity and profitability improvements of MNCs when they are acquired by Latin American companies. The authors use a study on Brazilian multinationals' acquisitions in North America to exemplify this argument.

The link between innovation and firm's performance is a key relationship of study in innovation research. In the fourth article of this issue, Cruz Basso and Lopes Santos, test the existence of such relationship in the context of a large emerging nation as Brazil, using a combined database of innovation activity, general company facts, and financial and accounting data.

A key driver of investment in emerging countries comes from institutional investors, in particular, pension funds. Pension Fund Administrators (PFAs) have been very important in several Latin American countries for the development of capital markets, for companies to finance expansions and grow. Fernández in her paper studies the effects of institutional investor holdings on volatility and vice versa (i.e. feedback effects), expanding previous US-based literature. Results show only mild effects of increases in PFAs' stock holdings on stock return volatility. On

**a Business Research Production in Latin America by Country  
1988-2012 ISI-Web of Knowledge database**

| Country       | Business | Econ & Bus | Social Sciences | All Sciences | Avg Population | BUS per Million | AVG GDP Per capita (PPP) | Diversification (Top 10)* |
|---------------|----------|------------|-----------------|--------------|----------------|-----------------|--------------------------|---------------------------|
| BRAZIL        | 1066     | 2745       | 29947           | 425018       | 173270         | 6,15            | 7672                     | 0,039                     |
| CHILE         | 449      | 1317       | 5617            | 73645        | 15259          | 29,43           | 10388                    | 0,025                     |
| MEXICO        | 431      | 1791       | 12323           | 154940       | 97744          | 4,41            | 10678                    | 0,016                     |
| VENEZUELA     | 286      | 352        | 1483            | 26794        | 24040          | 11,90           | 9446                     | 0,286                     |
| COLOMBIA      | 236      | 654        | 3293            | 28483        | 40052          | 5,89            | 6583                     | 0,160                     |
| ARGENTINA     | 204      | 974        | 5508            | 130086       | 36095          | 5,65            | 10190                    | 0,019                     |
| PERU          | 76       | 185        | 1237            | 9976         | 25424          | 2,99            | 5776                     | 0,340                     |
| COSTA RICA    | 60       | 135        | 665             | 7401         | 4311           | 13,92           | 9515                     | 0,034                     |
| URUGUAY       | 27       | 105        | 494             | 9825         | 3252           | 8,30            | 8868                     | 0,275                     |
| NICARAGUA     | 13       | 30         | 225             | 993          | 5253           | 2,47            | 3152                     | 0,502                     |
| ECUADOR       | 12       | 44         | 348             | 4364         | 12749          | 0,94            | 6245                     |                           |
| BOLIVIA       | 9        | 33         | 355             | 2965         | 8439           | 1,07            | 3298                     |                           |
| CUBA          | 7        | 10         | 743             | 15008        | 11075          | 0,63            | **                       |                           |
| PANAMA        | 6        | 20         | 210             | 4156         | 2940           | 2,04            | 7540                     |                           |
| GUATEMALA     | 4        | 27         | 288             | 2210         | 11135          | 0,36            | 3889                     |                           |
| EL SALVADOR   | 1        | 6          | 85              | 515          | 5888           | 0,17            | 4906                     |                           |
| HONDURAS      | 1        | 13         | 113             | 823          | 6375           | 0,16            | 3221                     |                           |
| DOMINICAN REP | 1        | 6          | 51              | 263          | 8318           | 0,12            | 5512                     |                           |
| HAITI         | 0        | 2          | 93              | 545          | 8550           | -               | 1066                     |                           |
| PARAGUAY      | 0        | 4          | 52              | 933          | 5300           | -               | 4375                     |                           |

\* Herfindhal- Entropy/Diversification Measure computed for top 10 Business publication countries  
\*\* Not available FMI  
Source: Web of Knowledge, Authors elaboration

**b ISI Journals publishing papers coming from Latin American Business Schools and Universities**

| Journal  | Articles |
|--|----------|
| REVISTA DE CIENCIAS SOCIALES *                           | 190      |
| RAE REVISTA DE ADMINISTRACAO DE EMPRESAS *               | 149      |
| INNOVAR REVISTA DE CIENCIAS ADMINISTRATIVAS Y SOCIALES * | 145      |
| RBGN REVISTA BRASILEIRA DE GESTAO DE NEGOCIOS *          | 106      |
| EUROPEAN JOURNAL OF OPERATIONAL RESEARCH                 | 102      |
| JOURNAL OF THE OPERATIONAL RESEARCH SOCIETY              | 99       |
| JOURNAL OF BUSINESS RESEARCH                             | 93       |
| REVISTA VENEZOLANA DE GERENCIA *                         | 91       |
| ACADEMIA REVISTA LATINOAMERICANA DE ADMINISTRACION *     | 77       |
| JOURNAL OF BUSINESS ETHICS                               | 51       |
| SYSTEMIC PRACTICE AND ACTION RESEARCH                    | 48       |
| INTERFACES   | 43       |
| INTERNATIONAL TRANSACTIONS IN OPERATIONAL RESEARCH       | 40       |
| TECHNOLOGICAL FORECASTING AND SOCIAL CHANGE              | 38       |
| JOURNAL OF BANKING FINANCE                               | 37       |
| RESEARCH POLICY  | 37       |
| AFRICAN JOURNAL OF BUSINESS MANAGEMENT                   | 34       |
| SYSTEMS RESEARCH AND BEHAVIORAL SCIENCE                  | 33       |
| JOURNAL OF INTERNATIONAL MONEY AND FINANCE               | 32       |
| JOURNAL OF MONETARY ECONOMICS                            | 32       |

Fig. 7. a. Business Research Production in Latin America by Country 1988–2012 ISI – Web of Knowledge database. b. ISI Journals publishing papers coming from Latin American Business Schools and Universities.

the other hand, increases in stock return volatility leads to a moderate decreases in PFAs' stock holdings, probably given PFAs' preference for safer stocks. The author concludes indicating that these results rule out a destabilizing impact of PFAs' stock trading on the domestic stock market.

The paper by Dias Jordão, de Souza, and Avelar, explores some of the issues stated by Fleury and Fleury in this same issue, but focusing on the effects of culture of the acquiring firm on post-acquisition processes and the acquired company systems.

The use of customer lifetime value models in marketing has been promoted in western and more advanced markets and markets. In emerging and Latin American countries, the use of CLV approaches is still under development and few research reports the use implementation or benefits of such approaches in Latin America (see for example Hidalgo, Manzur, Olavarrieta, & Farias, 2008). In their paper, Valenzuela, Torres, Hidalgo, Farias provide evidence regarding the role of strategies based on CLV may lead to an increase of firm profitability. In particular, they examine how salesperson CLV orientation can enhance profits finding an S-shaped function (which is first convex and then concave). The findings of this study suggest that firms need to monitor individual salesperson CLV orientation more closely.

In their article, Fuentes and Ríos, address the use of the Markov-Switching model based on Hamilton (1990). The non-explicit intervention of the Central Reserve Bank changes the expectations of economic agents. This change in expectations clearly shows that the public is aware of non-explicit interventions in a dollarized economy and said interventions have been altering the expectations of economic agents in terms of the foreign exchange market. Market participants assume that the Central Reserve Bank is more efficient in reducing volatility in periods in which the domestic currency appreciates rather than depreciates. The results show that the Markov-Switching model behaves more than satisfactorily in the sample period but less so in periods of extreme volatility such the recent sub-prime crisis. Central Banks forex interventions are policy instruments that can be followed and interpreted by the public.

The case Leblon Cachaca by Viana Coehlo, Cotta de Mello and da Rocha describes the trajectory of Leblon, a cachaça producer that since its inception regards the world as a market for its product. Founded by entrepreneurs in 2005, the firm's production process is divided between Brazil and France, and it serves several world markets besides the U.S. and Brazil. The company is a truly born global, and the most striking feature of the firm's strategy is super premium positioning. The case was developed based on interviews with the CEO and the head of



operations, complemented by secondary information. The case is suitable for use in graduate courses that address issues relating to born globals, international entrepreneurship, and international marketing.

The Marisol Case by Carneiro, Sanglard, Baiocchi, Freitas and Schiavo forges a successful legacy in Brazil in the market for clothes with a sophisticated, stylish look. Success in Brazil enabled the firm to garner overseas customers. The establishment of subsidiaries in Argentina, Italy and Mexico, as well as sales operations in several countries – including Chile, Colombia, Spain, USA, among others – represented important steps in Marisol's internationalization. Marisol's executives have to decide on several issues: how to consolidate their position in the USA market and in other countries? What modes of operation – own stores, franchisees, multi-brand stores, private label supply – to use in which countries? Which brands to launch abroad and whether to adapt them to local tastes, while exploiting the image of Brazilianness?

Garay and Molina provide an interesting case on Petr6leos de Venezuela S.A. (PDVSA), the Venezuelan oil company, and their financing strategy in a very regulated market. In April 2007, Petr6leos de Venezuela S.A. (PDVSA) issued debt for USD 7.5 billion, the largest debt offering to date by a Latin American company. The conditions surrounding this issue, which was denominated and tradable in dollars, but payable in bolivars, were quite special, particularly when considering the strict foreign exchange control system put into place by the Venezuelan government in 2003. The fact that the bond issue attempted to fulfill the dual purpose of offering dollars to local companies and investors in the midst of prevailing exchange rate controls, while helping to finance PDVSA as a company, creates a unique dilemma that is ideal for class discussion. This teaching case provides the information necessary for estimating and proposing a price for PDVSA's bond offer.

#### 4. Concluding remarks

From this very short descriptive review, several observations can be made. First, Latin America lags behind more advanced economies in terms of innovative activities. This is not only at the output level: patent applications, high-technology exports (% of manufactured exports) and scientific and technical journal articles, including business research; but also at the input level: R&D expenditure (as % of GDP) and researchers in R&D (per million people). Hence, it is not expected that this scenario will dramatically change at least in the short run.

Nevertheless, given the “commodity” boom that Latin American's economies are experiencing at present, there is an opportunity to be part of this global economy of innovation by investing parts of the economic rents from, for instance, the exploitation of nonrenewable natural resource (Hotelling rents) in innovation. This could bring the innovation virtuous circle closer to the region and could provide “the push” needed to improve productivity and competitiveness, and to foster sustained long-run per capita growth. Countries, including the government and the private sector, should not spend temporary incomes (coming from economic booms) neither in permanent expenses nor in consumption. Instead, temporary incomes should be invested in order

to create permanent value and thus to keep or even increase the level of future consumption, like R&D, innovation, and business research.

By far Brazil is the country more active in R&D. This country spends nearly 1.2% of its GDP in R&D and holds 670 researchers per million people. These research inputs allow Brazil to lead the Latin American region with 2700 patents and 12,000 scientific articles each year. Brazil has also led the research production in business; publishing 1066 papers for the period 1988–2012, more than doubling that of Chile (449) and M6xico (431).

Costa Rica is also a country to be highlighted, spending nearly a 0.6% of its GDP in R&D, and being the leader in the region with 40% of its total manufactured exports concentrated on high-technology exports. Trend that started in the year 2000 and that was marked by the arrival of Intel to the country in 1997. Besides Intel's investment in Costa Rica of over \$900 million since 1997, and the company exports of more than \$2 billion in products per year, the arrival of this technology company has a strong influence on education, business practices and the labor market in Costa Rica. For instance, more Costa Ricans are now graduating with degrees in highly skilled areas like engineering or tech design and education curriculums include a greater emphasis on the sciences, math and technology. This example clearly shows the potential positive impact of the private sector in the promotion of innovation in the Latin American region.

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