



# Cuadernos de Investigación

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## GRUPO DE INVESTIGACIÓN RISE – RESEARCH IN SPATIAL ECONOMICS

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### PUBLICACIÓN INTERNACIONAL

**ARAUJO, Bruno; BOGLIACINO, Francesco; and  
VIVARELLI, Marco**

**Technology, trade and skills in Brazil: some evidence  
from microdata.**

En: CEPAL Review. Chile. 2010.

#### **Abstract**

Brazil was characterised by a marked process of trade liberalisation in the '90s, resulting in a dramatic increase in the volumes of exports and imports since the year 2000. Over the same period, the relative demand for skilled labour has increased substantially. To investigate whether these two simultaneous phenomena are linked is the purpose of this paper.

More in particular, this study focuses on the possible impact of domestic technology, capital complementarity and trade openness on the relative demand for skilled labour in Brazilian manufacturing firms, using a unique panel database of Brazilian manufacturing firms over the period 1997-2005.

The empirical evidence supports the hypothesis that technology played a role in determining the skill-upgrading of Brazilian manufacturing firms.

Indeed, the estimations show that domestic technology and capital formation are complements for the skilled workers and that imported capital goods clearly act as a skill-enhancing component of trade.

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### PUBLICACIÓN INTERNACIONAL

**BOGLIACINO, Francesco; and PIANTA, Mario**  
**Engines of growth. Innovation and productivity in  
industry groups.**

En: Structural Change and Economic Dynamics. 2010.

[http://www.sciencedirect.com/science?\\_ob=ArticleURL&\\_udi=B6VFN-51JF82H-1&\\_user=4692841&\\_coverDate=11%2F25%2F2010&\\_rdoc=1&\\_fmt=high&\\_orig=search&\\_origin=search&\\_sort=d&\\_docanchor=&view=c&\\_acct=C000036252&\\_version=1&\\_urlVersion=0&\\_userid=4692841&md5=4a404ee0497afb3fc03d865ca4967b14&searchtype=a](http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6VFN-51JF82H-1&_user=4692841&_coverDate=11%2F25%2F2010&_rdoc=1&_fmt=high&_orig=search&_origin=search&_sort=d&_docanchor=&view=c&_acct=C000036252&_version=1&_urlVersion=0&_userid=4692841&md5=4a404ee0497afb3fc03d865ca4967b14&searchtype=a)

Datos de indexación: SCIENCE DIRECT

#### **Abstract**

The diversity of technological activities that contribute to growth in labour productivity is examined in this article for manufacturing and services industries in eight major EU countries.

We test the relevance of two “engines of growth”, i.e., the strategies of technological competitiveness (based on innovation in products and markets) and cost competitiveness (relying on innovation in processes and machinery) and their impact on economic performance.

We propose models for the determinants of changes in labour productivity and we carry out empirical tests for both the whole economy and for the four Revised Pavitt classes that group manufacturing and services industries with distinct patterns of innovation.

Tests are carried out by pooling industries, countries and three time periods, using innovation survey data from CIS 2, 3 and 4, linked to economic variables. The results confirm the specificity of the two “engines of growth”; economic performances in European industries appear as the result of different innovation models, with strong specificities of the four Revised Pavitt classes.

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## **PUBLICACIÓN INTERNACIONAL**

**BOGLIACINO, Francesco**

**Guy, F.: The global environment of business**

En: Journal of Economics. Vol. 101. Número 2, pp. 197-198. 2010.

<http://www.springerlink.com/content/0931-8658/101/2/>

Datos de indexación: ISI.

### **Abstract**

This article is an analysis of the book in consideration.

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## **PUBLICACIÓN INTERNACIONAL**

**BOGLIACINO, Francesco**

**Labor Mobilization and Increasing Wage Inequality**

En: Economía política. Journal of analytical and institutional economics.

### **Abstract**

In this paper we propose a theoretical model to account for the effect of adversary labour relations on wage distribution. In particular, we study the role of mobilization waves in an environment in which firms protect themselves from uncertainty using dualistic production systems, and we show that they can end up with increasing inequality and lower average wages.

We claim that our theoretical framework can be used to complement other explanations of the increase in the residual inequality in US wage distribution that occurred in the 1980s.

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## **PUBLICACIÓN INTERNACIONAL**

**BOGLIACINO, F., PIANTA, M.**

**Innovation and Employment: a Reinvestigation using Revised Pavitt classes**

In: Research Policy, vol 39, n. 6, pp. 799-809, 2010

ISSN: 0048-7333

Datos de indexación: ISI WEB OF SCIENCE, SCOPUS, SCIENCE DIRECT.

### **Abstract**

The relationship between innovation and employment is addressed in this article through a model and empirical test at industry level for eight European countries in 1994–2004. We investigate this relationship for manufacturing and services and propose a Revised Pavitt taxonomy (covering both of them) in order to identify specific patterns of technological change and job creation and loss. The contrasting effects of strategies of technological or cost competitiveness are investigated using innovation variables from CIS2 and CIS3. Together with demand, wages and industry dynamics, they account for changes in employees and hours worked. The diversity in these relations across industries is also explored; when the model is applied to each Revised Pavitt class, different mechanisms of technological change and effects on jobs emerge.

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## **PUBLICACIÓN INTERNACIONAL**

**BOGLIACINO, F., RAMPA, G.**

**Monopolistic competition and new products: a conjectural equilibrium approach.**

In: Journal of Economic Interaction and Coordination, vol 5, pp. 55-76, 2010

ISSN: 1860-711X

Datos de indexación: SCOPUS, ISI.

### **Abstract**

In this paper we generalize the heterogeneous risk adverse agents model of diffusion of new products in a multi-firm, heterogeneous and interacting agents environment. We use a model of choice under uncertainty based on Bayesian theory. We discuss the possibility of product failures, the set of equilibria, their stability and some welfare properties depending on the degree of diversification.

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## **PUBLICACIÓN INTERNACIONAL**

**DUQUE, J.C., ALDSTADT, J., VELASQUEZ, E., FRANCO, J.L., BETANCOURT, A.**

**A computationally efficient method for delineating irregularly shaped spatial clusters**

In: Journal of Geographical Systems, pp. 1-18, 2010.

ISSN: 1435-5930.

Datos de indexación: SCOPUS.

### **Abstract**

In this paper we present an efficiency improvement for the algorithm called AMOEBA, A Multidirectional Optimum Ecotope-Based Algorithm, devised by Aldstadt and Getis (2006). AMOEBA embeds a local spatial autocorrelation statistic in an iterative procedure in order to identify spatial clusters (ecotopes) of related spatial units. We provide an analysis of the computational complexity of the original AMOEBA and develop an alternative formulation that reduces computational time without losing optimality. Empirical evidence is provided using georeferenced socio-demographic data in Accra, Ghana.

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## **PUBLICACIÓN INTERNACIONAL**

**RAMOS, R., DUQUE J. C., AND SURINACH, J.**

**Is the wage curve formal or informal? Evidence for Colombia**

In: Economics Letters, 109:63-65.

ISSN: 0165-1765

Datos de indexación: Science Direct, ISI, SCOPUS.

### **Abstract**

Using microdata from the 2002–2006 Colombian Continuous Household Survey, we find an elasticity of individual wages to local unemployment rates of  $\approx 0.07$ . However, the elasticity for informal workers is significantly higher, a result which is consistent with efficiency wage theoretical models and relevant for regional labour market analysis in developing countries.

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## **PUBLICACIÓN NACIONAL**

**DUQUE, J.C., REY, S.J., GOMEZ, D.A.**

**Identifying Industry Clusters in Colombia Based on Graph Theory**

In: Ensayos Sobre Política Económica. Vol. 27 Num.59.

Pág. 14- 45.

ISSN: 0120-4483. Fecha: Junio de 2009

### **Abstract**

This paper presents a new way to identify and understand the industry clusters in the Colombian economy. The analysis relies on a recent methodology proposed by Duque and Rey (2008) where intricate input output linkages between industries are implied using network analysis. In addition to other techniques for cluster identification available in the literature, this novel methodology allows not only to classify each industry in a given cluster, but also to understand how industries are related to each other within their clusters. This methodology offers a conciliatory approach to two

radically different views about the economic unit from which policy makers should design their strategies for resource allocation: Porter's cluster strategy versus Hausmann's industrial targeting.

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### **PONENCIA INTERNACIONAL**

**BETANCOURT, A.; DUQUE, J.C.; FRANCO, J.L.**

**A variation of the Kohonen's Self-Organizing Maps to guarantee spatial contiguity in zone desing problems.**

In: Congreso Interacional de Matemáticas aplicadas e Informatica. Lugar: San Andrés, Colombia. Fecha: Noviembre

#### **Abstract**

Zone design involves the aggregation of a finite number of geographic areas into geographically contiguous regions according to a predefined criteria, such intraregional homogeneity according to a set of socio-economic variables. In this paper we introduce a variation of Kohonen's Self Organizing Maps to guarantee feasible solutions for zone design problems. The use of this type of unsupervised artificial networks technique makes possible the solution of large instances of this NP hard problem.

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### **PONENCIA INTERNACIONAL**

**BOGLIACINO, F.**

**Aspirations and Growth**

In: Aspirations and poverty workshop. Lugar: Warwick University, Reino Unido. Fecha: 14-15 Diciembre 2009

#### **Abstract**

We study an OLG model in which agents' utility on consumption depends on their "aspirations," a reference

point affected by the consumption of their parents and of the other members of the society. In line with the literature on reference dependent behavior, we assume that the utility function of the consumer is convex in an interval before the reference point, and concave everywhere else. We characterize the optimal behavior and show that under suitable conditions this economy converges to a balanced growth path.

Our main result is to show that in such path the distribution of endowments can be only of two kinds: either polarized, with a gap in the distribution which divides the rich, who meet their aspirations, from the poor, who fail to; or very concentrated, with a small distance between the richest and the poorest agent.

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### **PONENCIA INTERNACIONAL**

**BOGLIACINO, F.**

**Innovation and Development**

In: Imprese, Innovazione, Politiche. Lugar: Rama, Italia. Fecha: 14 Abril 2010

#### **Abstract**

In this article we investigate the existing evidence on innovation produced by innovation surveys in developing and emerging countries in Europe, Asia, Africa and Latin America. We review the relevant literature, discuss methodological issues, and analyse the results for the countries with the most comparable surveys, considering the well established findings of innovation surveys for Europe as a benchmark. From the evidence we considered, regional patterns are identified and some stylized facts on innovation and development are proposed, pointing out the specificity of innovation processes in economies engaged in industrialisation and catching-up.

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## **PONENCIA INTERNACIONAL**

**BOGLIACINO, F.; and PIANTA, M.**

**Profits, R&D and Innovation: A model and a test.**

En: Schumpeter Society. Aalborg University (Dinamarca).  
21-24 June 2010. <http://www.schumpeter2010.dk/index.php/schumpeter/schumpeter2010>

### **Abstract**

In this article we investigate – both conceptually and empirically – the relationships between three interconnected elements of the Schumpeterian “engine of progress”: the ability of industries’ R&D efforts to turn out successful innovations; the ability of innovations to lead to high entrepreneurial profits; the commitment of industries to invest profits in further technological efforts. We build a simultaneous three-equation model – with appropriate lags – and we test it at industry level – for 38 manufacturing and service sectors – on eight European countries over two time periods from 1994 to 2006. The results show that the model effectively accounts for the dynamics of European industries.

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## **PONENCIA INTERNACIONAL**

**DUQUE, J.C.; ROYUELA, V.; NOREÑA, M.**

**A stepwise tool for spatial delimitation of poverty areas. Medellín (Colombia) as a case study.**

In: Seminar of Spatial Econometrics in honor of Doctor J.H.P. Paelinck. Lugar: Oviedo, España. Fecha: Octubre

### **Abstract**

The analysis of intra urban socioeconomic differences is placed as a hot topic in economic geography. In this paper

we present a stepwise procedure that efficiently delimits intra-urban slums. We prove the goodness of using analytical spatial aggregation methods as the efficient way of analysing socio economic phenomena. We use max-p region algorithm, devised by Duque et al. (2007), to build analytical regions which supersede the use of administrative neighbourhoods. We build regions able to result in a proper balance between the robustness obtained by working with large regions, and maximum spatial detail which avoids aggregation bias. By using the false discovery rate procedure we improve the initial exploratory analysis of local statistics and identify the core areas in which the political actions should be applied in first place.

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## **PONENCIA INTERNACIONAL**

**DUQUE, J.C.; BETANCOURT, A.; DEV, B.**

**Geogrouper, Zone design Software.**

In: Congreso Interacional de Matemáticas aplicadas e Informatica. Lugar: San Andrés, Colombia. Fecha: Noviembre

### **Abstract**

GeoGrouper is free software for making geographic regions. It uses spatially constrained clustering algorithms to group geographic areas on a map into regions based on what the user considers are important variables for the problem domain. Some reasons for regionalisation are visualization, data reduction, the design of functional regions (or the districting problem), and the removal of spurious spatial autocorrelation. Special features of the software include input-output of ArcGIS data, sequential nestings of regionalisations, zooming and stochastic simulations of spatial processes.

## PONENCIA INTERNACIONAL

**FRANCO, J.L.; BETANCOURT, A.; VÉLEZ, C.M.;**  
**Parameter Identification of a Double Inverted**  
**Pendulum Using Heuristic Algorithms.**

In: Congreso Interacional de Matemáticas aplicadas e Informatica. Lugar: San Andrés, Colombia.

Fecha: Noviembre

### Abstract

In this work two heuristic algorithms, a genetic algorithm and simulated annealing, are used to identify the parameters of a double inverted pendulum, a nonlinear and unstable system of order 6. The performance and parameter calibration of both heuristics are evaluated, and an analysis is made of the results of the identification.

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## PONENCIA INTERNACIONAL

**ROYUELA, V., AND DUQUE, J. C.**  
**Housing submarkets and price homogeneous areas.**

In: 50th ERSA conference. Lugar: Jonkoping, Sweden.

Fecha: 19-23 Agosto

### Abstract

The present paper aims to address problems of the empirical identification of housing market segmentation, once we assume that submarkets exist. One of the usual problems of finding housing submarkets when working with large amounts of locations is the fact that there are a huge number of possible solutions. In such cases the use of the Chow test in hedonic models arises as a non practical solution. In this paper we conduct this identification process by applying an algorithm for spatially constrained clustering so-called ARISel. This solution is applied to the housing market of the metropolitan region of Barcelona (Spain) and we estimate a hedonic model for 156,305 dwellings in

the 164 municipalities, which we group into 5, 10 and 20 alternative groups.

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## GRUPO DE INVESTIGACIÓN EN ESTUDIOS INTERNACIONALES

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### PUBLICACIÓN INTERNACIONAL

**FUERST, Sascha**

**Case studies in the cinema and audiovisual sector:**  
**Domestic SMEs in the television global value chain:**  
**The case of Caracol in Colombia.**

**Capítulo en: Integrating developing countries' SMEs**  
**into global value chains.**

En: UNCTAD. New York and Geneva, United Nations, pp. 85-98.  
Disponible online en: [http://www.unctad.org/en/docs/diaeed20095\\_en.pdf](http://www.unctad.org/en/docs/diaeed20095_en.pdf)

### Abstract

Over the last 10 years Colombia has witnessed the introduction of several private national and regional TV channels, the beginning of the cable/satellite TV and the arrival of several transnational advertising agencies. Combined with an increased demand for animated TV entertainment and a technologically sophisticated advertising industry, the first 3D-animation producers in Colombia were propelled into what today can be considered one of the fastest growing industries in the world. Colombia's 3D- animation market might be unknown to the outsider, but not so Colombia's image as the world's third largest producer of TV serials, known as "telenovelas". The industry is booming and the demand for 3D-animations growing. The ever-increasing Hispanic population in the United States and the penetration of major United States-based TV channels and networks (TV-CNs) into Latin-America, opened up new business opportunities, not only for Colombia's flourishing 3D- animation market, but also for its main rivals in Argentina. Consequently, a new market was created within national borders and linkages