

**EXPORT-LED-GROWTH HYPOTHESIS REVISITED.
A BALANCE OF PAYMENTS APPROACH FOR
ARGENTINA, BRAZIL, CHILE AND MEXICO**

**DAVID MATESANZ GÓMEZ
GUADALUPE FUGAROLAS ÁLVAREZ-UDE**

**FUNDACIÓN DE LAS CAJAS DE AHORROS
DOCUMENTO DE TRABAJO
Nº 508/2010**

De conformidad con la base quinta de la convocatoria del Programa de Estímulo a la Investigación, este trabajo ha sido sometido a evaluación externa anónima de especialistas cualificados a fin de contrastar su nivel técnico.

ISSN: 1988-8767

La serie **DOCUMENTOS DE TRABAJO** incluye avances y resultados de investigaciones dentro de los programas de la Fundación de las Cajas de Ahorros.
Las opiniones son responsabilidad de los autores.

**EXPORT-LED-GROWTH HYPOTHESIS REVISITED.
A BALANCE OF PAYMENTS APPROACH FOR ARGENTINA, BRAZIL, CHILE
AND MEXICO**

David Matesanz Gómez *
Guadalupe Fugarolas Álvarez-Ude **

Abstract:

This study re-examines the export-led growth hypothesis for four Latin American countries in the spirit of the balance of payments constraint approach and, in particular, dealing with the Thirlwall and Hussain model. Using the Toda and Yamamoto (1995) and Dolado and Lütkepohl (1996) methodology for testing for Granger non-causality in vector autoregressive models that involve variables that are integrated of an arbitrary order and that are possibly cointegrated, the estimation results support the export-led growth hypothesis in Argentina, Brazil and Chile while an import led export phenomenon is addressed for the Mexican case

Jel Codes: C22, C32, C52, F31, F43

Keywords: Export Led growth hypothesis, Latin America, Balance of payments constrained approach, Granger causality.

* Applied Economics Department, University of Oviedo (Spain)

matesanzdavid@uniovi.es

** GAME-IDEGA. University of Santiago de Compostela and Banco Popular (Spain)

guadafugarolas@gmail.com

I. INTRODUCTION AND MOTIVATION

Connections between openness and growth have been an issue of interest since the ninetieth century. The basic idea that is commonly assumed by economists is that international trade is a mean of promoting economic growth. However, the magnitude of the effects and the casual direction between both variables still remain as a source of debate and controversy. Most of the empirical studies have been centred in the role of exports as an engine of economic growth and precisely the main question is whether causality goes from exports to economic growth, labelled Export-led Growth (ELG) hypothesis or, contrary, if causality flows from economic growth to exports, namely Growth-led Exports (GLE) hypothesis. The establishment of the direction of this causal relationship has important implications for economic policy strategies.

Different connections between exports as generator of economic growth have been identified in the theoretical literature (see, Krugman (1987); McCombie and Thirlwall (1994) and Giles and Williams (2000) for a survey). First, the rate of growth of exports, as a determinant of aggregate demand, affects directly to output growth; Second, the increase of exports can indirectly raise output growth based on the assumption of increasing returns to scale and spill-over effects from exports to other sectors of the economy. These externalities can produce a more efficient resource allocation, moving resources from relatively inefficient non-tradable sectors to the higher productive export sector promoting the diffusion of improved techniques, exploitation of economies of scale, learning by doing gains, greater capacity utilization and improved technological and management abilities due to more competitive markets faced by export sectors. Third, exports provide foreign exchange that allows imports of capital and intermediate goods affecting capital formation and, therefore, increasing rates of growth. Fourth, the smaller is the domestic market, the greater is the importance of the external demand to achieve economies of scale and to obtain capital and intermediate goods as was suggested by Adam Smith more than two centuries ago. Precisely, the third and fourth connections exposed are extremely important for Latin American countries as long as domestic markets are economically small and

capital and intermediate goods have no comparative advantage and are mostly imported.

Other theoretical approaches have emphasized the potential existence of a bi-directional causality between exports and growth: economic growth creates the opportunity for exports and exports produce more income resulting in a virtuous circle (Helpman and Krugman, (1985); Grossman and Helpman (1991))

A vast amount of studies have been dealing with the export-growth nexus but the literature has shown mixed and sometimes conflicting evidence. Three essential problems in the export output nexus are identified in the empirical literature (Edwards (1993); Awokuse and Christopoulos (2009). Firstly, spurious results can be achieved in the traditional bivariate correlation analysis between exports and economic growth because of the bias in favour of correlation and because they are ignoring the role of other potential key factors including in growth theory. Secondly, previous works do not take into account the dynamical properties of the time series. Thirdly, the assumption of linear relationship among the variables in most of the models could not be accurate enough.

In this study, our aim is focused on adding new evidences on the first shortcoming. As long as an increasing number of studies have extended the traditional bivariate export-growth nexus by including the role of potential factors suggested by neoclassical growth theory (Awokuse and Christopoulos, (2009); Awokuse (2007); Herzer et al. (2006); Siliverstovs and Herzer (2006), are only some of the recent ones) our major contribution in this paper is based on adding other key factors from a demand side approach. In so doing, we empirically analyze the casual relationship between exports and economic growth in the spirit of the balance of payments constrained (BPC) growth model exposed in the seminal study of Thirlwall and Hussain (1982)¹.

¹ Thirlwall (1979) and Thirlwall and Hussain (1982) models have been successfully applied to developed and developing countries showing that, in the long run, the predicted economic growth is not only

We analyze the ELG demand model for Argentina, Brazil, Chile and Mexico. During the 1980's and 1990's all of these countries have implemented a liberalization policy towards a more outward oriented development strategy². Some of the arguments for this kind of policies were related to the fact that an increase in international competition was suppose to generate a more efficient use of resources affecting global productivity and export opportunities. Exports would be the engine of Latin American economic growth as in the case of the Asian tigers. As a result, economic growth and social welfare was expected to improve.

The choice of these four countries is motivated for two main reasons. The first one is clear enough: Argentina, Brazil, Chile and Mexico are the economically most important countries in Latin American representing around tree quarters of the Latin American GDP and exports of goods and services in 2007. The second reason is that analyzing the role of exports in promoting growth is a good way for testing the external performance in the outward oriented policy implemented during the last two or three decades.

In keeping with our set of countries, we stress that there is not a great amount of recent empirical studies including Latin American countries and none is dealing with a causal analysis in a BPC context. Chilean economy is an exception where several single country studies have been developed. Herzer et al. (2006) and Siliverstovs and Herzer (2006) analyze the ELG hypothesis for the economy of Chile in the long period from 1960 to 2001. A Granger causality test is applied to an augmented production function where output is expressed net of exports and exports are divided in primary and manufactured showing that causality is running from manufactured exports to

consistent with the balance of payments equilibrium but also is fitted to the actual ones. Regarding Argentina, Brazil, Chile and Mexico, empirical validations of BPC model have shown that their economic growth path have been balance of payments constrained as Thirlwall's hypothesis suggests (see for instance, Moreno-Brid (1999 and 2001); López and Cruz (2000); Holland, Vilela and Canuto (2002); Pacheco-López and Thirlwall (2004 and 2006); Matesanz et al. (2007); Fugarolas and Matesanz (2008)

² The implementation of liberalization policies was faced in different moments of time in these countries, meanwhile Chile was the first in opening their economy in the late seventies, Brazil outward policy begun later during the first years of the 1990's. Argentina and Mexico opened up their economies in the late 80's.

output. Amin Gutiérrez de Piñeres and Ferrantino (1997) carry out a causality analysis for Chilean economy from 1962 and to 1991 including three exports diversification measures in the bivariate export growth nexus. In their study the ELG hypothesis is not supported for the bivariate model but they find that export diversification has caused output expansion supporting the ELG hypothesis through the diversification process for exports. Finally, Agosin (1999) find evidence for causality running from export and investment to output growth in Chile during the period 1960-1995 by using cointegration methods.

Regarding Mexico, Thornton (1996) finds evidence of an ELG model in the long run by using cointegration and Granger causality test in the long period from 1895 to 1992 carrying out a simple bivariate model in which real exports and output are included.

Awokuse (2008) analyses the ELG hypothesis for Argentina, Colombia and Peru including real exports and imports in the neoclassical production function. By using Granger causality test and impulse response functions in quarterly data from 1993 to 2002 he finds evidence of bi-directional causality in the long run going from imports to output and vice-versa for Argentina. However, by means of error correction modelling the ELG hypothesis is supported in the short run for Argentina.

Other studies have included several Latin American countries. For instance, Maneschiöld (2008) finds support for bidirectional causality between export and output in Argentina and Mexico but not in Brazil. In this work, a bivariate model is implemented using quarterly data from 1993 until 2006 for Argentina, 1980-2006 for Mexico and 1991 to 2006 in Brazil. Cuadros et al. (2004) analyze a VAR model including exports, Foreign Direct Investment (FDI) and domestic and foreign income for Argentina, Brazil and Mexico using quarterly data from 1977-2000 (Brazil and Argentina) and 1980-2000 (Mexico). For Argentina and Mexico not only the ELG hypothesis is supported but also causality goes from FDI to economic growth. Results for Brazil do not suggest either ELG or FDI growth hypothesis. Other studies have

included Latin American countries in panel data validations where no individual results are presented, such as Bahmani-Oskooee et al. (2005). Finally, Amin and Cantavella-Jordá (2007) compare different trade data and methodologies in the ELG hypothesis for sixteen Latin American countries. Their results show inconsistencies because of selection of data and methodologies.

As we can observe, conflicting results are achieved for our set of countries because of different model specifications, different time periods included and different variables specifications. In this sense, the empirical literature conclusion is that results critically depend on variables included, periods span considered and methodologies (Amin Gutiérrez de Piñeres and Cantavella-Jordá (2007) Bahmani-Oskooee, et al. (2005), Cuadros et al. (2004).

In this scenario, we test ELG hypothesis including output, exports, imports, terms of trade and capital flows in the analysis within the BPC model exposed by Thirlwall and Hussain (1982) In this fashion, we firstly introduce a demand side formalization alternative to the traditional neoclassical production function approach. In so doing, we jointly analyze casual linkages among output growth, trade variables and capital flows focusing in the principal economic aspects of globalization. From the empirical point of view, in this study we address new insights in the openness growth linkages for Argentina, Brazil, Chile and Mexico in the last decades to show future guidelines for external economic strategies related to development performance. As far as we know, this BCP approach in the augmented ELG hypothesis is a novelty in the empirical literature and it is especially relevant for most Latin American countries as long as long term economic growth have shown their limits in the balance of payments position. In so doing, Granger causality is tested by means of the multivariate augmented level VAR technique with integrated and cointegrated process of Toda and Yamamoto (1995) and Dolado and Lütkepohl (1996) (TYDL henceforth).

The rest of the paper is organized as follows. The second section is dealing with the modelling specification and the econometric methodology. Section III presents the

estimations and discusses the empirical results. Finally, Section IV concludes the paper.

II. MODELLING SPECIFICATIONS AND ECONOMETRIC TECHNIQUES

II. 1. DATASET SPECIFICATIONS

The database consists of annual time series for Argentina, Brazil, Chile and Mexico. The time period goes since late seventies or the early eighties up to nowadays depending on the data availability³. The variables considered in our modelling are real gross domestic product (Y), nominal exports (X), nominal imports (M), the real exchange rate (RER) and net nominal capital flows (F). X , M and F are expressed in U.S. dollars. As usual, RER is computed multiplying the nominal exchange rate of the domestic currency with U.S. dollar and the ratio of foreign price proxied by U.S. consumer price to domestic consumer price. Data have been drawn from International Financial Statistics in the IMF database available online. All the variables but net capital flows are expressed in logarithmic terms. Table 1 shows the annual rates of growth of the involved variables in our model. It is easy to see that Chile has the highest output, exports, imports and net capital rates of growth. Meanwhile, Argentina has the worst rate of output growth and is the only country where the imports have grown faster than exports. In addition, the real exchange rates have shown a pretty neutral behaviour in the long run with very little rates of growth suggesting the idea of purchase parity power. Anyway, volatility of all variables, specially the real exchange rate and the net capital flows has been important in this long period.

TABLE 1. GDP, EXPORTS, IMPORTS AND REAL EXCHANGE RATE, ANNUAL RATES OF GROWTH

³ Period span is: Argentina (1976-2008: 32 observations), Brazil (1980-2008: 28 observations), Chile (1975-2007: 32 observations) and Mexico (1979-2007: 28 observations)

	y (1)	x (1)	m(1)	RER (1)	F(1)
Argentina (1976-2008)	2.30	9.66	9.86	0.69	10.43
Brazil (1980-2008)	2.70	8.76	7.48	-0.27	4.35
Chile (1975-2007)	4.97	12.76	11.64	1.09	16.50
Mexico (1979-2007)	2.83	10.91	9.96	-0.09	5,19

(1) denotes average rate of growth of real GDP, exports, imports and real exchange rate, respectively,
Source: IMF based on own calculations.

II. 2. THE UNDERLYING FRAMEWORK

Departing from the seminal study by Thirlwall (1979), Thirlwall and Hussain (1982) developed a model of BPC including the role of capital flows in the determination of a theoretical economic growth rate consistent with the balance of payments equilibrium in the long run. The basic conclusion of the model is that the long term economic growth has a maximum given by the country's ability to get foreign exchange. This ability is determined by the dynamics of the main elements of the balance of payments: exports, the income elasticity for imports, net capital flows and the key international price of a country, the real exchange rate. Moreover, exports and imports need to include all components of the current account: goods, services, income and transfers.

The Thirlwall and Hussain (1982) framework is defined by the following system of equations

$$P \cdot X + E \cdot F = P^* \cdot E \cdot M \quad (1)$$

$$x = \eta(p - p^* - e) + \varepsilon y^* \quad \text{with } \eta < 0, \varepsilon > 0 \quad (2)$$

$$m = \gamma(p^* + e - p) + \pi y \quad \text{with } \gamma < 0, \pi > 0 \quad (3)$$

$$\theta = \frac{P \cdot X}{P \cdot X + E \cdot F} \quad (4)$$

$$\theta(p+x)+(1-\theta)\cdot(f+e)=p^*+e+m \quad (5)$$

standing the upper case for variables in levels and the lower case for rates of change. Equation (1) represents the standard balance of payments identity and equation (2) and (3) are the standard dynamic export and import demand functions with y , y^* standing for national and world's real income, respectively, p and p^* for domestic and foreign prices and e for nominal exchange rate. Meanwhile, ε and η represent the income and price elasticities for exports and π and γ the same elasticities for imports. Equation (4) defines θ as the ratio of exports over the amount the exports and net capital flows, F , and represents the share of exports in the total availability of foreign exchange. Equation (5) is obtained by differentiating equation (1) with respect to time and represents the continuous- time expression of the balance of payments.

Solving the system of equations (1)-(5) in terms of growth of domestic income results in the expression that constitutes the theoretical balance of payments equilibrium rate of economic growth identified as the model of Thirlwall and Hussain

$$y_{BP} = \frac{\theta}{\pi} \varepsilon y^* + \frac{(1-\theta)}{\pi} (f+e-p) + \frac{\theta \cdot \eta + \gamma + 1}{\pi} (p - p^* - e) \quad (6)$$

If the expression of $\varepsilon \cdot y^*$ given in expression (2) is substituted into equation (6), the balance of payments constrained rate of economic growth is defined by

$$y_{BP} = \frac{\theta}{\pi} x + \frac{(1-\theta)}{\pi} (f+e-p) + \frac{\gamma+1}{\pi} (p - p^* - e) \quad (7)$$

Hence, the long-run rate of growth of domestic income y_{BP} is defined as a linear function of exports, the foreign capital flows and the evolution of terms of trade with the weights of aggregation of the three terms given by the price and income elasticity of imports and of exports and the percentage of exports in the foreign exchange.

A log-linear version of equation (7) is used in the analysis. To conclude, we note that our information set in the causal analysis is enlarged by including imports in order to catch up their indirect effects in complete and well-defined openness information set. In this fashion our major concern is trying to capture all the possible interrelations

among those variables involved in the Thirlwall and Hussain's model. Our motivation in adding the imports variable is that the equilibrium growth defined by equation (7) is taking into account in the weights of aggregation the income elasticity of imports and as long as we are testing for causality we need to include them directly in our model. In addition, imports are essential in a not spurious openness information set connected with growth. Theoretically, Grossman and Helpman (1991) showed that protection of key sectors in economies with comparative disadvantage may lead to higher economic growth. Technological approaches of international trade based on absolute advantage support this possibility of negative effects of openness in growth depending on the absolute advantage of tradable sectors (see, for instance, Dosi and Soete (1998) and Krugman (1996). Moreover, the role of imports as an engine for long-run economic and export expansion have been emphasized into the endogenous growth models (Coe and Helpman (1995). Imports serve as a channel to get foreign R&D knowledge and more advance capital and intermediate goods suggesting Import-led Growth (ILG) alternative causality relationship that have been revealed in empirical validations by Awokuse (2007 and 2008).

II.3 Methodology

The main objective of this study is to investigate the causal relationship between the external sector and economic growth in the spirit of Thirlwall and Hussain (1982)'s model enlarging the basis information set in a formal causality modelling by including imports of goods and services. Henceforth, our causality analysis runs over the expanded model defined by

$$\ln Y_t = hI[\ln X_t, \ln RER_t, \ln M_t, F_t] \quad (8)$$

By causality, it is meant causality in the Granger (1969) sense, that is, the purpose is to find out whether one variable precedes another variable or not. For this purpose, the following vector autoregressive model of order p , VAR(p) is utilized:

$$y_t = v + A_1 y_{t-1} + K + A_p y_{t-p} + \varepsilon_t \quad (9)$$

being y_t the integrated and possible cointegrated variables, v the vector of intercepts, A_i the vector parameter for lag i ($i=1, K, p$) and ε_t the vector of error terms. It is well known in the econometric literature that if the variables are integrated, asymptotical distributions cannot be used to test for restrictions in the VAR. In particular, Wald tests for Granger causality are known to result in non-standard limiting distributions depending on the cointegration properties of the system and possibly in nuisance parameters (see Toda and Phillips (1993). In order to find a solution to this problem, Toda and Yamamoto (1995) and Dolado and Lütkepohl (1996) proposed following augmented VAR models in order to test causality if the variables are integrated and if the assumption of normality of the error term vector is fulfilled

$$y_t = v + A_1 y_{t-1} + K + A_p y_{t-p} + K + A_{p+d} y_{t-p-d} + \varepsilon_t \quad (10)$$

where d is equal to the integration order of the variables involved in the VAR system. The k^{th} element of y_t does not Granger-cause the j^{th} element of y_t if the following hypothesis is not rejected at a given significance level:

$$H_0: \text{the row } j, \text{ column } k \text{ element in } A_i \text{ equals zero for } i=1, K, p$$

Hence, the TYDL procedure consists on over-fit a levels VAR specification with a total of $p=(k+d_{max})$ lags being k the lag-length chosen by using some information criteria and d_{max} the maximal order of integration for the time series data involved in the system. The asymptotic chi-squared distributed MWald test proposed is applied to the first k VAR coefficient matrix while the coefficient matrices of the last d_{max} lagged vectors in the model are ignored. More precisely, the underlying intuition of this approach to Granger causality is that whenever the elements in at least one of the coefficient matrices A_i are not restricted at all under the null hypothesis (for instance, the non causality restriction which involves in a VAR modelling elements from all A_i , $i=1, K, k$) it is enough to add extra and redundant lags in estimating the parameters

of the structure to ensure the standard asymptotic properties of the Wald statistic which maintain its usual limiting χ^2 distribution. The test has to be performed on the A_i , $i = 1, K, k$ only with the last redundant lags ignored. Therefore, the TYDL enables the proposed MWALD statistic to test linear or nonlinear restrictions on these k coefficient matrices using the standard asymptotic theory.

It is important to note that the TYDL procedure does not call for pre-testing unit roots and cointegration before causality testing avoiding results that may suffer from size distortions and inference biases leading to an over rejection of the non-causal null hypothesis. Of course, there may be a loss of power due to over-specifying the lag length. The loss in power may not be substantial if the true order p is large and the dimension k is small or moderate because of the relative reduction in the estimation precision due to one extra lag.

III. ECONOMETRIC ESTIMATES AND EMPIRICAL RESULTS

III.1. Integration properties of the time series

Most of the economic time series are nonstationary and its use can falsely imply the existence of a meaningful economic relationship. In this paper the data univariate characteristics are examined using the Dickey-Fuller (DF) and the Augmented Dickey Fuller (ADF) unit root approaches. On the basis of independently not serial correlated and identical distributed errors, this parametric procedure is assuming a stochastic part modelled by an autoregressive representation testing the null hypothesis of a unit root against the alternative of stationary. Lag-length is selected to ensure non-autocorrelated error terms and the decision tree proposed by Charemza and Deadman (1992) is implemented to check the significance of time trend and drift terms together with non-stationary.

The results of the univariate Dickey and Fuller test applied to the level and the first differenced data are summarized in Table 2 assuming that the optimal lag length minimizes information criteria of Akaike and Schwarz and avoids residual

autocorrelation. We observe that at 5% or even 1% levels of significance not only neither trends nor drifts should be entered in the cointegration space but also that almost all the variables are found to be not level stationary but they are integrated of order one, that is, I(1).

TABLE 2. AUGMENTED DICKEY-FULLER UNIT ROOT TEST (ADF).

$$H_0 : \delta = 0 \quad \text{(i)} \quad \Delta y_t = \beta_1 + \beta_2 t + \delta y_{t-1} + \sum_{i=1}^m (\alpha_i \Delta y_{t-i}) + \varepsilon_t$$

$$H_1 : \delta < 0 \quad \text{(ii)} \quad \Delta y_t = \beta_1 + \delta y_{t-1} + \sum_{i=1}^m (\alpha_i \Delta y_{t-i}) + \varepsilon_t$$

$$\text{(iii)} \quad \Delta y_t = \delta y_{t-1} + \sum_{i=1}^m (\alpha_i \Delta y_{t-i}) + \varepsilon_t$$

ARGENTINA (1976-2008)		MODEL (I)		MODEL (II)		MODEL (III)
variable	Lag	$\tau_{\beta\delta}$	t_{tc}	$\tau_{\alpha\mu}$	t_c	t_{nc}
ln GDP	0	0.559	-2.145	-1.383	-2.096	-1.578
Δ ln GDP		n.a.	n.a.	n.a.	n.a.	-5.211 * **
ln X	1	-0.837	-3.121	0.184	-3.118	-3.196 * **
Δ ln X		n.a.	n.a.	n.a.	n.a.	n.a.
ln RER	0	0.710	-2.249	2.235	-2.246	-0.214
Δ ln RER		n.a.	n.a.	n.a.	n.a.	-5.678 * **
ln M	1	2.706	-2.963	1.197	-1.090	1.394
Δ ln M		n.a.	n.a.	n.a.	n.a.	-3.056 *
F	1	-1.138	-3.460	-0.663	-3.303	-3.294 * **
Δ F		n.a.	n.a.	n.a.	n.a.	n.a.

Notes: k is the lag structure order chosen to guarantee white noise residuals; subscripts tc , c and nc indicate if trend and intercept. intercept or none is included in test model (i), (ii) and (iii) respectively. $\tau_{\beta\delta}$, $\tau_{\alpha\mu}$ denote statistics for individual or joint significance of trend and intercept assuming unit root. *, **, *** show 5%, 1% and 10% significance level in accordance to MacKinnon (1996) critical values; n.a is non available.

TABLE 2. (continuation) . AUGMENTED DICKEY-FULLER UNIT ROOT TEST (ADF).

BRAZIL (1980-2008)		MODEL (I)		MODEL (II)		MODEL (III)
variable	Lag	$\tau_{\beta\delta}$	t_{tc}	$\tau_{\alpha\mu}$	t_c	t_{nc}
ln RER	0	0.201	-1.27	0.391	-1.255	-7.998 * **
Δ ln RER	2	0.260	-1.093	0.004	0.063	0.473*
ln GDP	1	2.438	-1.929	-0.741	0.830	-1.598 *
Δ ln GDP		n.a.	n.a.	n.a.	n.a.	-2.790 *
ln X	1	1.987	-1.429	-0.725	0.901	2.015*
Δ ln X		n.a.	n.a.	n.a.	n.a.	2.523

CHILE (1975-2008)		MODEL (I)		MODEL (II)		MODEL (III)
variable	Lag	$\tau_{\beta\delta}$	t_{tc}	$\tau_{\alpha\mu}$	t_c	t_{nc}
$\ln GDP$	3	1.638	-2.880	-1.132	-1.174	-0.816
$\Delta \ln GDP$		n.a.	n.a.	n.a.	n.a.	-2.474*
$\ln X$	1	3.474	-3.458	0.492	-0.234	1.997
$\Delta \ln X$		n.a.	n.a.	n.a.	n.a.	-2.547*
$\ln RER$	1	0.801	-2.175	2.292	-2.280	0.442
$\Delta \ln RER$		n.a.	n.a.	n.a.	n.a.	-3.264* **
$\ln M$	2	3.270	-3.230	0.367	-0.165	1.912
$\Delta \ln M$		n.a.	n.a.	n.a.	n.a.	-2.062 *
F	1	0.150	1.784 * **			
ΔF		n.a.	n.a.			

MEXICO (1979-2007)		MODEL (I)		MODEL (II)		MODEL (III)
variable	Lag	$\tau_{\beta\delta}$	t_{tc}	$\tau_{\alpha\mu}$	t_c	t_{nc}
$\ln GDP$	0	2.396	-2.569	-0.839	-0.964	-1.034
$\Delta \ln GDP$		n.a.	n.a.	n.a.	n.a.	-4.902 * **
$\ln X$	1	2.820	-2.754	0.098	0.195	3.046*
$\Delta \ln X$		n.a.	n.a.	n.a.	n.a.	n.a.
$\ln RER$	1	-1.344	-3.079	2.752	-2.755	-0.149
$\Delta \ln RER$		n.a.	n.a.	n.a.	n.a.	-5.529* **
$\ln M$	1	3.580	-3.459	0.064	0.095	2.072
$\Delta \ln M$		n.a.	n.a.	n.a.	n.a.	-4.115 * **
F	0	1.197	-3.145	2.228	-2.884	-1.730
ΔF		n.a.	n.a.	n.a.	n.a.	- 5.383* **

Notes: k is the lag structure order chosen to guarantee white noise residuals; subscripts tc , c and nc indicate if trend and intercept. intercept or none is included in test model (i), (ii) and (iii) respectively. $\tau_{\beta\delta}$, $\tau_{\alpha\mu}$ denote statistics for individual or joint significance of trend and intercept assuming unit root. *, **, *** show 5%, 1% and 10% significance level in accordance to MacKinnon (1996) critical values; n.a. is non available.

III.2. Augmented VAR modelling and MWALD causality tests

The augmented VAR procedure proposed by Toda and Yamamoto (1995) and Dolado and Lutkepohl (1996) which allows for causal inference (by testing general restrictions on the parameter matrices) on the basis of an augmented level VAR with integrated and cointegrated vectors is then implemented. Before testing for Granger

causality an essential issue is to specify the lag-length in each country. The general approach is to fit VAR(k) models with orders $k = 0, K, j_{\max}$ and to choose an estimator of the order j that minimizes the criterion. In so doing, the distance between the “true” model and the Kullback-Leiber quantity of information contained in a proposed model is measured by the log-likelihood function with h parameters given by

$$l = -\frac{TR}{2}(1 + \ln 2\pi) - \frac{T}{2} \ln \det(\hat{\Omega}(m))$$

Where $\det(\cdot)$ denotes the determinant, R is the number of equations and

$\hat{\Omega}(m) = T^{-1} \sum_{t=1}^T \hat{e}_t \hat{e}_t'$ is the residual covariance matrix estimator for a VAR of order m . In

measuring the goodness of fit and parsimonious of a model specification, the information criteria of Akaike (AIC), Schwartz (BIC) and Hannan-Quinn (HQ) are defined on the basis of -2 times the average log-likelihood function adjusted by a penalty function. Table 3 shows the optimal lag selection in the four vector autoregressive structures estimated by ordinary least squares over each of the considered periods. In this fashion, we prefer lag structures which are the more parsimonious but still long enough to whiten the residuals. Lag selection is based on the AIC and HQ⁴ criteria which indicate one lag for Argentina, Brazil and Mexico and two for Chile. Under these lag structures well-behaved white and gaussian residuals are found in all countries.

TABLE 3. VAR model. Lag selection and residuals

		Information criteria				Residual diagnosis				
						Autocorrelation		Normality		Homo.
Country	Lag	L	AIC	SC	HQ	Q_{por}	LM	JB_{chol}	JB_{urz}	$White$
ARGENTINA	1	-181.00	0.55*	14.96*	14.033*	225.69	25.47	11.03	136.77	177.68

⁴ In the mexican case the lag selection is based in both SC and HQ criteria as long as better gaussian residuals are obtained

BRAZIL	1	129.03	11.78*	13.21*	12.20*	179.84	10.58	16.32	59.61	153.60
CHILE	2	-52.66	6.94*	9.49	7.77*	205.45	12.66	20.59	68.57	321.08
MEXICO	1	-105.15	10.01	11.45*	10.43*	181.46	9.44	14.85	127.95	166.04

Notes: * indicates lag-order selected by the criterion; l is the log of the likelihood function with h parameters estimated using T observations and the information criteria of Akaike, Schwarz and Hannan-Quinn are defined by

$$\begin{aligned}
AIC &= -2(l/T) + 2(h/T) \\
BIC &= -2(l/T) + h \log(T)/T \\
HQ &= -2(l/T) + 2h \log(T)/T
\end{aligned}$$

Given that VAR(k) has been selected, the last point is to determine the maximal order of integration that might occur in the process. As long as all the variables have been found to be at most $I(1)$, an extra lag may be added in each VAR.

To conclude, and overfitting the true VAR order, we estimate a levels VAR with a total of $p=(k+dmax)$ lags. For the Granger-Causality tests, we apply standard Wald test to the first k VAR coefficient matrix excluding the extra parameters in testing for Granger causality. To sum up, the conclusive specification tested is defined by the following five variable $(k+dmax)$ order VAR modelling linking economic growth, exports, real exchange rate, imports and financial account for each country

$$\begin{aligned}
& \begin{bmatrix} \ln GDP_t \\ \ln X_t \\ \ln RER_t \\ \ln M_t \\ F_t \end{bmatrix} = \begin{bmatrix} \alpha_{10} \\ \alpha_{20} \\ \alpha_{30} \\ \alpha_{40} \\ \alpha_{50} \end{bmatrix} + \sum_{i=1}^k \begin{bmatrix} \alpha_{11,i} & \alpha_{12,i} & \alpha_{13,i} & \alpha_{14,i} & \alpha_{15,i} \\ \alpha_{21,i} & \alpha_{22,i} & \alpha_{23,i} & \alpha_{24,i} & \alpha_{25,i} \\ \alpha_{31,i} & \alpha_{32,i} & \alpha_{33,i} & \alpha_{34,i} & \alpha_{35,i} \\ \alpha_{41,i} & \alpha_{42,i} & \alpha_{43,i} & \alpha_{44,i} & \alpha_{45,i} \\ \alpha_{51,i} & \alpha_{52,i} & \alpha_{53,i} & \alpha_{54,i} & \alpha_{55,i} \end{bmatrix} \begin{bmatrix} \ln GDP_{t-i} \\ \ln X_{t-i} \\ \ln RER_{t-i} \\ \ln M_{t-i} \\ F_t \end{bmatrix} + \\
& + \sum_{j=k+1}^{k+1+d \max} \begin{bmatrix} \alpha_{11,j} & \alpha_{12,j} & \alpha_{13,j} & \alpha_{14,j} & \alpha_{15,j} \\ \alpha_{21,j} & \alpha_{22,j} & \alpha_{23,j} & \alpha_{24,j} & \alpha_{25,j} \\ \alpha_{31,j} & \alpha_{32,j} & \alpha_{33,j} & \alpha_{34,j} & \alpha_{35,j} \\ \alpha_{41,j} & \alpha_{42,j} & \alpha_{43,j} & \alpha_{44,j} & \alpha_{45,j} \\ \alpha_{51,j} & \alpha_{52,j} & \alpha_{53,j} & \alpha_{54,j} & \alpha_{55,j} \end{bmatrix} \begin{bmatrix} \ln GDP_{t-j} \\ \ln X_{t-j} \\ \ln RER_{t-j} \\ \ln M_{t-j} \\ \ln F_{t-j} \end{bmatrix} + \begin{bmatrix} \varepsilon_{GDP_t} \\ \varepsilon_{X_t} \\ \varepsilon_{RER_t} \\ \varepsilon_{M_t} \\ \varepsilon_{F_t} \end{bmatrix} \quad (11)
\end{aligned}$$

Table 4 summarizes all the causality results based on the MWALD test for each augmented VAR defined in equation (11) for Argentina, Brazil, Chile and Mexico. It is easy to see that the ELG hypothesis is supported for Brazil and Chile. Moreover, in both countries exports not only have caused economic growth but also imports. In addition, Chile has shown that exports have caused the real exchange rate. These results are indicating how the openness and liberalization development strategy in both countries have impulse the role of exports in the path of economic growth and other external important variables such as imports or the real exchange rate. In the same line, Argentina's results support the ELG hypothesis but capital flows are at the centre of the economic growth causing all others variables except exports. Finally, Mexico presents a different pattern showing neither ELG nor GLE causality but an import-led export causality hypothesis is observed.

TABLE 4. CAUSALITY TEST. MWALD Statistics Augmented VAR model

Source of causation

ARGENTINA (1976-2008)

χ_1^2	$\ln GDP$	$\ln X$	$\ln RER$	$\ln M$	F
$\ln GDP$	<i>n.a.</i>	4.889[0.027]	2.521[0.112]	0.122[0.726]	13.472[0.000]
$\ln X$	0.069[0.792]	<i>n.a.</i>	0.002[0.995]	0.620[0.430]	0.142[0.705]
$\ln RER$	4.413[0.035]	4.076[0.043]	<i>n.a.</i>	0.002[0.957]	10.382[0.001]
$\ln M$	0.571[0.449]	2.703[0.101]	0.584[0.444]	<i>n.a.</i>	11.662[0.000]
F	0.018[0.891]	0.236[0.626]	0.016[0.890]	0.012[0.911]	<i>n.a.</i>

BRAZIL (1980-2008)

χ_1^2	$\ln GDP$	$\ln X$	$\ln RER$	$\ln M$	F
$\ln GDP$	<i>n.a.</i>	3.777[0.051]	0.068[0.793]	0.198[0.656]	0.061[0.804]
$\ln X$	0.0481[0.826]	<i>n.a.</i>	0.0157[0.900]	0.624[0.429]	0.397[0.528]
$\ln RER$	0.010[0.918]	2.464[0.116]	<i>n.a.</i>	0.0849[0.770]	0.007[0.928]
$\ln M$	0.099[0.752]	10.347[0.001]	0.084[0.770]	<i>n.a.</i>	1.121[0.289]
F	0.209[0.647]	1.291[0.255]	0.189[0.663]	0.188[0.664]	<i>n.a.</i>

CHILE (1975-2008)

χ_1^2	$\ln GDP$	$\ln X$	$\ln RER$	$\ln M$	F
$\ln GDP$	<i>n.a.</i>	12.953[0.001]	0.844[0.655]	0.929[0.628]	1.907[0.385]
$\ln X$	0.465[0.792]	<i>n.a.</i>	0.201[0.904]	1.980[0.371]	1.237[0.538]
$\ln RER$	1.724[0.422]	6.431[0.040]	<i>n.a.</i>	1.820[0.402]	0.894[0.639]
$\ln M$	1.378[0.501]	10.293[0.005]	1.267[0.530]	<i>n.a.</i>	1.068[0.586]
F	1.816[0.403]	0.837[0.657]	2.560[0.278]	0.619[0.733]	<i>n.a.</i>

MEXICO (1979-2007)

χ_1^2	$\ln GDP$	$\ln X$	$\ln RER$	$\ln M$	F
$\ln GDP$	<i>n.a.</i>	1.252[0.263]	0.382[0.536]	0.001[0.980]	0.591[0.441]
$\ln X$	0.206[0.649]	<i>n.a.</i>	0.023[0.877]	3.919[0.047]	0.001[0.998]
$\ln RER$	0.307[0.579]	1.133[0.287]	<i>n.a.</i>	0.776[0.378]	0.634[0.425]
$\ln M$	1.538[0.214]	0.973[0.511]	1.356[0.244]	<i>n.a.</i>	0.574[0.448]
F	0.475[0.490]	0.005[0.939]	0.631[0.426]	0.320[0.571]	<i>n.a.</i>

Notes : The $[k + d(\max)]$ th order level VAR has been estimated with $d(\max) = 1$. Lag length selection follows Table 2 results. Values in parentheses are p-values

III.3. Results and discussion

This section briefly discusses the empirical estimations we have obtained for each single country in the estimations of our model.

First, our results coincide with those we previously mentioned for Chile by Amin Gutiérrez de Piñeres and Ferrantino, (1997), Agosin (1999) Herzer et al. (2006) and Siliverstovs and Herzer (2006) showing consistent and robust linkages running from exports to economic growth rather independently from different methodologies, periods, empirical models specifications and general approaches. As long as, openness economic reforms in Chile begun just in the mid seventies, covering the entire span in this study our estimations are supporting the idea that the outward orientated policies in Chile have modified the economy increasing the importance of the external sector to lead the economic growth path.

Meanwhile, Brazil implemented pro market reforms only since early nineties and the import substitution strategy was deeper and longer. At the same time, the Tratado de Asunción was signed in 1991 and Argentina, Brazil, Paraguay and Uruguay begun to built a common market among them (MERCOSUR)⁵. Unless opening economic reforms were implemented later and were less intense than the other Latin American countries, our results evidently show the importance of exports in promoting output growth and imports. Contrary to Cuadros et al. (2004) we verify an ELG instead of a GLE hypothesis in Brazil. The inclusion in the model of imports, the real exchange rate and the total net capital flows modifies the direction of the causality. Hence, in Brazilian analysis much more research must be carried out to clarify external linkages in the output path since very different conclusions are achieved.

Mexico is an appealing case in this paper. Results confirm neither ELG nor GLE hypothesis but suggests that imports cause and promote exports. This causality, labelled as the import-led-exports hypothesis (ILE), is explained by the North American Free Trade Association (NAFTA) launched among Canada, Mexico and United States in 1994. In few years the process produced in Mexico an important arrival of North American FDI to take advantage of the lower labour costs. This FDI has principally

⁵ By this time, the South Common Market (MERCOSUR) is an incomplete Custom Union.

been linked to the so called *maquila* industry, which is based on assembling processes in the last phases of production. This industry requires imports of intermediate goods principally coming from the United States to be assembled and re-exported again to United States in the form final product. Precisely, this specialization pattern is explaining the ILE causality that we have found for Mexican economy. Other BPC approaches to the Mexican economy also find that the recent increase in income elasticity for imports is restricting economic growth (Matesanz et al. (2007); Pacheco-López and Thirlwall (2006); Moreno-Brid (1999). By contrast our ILE hypothesis is far away from the ELG causality addressed by Cuadros et al. (2004) and Thornton (1996). As we previously mentioned, while their study includes FDI and foreign income, ours is including global capital flows and imports as balance of payments approach requires. Therefore, these differences in the model specification completely change the results basically because of the inclusion of the imports (and the exclusion of foreign income) which is fundamental in the understanding of Mexican external recent specialization. Anyway, as Cuadros et al. (2004) remind us, results rely powerfully on the variables included.

Finally, the analysis for Argentina shows more causality linkages than in the previous countries. The first question that arises from the results is that the ELG hypothesis is supported: exports promote growth expansion. At the same time, Argentina is the unique country in this study that shows capital flows causing output expansion. Both exports and capital flows were determining the output growth related the BPC and signalling, comparing with Brazil, Chile and Mexico, a greater economic growth vulnerability to capital inflows and outflows and therefore dependency from the international financial markets conditions. Besides different model specifications, Cuadros et al. (2004) obtained similar results supporting an ELG hypothesis for Argentina and finding causality running from foreign direct investment to output. In this fashion, our results coincide with Cuadros et al. (2004) showing evidence of economic growth dependence of the foreign exchange available in the country. Contrary to

Awokuse (2008) partial results, the evidence in this work does not support that bi-directional causality between imports and output he is finding but coincides with his short run results where ELG hypothesis is validated.

Once more, results differ depending on the variables included and the period sample and frequency. In addition, capital flows and imports seem to be important since its inclusion modify previous results in most cases.

IV. CONCLUDING REMARKS

Development strategies are increasingly vinculated to the external sector of the countries. Commercial and financial connections among them have become even more important since globalization process has been accelerated in the last decades. In this scenario, the balance of payments position is strongly related to the long run economic growth path of all countries in the world. This paper has digged into these linkages by running MWALD tests on augmented VAR models involving variables that are integrated and possibly cointegrated for the most important Latin American countries during the last thirty years. In this long period, Argentina, Brazil, Chile and Mexico modified their external development strategy implementing outward oriented policies in the frame of the so called Washington Consensus.

In this fashion, we have tested the well known Export led growth hypothesis for our four countries. The underlying model behind our empirical validations is based on the balance of payments constrained growth model introduced by Thirlwall (1979) and Thirlwall and Hussain (1982). This demand side approximation is a novelty in the empirical literature which has shown interesting results that can be summarized in two main contributions of the paper:

Firstly, the BCP approach we have introduced into the export growth nexus yields interesting and different results from those arising of the traditional neoclassical function contributions. Especially relevant to understand the openness and growth

connections for Latin American countries is the inclusion of imports and capital flows in the specification of the causality models.

Secondly, our results suggest that, probably, a combination of the demand and supply side causality analysis for testing the ELG hypothesis (that is, the BCP and neoclassical productions functions approaches) will permit us to obtained more accurate and robust understanding in the exports growth nexus. For instance, our results are addresssing the ELG hypothesis for Chile that is confirmed as well for other supply side specifications such as Siliverstovs and Herzer (2006). Contrary, in Argentina, Brazil and Mexico different results are achieved indicating that much more research must be done and that a combination of approaches could improve the provided results.

REFERENCES

- Amin Gutiérrez de Piñeres, S. and Cantavella-Jordá, M. (2007) Export-led-Growth : Are the results robust across methodologies and/or data sets? A case study of Latin America, *Applied Economics*, 39(12), 1475-1500.
- Amin Gutiérrez de Piñeres, S. and Ferrantino, M. (1997) Export diversification and structural dynamics in the growth process: The case of Chile, *Journal of Development Economics*, 52, 375-391.
- Agosin, M. R. (1999) Comercio y crecimiento en Chile, *Revista de la CEPAL*, 68, 79-100.
- Awokuse, T.O. and Christopoulos, D. K. (2009) Nonlinear dynamics and the exports-output nexus, *Economic Modelling*, 26, 184-190.
- Awokuse, T. O. (2008) Trade openness and economic growth: is growth export-led or import-led?, *Applied Economics*, 40, 161-173.
- Awokuse, T.O. (2007) Causality between exports, imports and economic growth. Evidence from transition economies, *Economics Letters*, 94, 389-395.
- Bahmani-Oskooee, M. Economidou, M. C., and Gobinda Goswami, G. (2005) Export led growth revisited: A panel cointegration approach, *Scientific Journal of Administrative Development*, 3, 40-55.
- Charemza W.W., and Deadman, F.D. (1992) *New Directions in Econometric Practice* Brookfiels VT_ Edward Elgar.
- Coe, T. D., and Helpman, E. (1995) International R&D spillovers, *European Economic Review*, 39, 859-887.
- Cuadros, A., Orts, V. and Alguacil, M. (2004) Openness and Growth: Re-Examining Foreign Direct Investment, Trade and Output Linkages in Latin America. *The Journal of Development Studies*, Vol. 40 (4), 167-192.
- Dolado. J.J., and Lutekepohl. H. (1996) Making Wald test work for cointegrated VAR systems, *Econometrics Reviews*, 15, 369-386.
- Dosi, G., and Soete, L. (1988) "Technical change and international trade." in: G. Dosi, et. al., (eds) *Technical Change and the Economic Theory*, London: Pinter Publishers, 401-431.
- Edwards, S. (1993) Openness, trade liberalization, and growth in developing countries, *Journal of Economic Literature*, 31, 1358-1393.
- Fugarolas, G., and Matesanz, D. (2008) Long- and short-run balance of payments adjustment: Argentine economic growth constrained, *Applied Economics Letters*, 15, 815-820.
- Giles, J.A., and Williams C.L. (2000) Export-led Growth: a Survey of the Empirical Literature and some Non-Causality Results, Part 1, *Journal of International Trade and Economic Development*, 9, 261-337.
- Granger, C. W. J. (1969) Investigating causal relations by econometric models and cross-spectral methods, *Econometrica*, 37, 424-438.

- Grossman, G. M. and Helpman, E. (1991) *Innovation and Growth in the Global Economy*, Cambridge: MIT Press.
- Helpman, E. and Krugman, P. R. (1985) *Market structure and Foreign trade*, Cambridge (Mass.): MIT Press.
- Holland, M., F.V. Vieira and Canuto, O. (2002) Economic growth and the balance of payments constraint in Latin America, VII Encontro Nacional de Economia Política, 28-31 de mayo de 2002, en http://www.sep.org.br/eventos.asp?evento=s_sete
- Herzer, D., Nowak-lehmann, F. D., and Siliverstovs, B. (2006) Export-led growth in Chile: assessing the role of export composition in productivity growth, *The Developing Economies*, September, 44 (3), 306–28.
- Krugman, P.R. (1996) *Rethinking International Trade*, Cambridge: MIT Press.
- Krugman, P. R. (1987) Is free trade passé?, *Economic Perspectives*, 1, 131-144.
- López, J., and Cruz, A. (2000) Thirlwall's Law and beyond: the Latin American Experience, *Journal of Post Keynesian Economics*, spring, 22 (3), 477-495.
- MacKinnon, J. (1996) Numerical Distribution Functions for the Unit Root and Cointegration Tests, *Journal of Applied Econometrics*, 11, 601-618.
- Maneschiöld, P. (2008) A note on the Export-led growth hypothesis: A time series approach, *Cuadernos de Economía*, 45, noviembre, 293-302.
- Matesanz, D. Fugarolas, G. and Candaudap, E. (2007) Balanza de pagos y crecimiento económico restringido. Una comparación entre la economía Argentina y la Mexicana, *Revista de Economía Mundial*, 17, 25-49.
- McCombie, J. S. L., and Thirlwall, A. P. (1994) *Economic Growth and the Balance-of-Payments Constraint*, London: MacMillan Press.
- Moreno-Brid, J.C. (2001) *Essays on Economic Growth and the Balance of Payments Constraint with Special Reference to the Case of Mexico*, Trinity College, Cambridge, PhD Thesis.
- Moreno-Brid, J.C. (1999) Mexico Economic Growth and the balance of Payments Constraint: a cointegration analysis, *International Review of Applied Economics*, 13(2), 149-159.
- Pacheco López, P., and Thirlwall, A. P. (2006) Trade liberalization, the income elasticity of demand for imports, and growth in Latin America, *Journal of Post Keynesian Economics*, Fall, 29 (1), 41-61.
- Pacheco-López, P. and Thirlwall, A.P. (2004) Trade Liberalisation in Mexico: Rhetoric and Reality, *Banca Nazionale del Lavoro Quarterly Review*, 229, June, 141-167.
- Siliverstovs, B., and Herzer, D. (2006) Export-led growth hypothesis: evidence for Chile, *Applied Economics Letters*, 13, 319-324.

Thirlwall, A.P. (1979) The Balance of Payments Constraint as an Explanation of International Growth Rate Differences, *Banca Nazionale del Lavoro Quarterly Review*, January, 128, 45-53.

Thirlwall, A.P., and Hussain M. N. (1982) The balance of payments constraint, capital flows and growth rates differences between developing countries, *Oxford Economics Papers*, 10, 498-509.

Thornton, J. (1996) Cointegration, causality and export-led growth in Mexico, 1895-1992, *Economics Letters*, 50, 413-416.

Toda H. Y. and Phillips, P.C.B. (1993) Vector autorregressions and causality, *Econometrica* 61,1367-1393.

Toda. H. Y. and Yamamoto. T. (1995) Statistical inference in vector autoregression with possibly integrated processes, *Journal of Econometrics*, 66, 225-250.

FUNDACIÓN DE LAS CAJAS DE AHORROS

DOCUMENTOS DE TRABAJO

Últimos números publicados

- 159/2000 Participación privada en la construcción y explotación de carreteras de peaje
Ginés de Rus, Manuel Romero y Lourdes Trujillo
- 160/2000 Errores y posibles soluciones en la aplicación del *Value at Risk*
Mariano González Sánchez
- 161/2000 Tax neutrality on saving assets. The spanish case before and after the tax reform
Cristina Ruza y de Paz-Curbera
- 162/2000 Private rates of return to human capital in Spain: new evidence
F. Barceinas, J. Oliver-Alonso, J.L. Raymond y J.L. Roig-Sabaté
- 163/2000 El control interno del riesgo. Una propuesta de sistema de límites
riesgo neutral
Mariano González Sánchez
- 164/2001 La evolución de las políticas de gasto de las Administraciones Públicas en los años 90
Alfonso Utrilla de la Hoz y Carmen Pérez Esparrells
- 165/2001 Bank cost efficiency and output specification
Emili Tortosa-Ausina
- 166/2001 Recent trends in Spanish income distribution: A robust picture of falling income inequality
Josep Oliver-Alonso, Xavier Ramos y José Luis Raymond-Bara
- 167/2001 Efectos redistributivos y sobre el bienestar social del tratamiento de las cargas familiares en
el nuevo IRPF
Nuria Badenes Plá, Julio López Laborda, Jorge Onrubia Fernández
- 168/2001 The Effects of Bank Debt on Financial Structure of Small and Medium Firms in some Euro-
pean Countries
Mónica Melle-Hernández
- 169/2001 La política de cohesión de la UE ampliada: la perspectiva de España
Ismael Sanz Labrador
- 170/2002 Riesgo de liquidez de Mercado
Mariano González Sánchez
- 171/2002 Los costes de administración para el afiliado en los sistemas de pensiones basados en cuentas
de capitalización individual: medida y comparación internacional.
José Enrique Devesa Carpio, Rosa Rodríguez Barrera, Carlos Vidal Meliá
- 172/2002 La encuesta continua de presupuestos familiares (1985-1996): descripción, representatividad
y propuestas de metodología para la explotación de la información de los ingresos y el gasto.
Llorenç Pou, Joaquín Alegre
- 173/2002 Modelos paramétricos y no paramétricos en problemas de concesión de tarjetas de crédito.
Rosa Puertas, María Bonilla, Ignacio Olmeda

- 174/2002 Mercado único, comercio intra-industrial y costes de ajuste en las manufacturas españolas.
José Vicente Blanes Cristóbal
- 175/2003 La Administración tributaria en España. Un análisis de la gestión a través de los ingresos y de los gastos.
Juan de Dios Jiménez Aguilera, Pedro Enrique Barrilao González
- 176/2003 The Falling Share of Cash Payments in Spain.
Santiago Carbó Valverde, Rafael López del Paso, David B. Humphrey
Publicado en "Moneda y Crédito" nº 217, pags. 167-189.
- 177/2003 Effects of ATMs and Electronic Payments on Banking Costs: The Spanish Case.
Santiago Carbó Valverde, Rafael López del Paso, David B. Humphrey
- 178/2003 Factors explaining the interest margin in the banking sectors of the European Union.
Joaquín Maudos y Juan Fernández Guevara
- 179/2003 Los planes de stock options para directivos y consejeros y su valoración por el mercado de valores en España.
Mónica Melle Hernández
- 180/2003 Ownership and Performance in Europe and US Banking – A comparison of Commercial, Co-operative & Savings Banks.
Yener Altunbas, Santiago Carbó y Phil Molyneux
- 181/2003 The Euro effect on the integration of the European stock markets.
Mónica Melle Hernández
- 182/2004 In search of complementarity in the innovation strategy: international R&D and external knowledge acquisition.
Bruno Cassiman, Reinhilde Veugelers
- 183/2004 Fijación de precios en el sector público: una aplicación para el servicio municipal de suministro de agua.
M^a Ángeles García Valiñas
- 184/2004 Estimación de la economía sumergida en España: un modelo estructural de variables latentes.
Ángel Alañón Pardo, Miguel Gómez de Antonio
- 185/2004 Causas políticas y consecuencias sociales de la corrupción.
Joan Oriol Prats Cabrera
- 186/2004 Loan bankers' decisions and sensitivity to the audit report using the belief revision model.
Andrés Guiral Contreras and José A. Gonzalo Angulo
- 187/2004 El modelo de Black, Derman y Toy en la práctica. Aplicación al mercado español.
Marta Tolentino García-Abadillo y Antonio Díaz Pérez
- 188/2004 Does market competition make banks perform well?.
Mónica Melle
- 189/2004 Efficiency differences among banks: external, technical, internal, and managerial
Santiago Carbó Valverde, David B. Humphrey y Rafael López del Paso

- 190/2004 Una aproximación al análisis de los costes de la esquizofrenia en España: los modelos jerárquicos bayesianos
F. J. Vázquez-Polo, M. A. Negrín, J. M. Cavasés, E. Sánchez y grupo RIRAG
- 191/2004 Environmental proactivity and business performance: an empirical analysis
Javier González-Benito y Óscar González-Benito
- 192/2004 Economic risk to beneficiaries in notional defined contribution accounts (NDCs)
Carlos Vidal-Meliá, Inmaculada Domínguez-Fabian y José Enrique Devesa-Carpio
- 193/2004 Sources of efficiency gains in port reform: non parametric malmquist decomposition tfp index for Mexico
Antonio Estache, Beatriz Tovar de la Fé y Lourdes Trujillo
- 194/2004 Persistencia de resultados en los fondos de inversión españoles
Alfredo Ciriaco Fernández y Rafael Santamaría Aquilué
- 195/2005 El modelo de revisión de creencias como aproximación psicológica a la formación del juicio del auditor sobre la gestión continuada
Andrés Guiral Contreras y Francisco Esteso Sánchez
- 196/2005 La nueva financiación sanitaria en España: descentralización y prospectiva
David Cantarero Prieto
- 197/2005 A cointegration analysis of the Long-Run supply response of Spanish agriculture to the common agricultural policy
José A. Mendez, Ricardo Mora y Carlos San Juan
- 198/2005 ¿Refleja la estructura temporal de los tipos de interés del mercado español preferencia por la liquidez?
Magdalena Massot Perelló y Juan M. Nave
- 199/2005 Análisis de impacto de los Fondos Estructurales Europeos recibidos por una economía regional: Un enfoque a través de Matrices de Contabilidad Social
M. Carmen Lima y M. Alejandro Cardenete
- 200/2005 Does the development of non-cash payments affect monetary policy transmission?
Santiago Carbó Valverde y Rafael López del Paso
- 201/2005 Firm and time varying technical and allocative efficiency: an application for port cargo handling firms
Ana Rodríguez-Álvarez, Beatriz Tovar de la Fe y Lourdes Trujillo
- 202/2005 Contractual complexity in strategic alliances
Jeffrey J. Reuer y Africa Ariño
- 203/2005 Factores determinantes de la evolución del empleo en las empresas adquiridas por opa
Nuria Alcalde Fradejas y Inés Pérez-Soba Aguilar
- 204/2005 Nonlinear Forecasting in Economics: a comparison between Comprehension Approach versus Learning Approach. An Application to Spanish Time Series
Elena Olmedo, Juan M. Valderas, Ricardo Gimeno and Lorenzo Escot

- 205/2005 Precio de la tierra con presión urbana: un modelo para España
Esther Decimavilla, Carlos San Juan y Stefan Sperlich
- 206/2005 Interregional migration in Spain: a semiparametric analysis
Adolfo Maza y José Villaverde
- 207/2005 Productivity growth in European banking
Carmen Murillo-Melchor, José Manuel Pastor y Emili Tortosa-Ausina
- 208/2005 Explaining Bank Cost Efficiency in Europe: Environmental and Productivity Influences.
Santiago Carbó Valverde, David B. Humphrey y Rafael López del Paso
- 209/2005 La elasticidad de sustitución intertemporal con preferencias no separables intratemporalmente: los casos de Alemania, España y Francia.
Elena Márquez de la Cruz, Ana R. Martínez Cañete y Inés Pérez-Soba Aguilar
- 210/2005 Contribución de los efectos tamaño, book-to-market y momentum a la valoración de activos: el caso español.
Begoña Font-Belaire y Alfredo Juan Grau-Grau
- 211/2005 Permanent income, convergence and inequality among countries
José M. Pastor and Lorenzo Serrano
- 212/2005 The Latin Model of Welfare: Do 'Insertion Contracts' Reduce Long-Term Dependence?
Luis Ayala and Magdalena Rodríguez
- 213/2005 The effect of geographic expansion on the productivity of Spanish savings banks
Manuel Illueca, José M. Pastor and Emili Tortosa-Ausina
- 214/2005 Dynamic network interconnection under consumer switching costs
Ángel Luis López Rodríguez
- 215/2005 La influencia del entorno socioeconómico en la realización de estudios universitarios: una aproximación al caso español en la década de los noventa
Marta Rahona López
- 216/2005 The valuation of spanish ipos: efficiency analysis
Susana Álvarez Otero
- 217/2005 On the generation of a regular multi-input multi-output technology using parametric output distance functions
Sergio Perelman and Daniel Santin
- 218/2005 La gobernanza de los procesos parlamentarios: la organización industrial del congreso de los diputados en España
Gonzalo Caballero Miguez
- 219/2005 Determinants of bank market structure: Efficiency and political economy variables
Francisco González
- 220/2005 Agresividad de las órdenes introducidas en el mercado español: estrategias, determinantes y medidas de performance
David Abad Díaz

- 221/2005 Tendencia post-anuncio de resultados contables: evidencia para el mercado español
Carlos Forner Rodríguez, Joaquín Marhuenda Fructuoso y Sonia Sanabria García
- 222/2005 Human capital accumulation and geography: empirical evidence in the European Union
Jesús López-Rodríguez, J. Andrés Faiña y Jose Lopez Rodríguez
- 223/2005 Auditors' Forecasting in Going Concern Decisions: Framing, Confidence and Information Processing
Waymond Rodgers and Andrés Guiral
- 224/2005 The effect of Structural Fund spending on the Galician region: an assessment of the 1994-1999 and 2000-2006 Galician CSFs
José Ramón Cancelo de la Torre, J. Andrés Faiña and Jesús López-Rodríguez
- 225/2005 The effects of ownership structure and board composition on the audit committee activity: Spanish evidence
Carlos Fernández Méndez and Rubén Arrondo García
- 226/2005 Cross-country determinants of bank income smoothing by managing loan loss provisions
Ana Rosa Fonseca and Francisco González
- 227/2005 Incumplimiento fiscal en el irpf (1993-2000): un análisis de sus factores determinantes
Alejandro Estellér Moré
- 228/2005 Region versus Industry effects: volatility transmission
Pilar Soriano Felipe and Francisco J. Climent Diranzo
- 229/2005 Concurrent Engineering: The Moderating Effect Of Uncertainty On New Product Development Success
Daniel Vázquez-Bustelo and Sandra Valle
- 230/2005 On zero lower bound traps: a framework for the analysis of monetary policy in the 'age' of central banks
Alfonso Palacio-Vera
- 231/2005 Reconciling Sustainability and Discounting in Cost Benefit Analysis: a methodological proposal
M. Carmen Almansa Sáez and Javier Calatrava Requena
- 232/2005 Can The Excess Of Liquidity Affect The Effectiveness Of The European Monetary Policy?
Santiago Carbó Valverde and Rafael López del Paso
- 233/2005 Inheritance Taxes In The Eu Fiscal Systems: The Present Situation And Future Perspectives.
Miguel Angel Barberán Lahuerta
- 234/2006 Bank Ownership And Informativeness Of Earnings.
Víctor M. González
- 235/2006 Developing A Predictive Method: A Comparative Study Of The Partial Least Squares Vs Maximum Likelihood Techniques.
Waymond Rodgers, Paul Pavlou and Andres Guiral.
- 236/2006 Using Compromise Programming for Macroeconomic Policy Making in a General Equilibrium Framework: Theory and Application to the Spanish Economy.
Francisco J. André, M. Alejandro Cardenete y Carlos Romero.

- 237/2006 Bank Market Power And Sme Financing Constraints.
Santiago Carbó-Valverde, Francisco Rodríguez-Fernández y Gregory F. Udell.
- 238/2006 Trade Effects Of Monetary Agreements: Evidence For Oecd Countries.
Salvador Gil-Pareja, Rafael Llorca-Vivero y José Antonio Martínez-Serrano.
- 239/2006 The Quality Of Institutions: A Genetic Programming Approach.
Marcos Álvarez-Díaz y Gonzalo Caballero Miguez.
- 240/2006 La interacción entre el éxito competitivo y las condiciones del mercado doméstico como determinantes de la decisión de exportación en las Pymes.
Francisco García Pérez.
- 241/2006 Una estimación de la depreciación del capital humano por sectores, por ocupación y en el tiempo.
Inés P. Murillo.
- 242/2006 Consumption And Leisure Externalities, Economic Growth And Equilibrium Efficiency.
Manuel A. Gómez.
- 243/2006 Measuring efficiency in education: an analysis of different approaches for incorporating non-discretionary inputs.
Jose Manuel Cordero-Ferrera, Francisco Pedraja-Chaparro y Javier Salinas-Jiménez
- 244/2006 Did The European Exchange-Rate Mechanism Contribute To The Integration Of Peripheral Countries?.
Salvador Gil-Pareja, Rafael Llorca-Vivero y José Antonio Martínez-Serrano
- 245/2006 Intergenerational Health Mobility: An Empirical Approach Based On The Echp.
Marta Pascual and David Cantarero
- 246/2006 Measurement and analysis of the Spanish Stock Exchange using the Lyapunov exponent with digital technology.
Salvador Rojí Ferrari and Ana Gonzalez Marcos
- 247/2006 Testing For Structural Breaks In Variance With additive Outliers And Measurement Errors.
Paulo M.M. Rodrigues and Antonio Rubia
- 248/2006 The Cost Of Market Power In Banking: Social Welfare Loss Vs. Cost Inefficiency.
Joaquín Maudos and Juan Fernández de Guevara
- 249/2006 Elasticidades de largo plazo de la demanda de vivienda: evidencia para España (1885-2000).
Desiderio Romero Jordán, José Félix Sanz Sanz y César Pérez López
- 250/2006 Regional Income Disparities in Europe: What role for location?.
Jesús López-Rodríguez and J. Andrés Faña
- 251/2006 Funciones abreviadas de bienestar social: Una forma sencilla de simultanear la medición de la eficiencia y la equidad de las políticas de gasto público.
Nuria Badenes Plá y Daniel Santín González
- 252/2006 "The momentum effect in the Spanish stock market: Omitted risk factors or investor behaviour?".
Luis Muga and Rafael Santamaría
- 253/2006 Dinámica de precios en el mercado español de gasolina: un equilibrio de colusión tácita.
Jordi Perdiguero García

- 254/2006 Desigualdad regional en España: renta permanente versus renta corriente.
José M. Pastor, Empar Pons y Lorenzo Serrano
- 255/2006 Environmental implications of organic food preferences: an application of the impure public goods model.
Ana Maria Aldanondo-Ochoa y Carmen Almansa-Sáez
- 256/2006 Family tax credits versus family allowances when labour supply matters: Evidence for Spain.
José Felix Sanz-Sanz, Desiderio Romero-Jordán y Santiago Álvarez-García
- 257/2006 La internacionalización de la empresa manufacturera española: efectos del capital humano genérico y específico.
José López Rodríguez
- 258/2006 Evaluación de las migraciones interregionales en España, 1996-2004.
María Martínez Torres
- 259/2006 Efficiency and market power in Spanish banking.
Rolf Färe, Shawna Grosskopf y Emili Tortosa-Ausina.
- 260/2006 Asimetrías en volatilidad, beta y contagios entre las empresas grandes y pequeñas cotizadas en la bolsa española.
Helena Chuliá y Hipòlit Torró.
- 261/2006 Birth Replacement Ratios: New Measures of Period Population Replacement.
José Antonio Ortega.
- 262/2006 Accidentes de tráfico, víctimas mortales y consumo de alcohol.
José M^a Arranz y Ana I. Gil.
- 263/2006 Análisis de la Presencia de la Mujer en los Consejos de Administración de las Mil Mayores Empresas Españolas.
Ruth Mateos de Cabo, Lorenzo Escot Mangas y Ricardo Gimeno Nogués.
- 264/2006 Crisis y Reforma del Pacto de Estabilidad y Crecimiento. Las Limitaciones de la Política Económica en Europa.
Ignacio Álvarez Peralta.
- 265/2006 Have Child Tax Allowances Affected Family Size? A Microdata Study For Spain (1996-2000).
Jaime Vallés-Giménez y Anabel Zárate-Marco.
- 266/2006 Health Human Capital And The Shift From Foraging To Farming.
Paolo Rungo.
- 267/2006 Financiación Autonómica y Política de la Competencia: El Mercado de Gasolina en Canarias.
Juan Luis Jiménez y Jordi Perdiguero.
- 268/2006 El cumplimiento del Protocolo de Kyoto para los hogares españoles: el papel de la imposición sobre la energía.
Desiderio Romero-Jordán y José Félix Sanz-Sanz.
- 269/2006 Banking competition, financial dependence and economic growth
Joaquín Maudos y Juan Fernández de Guevara
- 270/2006 Efficiency, subsidies and environmental adaptation of animal farming under CAP
Werner Kleinhanß, Carmen Murillo, Carlos San Juan y Stefan Sperlich

- 271/2006 Interest Groups, Incentives to Cooperation and Decision-Making Process in the European Union
A. Garcia-Lorenzo y Jesús López-Rodríguez
- 272/2006 Riesgo asimétrico y estrategias de momentum en el mercado de valores español
Luis Muga y Rafael Santamaría
- 273/2006 Valoración de capital-riesgo en proyectos de base tecnológica e innovadora a través de la teoría de opciones reales
Gracia Rubio Martín
- 274/2006 Capital stock and unemployment: searching for the missing link
Ana Rosa Martínez-Cañete, Elena Márquez de la Cruz, Alfonso Palacio-Vera and Inés Pérez-Soba Aguilar
- 275/2006 Study of the influence of the voters' political culture on vote decision through the simulation of a political competition problem in Spain
Sagrario Lantarón, Isabel Lillo, M^a Dolores López and Javier Rodrigo
- 276/2006 Investment and growth in Europe during the Golden Age
Antonio Cubel and M^a Teresa Sanchis
- 277/2006 Efectos de vincular la pensión pública a la inversión en cantidad y calidad de hijos en un modelo de equilibrio general
Robert Meneu Gaya
- 278/2006 El consumo y la valoración de activos
Elena Márquez y Belén Nieto
- 279/2006 Economic growth and currency crisis: A real exchange rate entropic approach
David Matesanz Gómez y Guillermo J. Ortega
- 280/2006 Three measures of returns to education: An illustration for the case of Spain
María Arrazola y José de Hevia
- 281/2006 Composition of Firms versus Composition of Jobs
Antoni Cunyat
- 282/2006 La vocación internacional de un holding tranviario belga: la Compagnie Mutuelle de Tramways, 1895-1918
Alberte Martínez López
- 283/2006 Una visión panorámica de las entidades de crédito en España en la última década.
Constantino García Ramos
- 284/2006 Foreign Capital and Business Strategies: a comparative analysis of urban transport in Madrid and Barcelona, 1871-1925
Alberte Martínez López
- 285/2006 Los intereses belgas en la red ferroviaria catalana, 1890-1936
Alberte Martínez López
- 286/2006 The Governance of Quality: The Case of the Agrifood Brand Names
Marta Fernández Barcala, Manuel González-Díaz y Emmanuel Raynaud
- 287/2006 Modelling the role of health status in the transition out of malthusian equilibrium
Paolo Rungo, Luis Currais and Berta Rivera
- 288/2006 Industrial Effects of Climate Change Policies through the EU Emissions Trading Scheme
Xavier Labandeira and Miguel Rodríguez

- 289/2006 Globalisation and the Composition of Government Spending: An analysis for OECD countries
Norman Gemmell, Richard Kneller and Ismael Sanz
- 290/2006 La producción de energía eléctrica en España: Análisis económico de la actividad tras la liberalización del Sector Eléctrico
Fernando Hernández Martínez
- 291/2006 Further considerations on the link between adjustment costs and the productivity of R&D investment: evidence for Spain
Desiderio Romero-Jordán, José Félix Sanz-Sanz and Inmaculada Álvarez-Ayuso
- 292/2006 Una teoría sobre la contribución de la función de compras al rendimiento empresarial
Javier González Benito
- 293/2006 Agility drivers, enablers and outcomes: empirical test of an integrated agile manufacturing model
Daniel Vázquez-Bustelo, Lucía Avella and Esteban Fernández
- 294/2006 Testing the parametric vs the semiparametric generalized mixed effects models
María José Lombardía and Stefan Sperlich
- 295/2006 Nonlinear dynamics in energy futures
Mariano Matilla-García
- 296/2006 Estimating Spatial Models By Generalized Maximum Entropy Or How To Get Rid Of W
Esteban Fernández Vázquez, Matías Mayor Fernández and Jorge Rodríguez-Valez
- 297/2006 Optimización fiscal en las transmisiones lucrativas: análisis metodológico
Félix Domínguez Barrero
- 298/2006 La situación actual de la banca online en España
Francisco José Climent Diranzo y Alexandre Momparler Pechuán
- 299/2006 Estrategia competitiva y rendimiento del negocio: el papel mediador de la estrategia y las capacidades productivas
Javier González Benito y Isabel Suárez González
- 300/2006 A Parametric Model to Estimate Risk in a Fixed Income Portfolio
Pilar Abad and Sonia Benito
- 301/2007 Análisis Empírico de las Preferencias Sociales Respecto del Gasto en Obra Social de las Cajas de Ahorros
Alejandro Esteller-Moré, Jonathan Jorba Jiménez y Albert Solé-Ollé
- 302/2007 Assessing the enlargement and deepening of regional trading blocs: The European Union case
Salvador Gil-Pareja, Rafael Llorca-Vivero y José Antonio Martínez-Serrano
- 303/2007 ¿Es la Franquicia un Medio de Financiación?: Evidencia para el Caso Español
Vanessa Solís Rodríguez y Manuel González Díaz
- 304/2007 On the Finite-Sample Biases in Nonparametric Testing for Variance Constancy
Paulo M.M. Rodrigues and Antonio Rubia
- 305/2007 Spain is Different: Relative Wages 1989-98
José Antonio Carrasco Gallego

- 306/2007 Poverty reduction and SAM multipliers: An evaluation of public policies in a regional framework
Francisco Javier De Miguel-Vélez y Jesús Pérez-Mayo
- 307/2007 La Eficiencia en la Gestión del Riesgo de Crédito en las Cajas de Ahorro
Marcelino Martínez Cabrera
- 308/2007 Optimal environmental policy in transport: unintended effects on consumers' generalized price
M. Pilar Socorro and Ofelia Betancor
- 309/2007 Agricultural Productivity in the European Regions: Trends and Explanatory Factors
Roberto Ezcurra, Belen Iraizoz, Pedro Pascual and Manuel Rapún
- 310/2007 Long-run Regional Population Divergence and Modern Economic Growth in Europe: a Case Study of Spain
María Isabel Ayuda, Fernando Collantes and Vicente Pinilla
- 311/2007 Financial Information effects on the measurement of Commercial Banks' Efficiency
Borja Amor, María T. Tascón and José L. Fanjul
- 312/2007 Neutralidad e incentivos de las inversiones financieras en el nuevo IRPF
Félix Domínguez Barrero
- 313/2007 The Effects of Corporate Social Responsibility Perceptions on The Valuation of Common Stock
Waymond Rodgers , Helen Choy and Andres Guiral-Contreras
- 314/2007 Country Creditor Rights, Information Sharing and Commercial Banks' Profitability Persistence across the world
Borja Amor, María T. Tascón and José L. Fanjul
- 315/2007 ¿Es Relevante el Déficit Corriente en una Unión Monetaria? El Caso Español
Javier Blanco González y Ignacio del Rosal Fernández
- 316/2007 The Impact of Credit Rating Announcements on Spanish Corporate Fixed Income Performance: Returns, Yields and Liquidity
Pilar Abad, Antonio Díaz and M. Dolores Robles
- 317/2007 Indicadores de Lealtad al Establecimiento y Formato Comercial Basados en la Distribución del Presupuesto
Cesar Augusto Bustos Reyes y Óscar González Benito
- 318/2007 Migrants and Market Potential in Spain over The XXth Century: A Test Of The New Economic Geography
Daniel A. Tirado, Jordi Pons, Elisenda Paluzie and Javier Silvestre
- 319/2007 El Impacto del Coste de Oportunidad de la Actividad Emprendedora en la Intención de los Ciudadanos Europeos de Crear Empresas
Luis Miguel Zapico Aldeano
- 320/2007 Los belgas y los ferrocarriles de vía estrecha en España, 1887-1936
Alberte Martínez López
- 321/2007 Competición política bipartidista. Estudio geométrico del equilibrio en un caso ponderado
Isabel Lillo, M^a Dolores López y Javier Rodrigo
- 322/2007 Human resource management and environment management systems: an empirical study
M^a Concepción López Fernández, Ana M^a Serrano Bedía and Gema García Piqueres

- 323/2007 Wood and industrialization. evidence and hypotheses from the case of Spain, 1860-1935.
Iñaki Iriarte-Goñi and María Isabel Ayuda Bosque
- 324/2007 New evidence on long-run monetary neutrality.
J. Cunado, L.A. Gil-Alana and F. Perez de Gracia
- 325/2007 Monetary policy and structural changes in the volatility of us interest rates.
Juncal Cuñado, Javier Gomez Biscarri and Fernando Perez de Gracia
- 326/2007 The productivity effects of intrafirm diffusion.
Lucio Fuentelsaz, Jaime Gómez and Sergio Palomas
- 327/2007 Unemployment duration, layoffs and competing risks.
J.M. Arranz, C. García-Serrano and L. Toharia
- 328/2007 El grado de cobertura del gasto público en España respecto a la UE-15
Nuria Rueda, Begoña Barruso, Carmen Calderón y M^a del Mar Herrador
- 329/2007 The Impact of Direct Subsidies in Spain before and after the CAP'92 Reform
Carmen Murillo, Carlos San Juan and Stefan Sperlich
- 330/2007 Determinants of post-privatisation performance of Spanish divested firms
Laura Cabeza García and Silvia Gómez Ansón
- 331/2007 ¿Por qué deciden diversificar las empresas españolas? Razones oportunistas versus razones económicas
Almudena Martínez Campillo
- 332/2007 Dynamical Hierarchical Tree in Currency Markets
Juan Gabriel Brida, David Matesanz Gómez and Wiston Adrián Risso
- 333/2007 Los determinantes sociodemográficos del gasto sanitario. Análisis con microdatos individuales
Ana María Angulo, Ramón Barberán, Pilar Egea y Jesús Mur
- 334/2007 Why do companies go private? The Spanish case
Inés Pérez-Soba Aguilar
- 335/2007 The use of gis to study transport for disabled people
Verónica Cañal Fernández
- 336/2007 The long run consequences of M&A: An empirical application
Cristina Bernad, Lucio Fuentelsaz and Jaime Gómez
- 337/2007 Las clasificaciones de materias en economía: principios para el desarrollo de una nueva clasificación
Valentín Edo Hernández
- 338/2007 Reforming Taxes and Improving Health: A Revenue-Neutral Tax Reform to Eliminate Medical and Pharmaceutical VAT
Santiago Álvarez-García, Carlos Pestana Barros y Juan Prieto-Rodríguez
- 339/2007 Impacts of an iron and steel plant on residential property values
Celia Bilbao-Terol
- 340/2007 Firm size and capital structure: Evidence using dynamic panel data
Victor M. González and Francisco González

- 341/2007 ¿Cómo organizar una cadena hotelera? La elección de la forma de gobierno
Marta Fernández Barcala y Manuel González Díaz
- 342/2007 Análisis de los efectos de la decisión de diversificar: un contraste del marco teórico “Agencia-Stewardship”
Almudena Martínez Campillo y Roberto Fernández Gago
- 343/2007 Selecting portfolios given multiple eurostoxx-based uncertainty scenarios: a stochastic goal programming approach from fuzzy betas
Enrique Ballester, Blanca Pérez-Gladish, Mar Arenas-Parra and Amelia Bilbao-Terol
- 344/2007 “El bienestar de los inmigrantes y los factores implicados en la decisión de emigrar”
Anastasia Hernández Alemán y Carmelo J. León
- 345/2007 Governance Decisions in the R&D Process: An Integrative Framework Based on TCT and Knowledge View of The Firm.
Andrea Martínez-Noya and Esteban García-Canal
- 346/2007 Diferencias salariales entre empresas públicas y privadas. El caso español
Begoña Cueto y Nuria Sánchez- Sánchez
- 347/2007 Effects of Fiscal Treatments of Second Home Ownership on Renting Supply
Celia Bilbao Terol and Juan Prieto Rodríguez
- 348/2007 Auditors’ ethical dilemmas in the going concern evaluation
Andres Guiral, Waymond Rodgers, Emiliano Ruiz and Jose A. Gonzalo
- 349/2007 Convergencia en capital humano en España. Un análisis regional para el periodo 1970-2004
Susana Morales Sequera y Carmen Pérez Esparrells
- 350/2007 Socially responsible investment: mutual funds portfolio selection using fuzzy multiobjective programming
Blanca M^a Pérez-Gladish, Mar Arenas-Parra , Amelia Bilbao-Terol and M^a Victoria Rodríguez-Uría
- 351/2007 Persistencia del resultado contable y sus componentes: implicaciones de la medida de ajustes por devengo
Raúl Iñiguez Sánchez y Francisco Poveda Fuentes
- 352/2007 Wage Inequality and Globalisation: What can we Learn from the Past? A General Equilibrium Approach
Concha Betrán, Javier Ferri and Maria A. Pons
- 353/2007 Eficacia de los incentivos fiscales a la inversión en I+D en España en los años noventa
Desiderio Romero Jordán y José Félix Sanz Sanz
- 354/2007 Convergencia regional en renta y bienestar en España
Robert Meneu Gaya
- 355/2007 Tributación ambiental: Estado de la Cuestión y Experiencia en España
Ana Carrera Poncela
- 356/2007 Salient features of dependence in daily us stock market indices
Luis A. Gil-Alana, Juncal Cuñado and Fernando Pérez de Gracia
- 357/2007 La educación superior: ¿un gasto o una inversión rentable para el sector público?
Inés P. Murillo y Francisco Pedraja

- 358/2007 Effects of a reduction of working hours on a model with job creation and job destruction
Emilio Domínguez, Miren Ullibarri y Idoya Zabaleta
- 359/2007 Stock split size, signaling and earnings management: Evidence from the Spanish market
José Yagüe, J. Carlos Gómez-Sala and Francisco Poveda-Fuentes
- 360/2007 Modelización de las expectativas y estrategias de inversión en mercados de derivados
Begoña Font-Belaire
- 361/2008 Trade in capital goods during the golden age, 1953-1973
M^a Teresa Sanchis and Antonio Cubel
- 362/2008 El capital económico por riesgo operacional: una aplicación del modelo de distribución de pérdidas
Enrique José Jiménez Rodríguez y José Manuel Fera Domínguez
- 363/2008 The drivers of effectiveness in competition policy
Joan-Ramon Borrell and Juan-Luis Jiménez
- 364/2008 Corporate governance structure and board of directors remuneration policies: evidence from Spain
Carlos Fernández Méndez, Rubén Arrondo García and Enrique Fernández Rodríguez
- 365/2008 Beyond the disciplinary role of governance: how boards and donors add value to Spanish foundations
Pablo De Andrés Alonso, Valentín Azofra Palenzuela y M. Elena Romero Merino
- 366/2008 Complejidad y perfeccionamiento contractual para la contención del oportunismo en los acuerdos de franquicia
Vanessa Solís Rodríguez y Manuel González Díaz
- 367/2008 Inestabilidad y convergencia entre las regiones europeas
Jesús Mur, Fernando López y Ana Angulo
- 368/2008 Análisis espacial del cierre de explotaciones agrarias
Ana Aldanondo Ochoa, Carmen Almansa Sáez y Valero Casanovas Oliva
- 369/2008 Cross-Country Efficiency Comparison between Italian and Spanish Public Universities in the period 2000-2005
Tommaso Agasisti and Carmen Pérez Esparrells
- 370/2008 El desarrollo de la sociedad de la información en España: un análisis por comunidades autónomas
María Concepción García Jiménez y José Luis Gómez Barroso
- 371/2008 El medioambiente y los objetivos de fabricación: un análisis de los modelos estratégicos para su consecución
Lucía Avella Camarero, Esteban Fernández Sánchez y Daniel Vázquez-Bustelo
- 372/2008 Influence of bank concentration and institutions on capital structure: New international evidence
Víctor M. González and Francisco González
- 373/2008 Generalización del concepto de equilibrio en juegos de competición política
M^a Dolores López González y Javier Rodrigo Hitos
- 374/2008 Smooth Transition from Fixed Effects to Mixed Effects Models in Multi-level regression Models
María José Lombardía and Stefan Sperlich

- 375/2008 A Revenue-Neutral Tax Reform to Increase Demand for Public Transport Services
Carlos Pestana Barros and Juan Prieto-Rodríguez
- 376/2008 Measurement of intra-distribution dynamics: An application of different approaches to the European regions
Adolfo Maza, María Hierro and José Villaverde
- 377/2008 Migración interna de extranjeros y ¿nueva fase en la convergencia?
María Hierro y Adolfo Maza
- 378/2008 Efectos de la Reforma del Sector Eléctrico: Modelización Teórica y Experiencia Internacional
Ciro Eduardo Bazán Navarro
- 379/2008 A Non-Parametric Independence Test Using Permutation Entropy
Mariano Matilla-García and Manuel Ruiz Marín
- 380/2008 Testing for the General Fractional Unit Root Hypothesis in the Time Domain
Uwe Hassler, Paulo M.M. Rodrigues and Antonio Rubia
- 381/2008 Multivariate gram-charlier densities
Esther B. Del Brio, Trino-Manuel Níguez and Javier Perote
- 382/2008 Analyzing Semiparametrically the Trends in the Gender Pay Gap - The Example of Spain
Ignacio Moral-Arce, Stefan Sperlich, Ana I. Fernández-Saínz and Maria J. Roca
- 383/2008 A Cost-Benefit Analysis of a Two-Sided Card Market
Santiago Carbó Valverde, David B. Humphrey, José Manuel Liñares Zegarra and Francisco Rodríguez Fernández
- 384/2008 A Fuzzy Bicriteria Approach for Journal Deselection in a Hospital Library
M. L. López-Avello, M. V. Rodríguez-Uría, B. Pérez-Gladish, A. Bilbao-Terol, M. Arenas-Parra
- 385/2008 Valoración de las grandes corporaciones farmacéuticas, a través del análisis de sus principales intangibles, con el método de opciones reales
Gracia Rubio Martín y Prosper Lamothe Fernández
- 386/2008 El marketing interno como impulsor de las habilidades comerciales de las pyme españolas: efectos en los resultados empresariales
M^a Leticia Santos Vijande, M^a José Sanzo Pérez, Nuria García Rodríguez y Juan A. Trespalacios Gutiérrez
- 387/2008 Understanding Warrants Pricing: A case study of the financial market in Spain
David Abad y Belén Nieto
- 388/2008 Aglomeración espacial, Potencial de Mercado y Geografía Económica: Una revisión de la literatura
Jesús López-Rodríguez y J. Andrés Faíña
- 389/2008 An empirical assessment of the impact of switching costs and first mover advantages on firm performance
Jaime Gómez, Juan Pablo Maícas
- 390/2008 Tender offers in Spain: testing the wave
Ana R. Martínez-Cañete y Inés Pérez-Soba Aguilar

- 391/2008 La integración del mercado español a finales del siglo XIX: los precios del trigo entre 1891 y 1905
Mariano Matilla García, Pedro Pérez Pascual y Basilio Sanz Carnero
- 392/2008 Cuando el tamaño importa: estudio sobre la influencia de los sujetos políticos en la balanza de bienes y servicios
Alfonso Echazarra de Gregorio
- 393/2008 Una visión cooperativa de las medidas ante el posible daño ambiental de la desalación
Borja Montaña Sanz
- 394/2008 Efectos externos del endeudamiento sobre la calificación crediticia de las Comunidades Autónomas
Andrés Leal Marcos y Julio López Laborda
- 395/2008 Technical efficiency and productivity changes in Spanish airports: A parametric distance functions approach
Beatriz Tovar & Roberto Rendeiro Martín-Cejas
- 396/2008 Network analysis of exchange data: Interdependence drives crisis contagion
David Matesanz Gómez & Guillermo J. Ortega
- 397/2008 Explaining the performance of Spanish privatised firms: a panel data approach
Laura Cabeza Garcia and Silvia Gomez Anson
- 398/2008 Technological capabilities and the decision to outsource R&D services
Andrea Martínez-Noya and Esteban García-Canal
- 399/2008 Hybrid Risk Adjustment for Pharmaceutical Benefits
Manuel García-Goñi, Pere Ibern & José María Inoriza
- 400/2008 The Team Consensus–Performance Relationship and the Moderating Role of Team Diversity
José Henrique Dieguez, Javier González-Benito and Jesús Galende
- 401/2008 The institutional determinants of CO₂ emissions: A computational modelling approach using Artificial Neural Networks and Genetic Programming
Marcos Álvarez-Díaz , Gonzalo Caballero Miguez and Mario Soliño
- 402/2008 Alternative Approaches to Include Exogenous Variables in DEA Measures: A Comparison Using Monte Carlo
José Manuel Cordero-Ferrera, Francisco Pedraja-Chaparro and Daniel Santín-González
- 403/2008 Efecto diferencial del capital humano en el crecimiento económico andaluz entre 1985 y 2004: comparación con el resto de España
M^a del Pópulo Pablo-Romero Gil-Delgado y M^a de la Palma Gómez-Calero Valdés
- 404/2008 Análisis de fusiones, variaciones conjeturales y la falacia del estimador en diferencias
Juan Luis Jiménez y Jordi Perdiguero
- 405/2008 Política fiscal en la ue: ¿basta con los estabilizadores automáticos?
Jorge Uxó González y M^a Jesús Arroyo Fernández
- 406/2008 Papel de la orientación emprendedora y la orientación al mercado en el éxito de las empresas
Óscar González-Benito, Javier González-Benito y Pablo A. Muñoz-Gallego
- 407/2008 La presión fiscal por impuesto sobre sociedades en la unión europea
Elena Fernández Rodríguez, Antonio Martínez Arias y Santiago Álvarez García

- 408/2008 The environment as a determinant factor of the purchasing and supply strategy: an empirical analysis
Dr. Javier González-Benito y MS Duilio Reis da Rocha
- 409/2008 Cooperation for innovation: the impact on innovatory effort
Gloria Sánchez González and Liliana Herrera
- 410/2008 Spanish post-earnings announcement drift and behavioral finance models
Carlos Forner and Sonia Sanabria
- 411/2008 Decision taking with external pressure: evidence on football manager dismissals in argentina and their consequences
Ramón Flores, David Forrest and Juan de Dios Tena
- 412/2008 Comercio agrario latinoamericano, 1963-2000: aplicación de la ecuación gravitacional para flujos desagregados de comercio
Raúl Serrano y Vicente Pinilla
- 413/2008 Voter heuristics in Spain: a descriptive approach elector decision
José Luís Sáez Lozano and Antonio M. Jaime Castillo
- 414/2008 Análisis del efecto área de salud de residencia sobre la utilización y acceso a los servicios sanitarios en la Comunidad Autónoma Canaria
Ignacio Abásolo Alessón, Lidia García Pérez, Raquel Aguiar Ibáñez y Asier Amador Robayna
- 415/2008 Impact on competitive balance from allowing foreign players in a sports league: an analytical model and an empirical test
Ramón Flores, David Forrest & Juan de Dios Tena
- 416/2008 Organizational innovation and productivity growth: Assessing the impact of outsourcing on firm performance
Alberto López
- 417/2008 Value Efficiency Analysis of Health Systems
Eduardo González, Ana Cárcaba & Juan Ventura
- 418/2008 Equidad en la utilización de servicios sanitarios públicos por comunidades autónomas en España: un análisis multinivel
Ignacio Abásolo, Jaime Pinilla, Miguel Negrín, Raquel Aguiar y Lidia García
- 419/2008 Piedras en el camino hacia Bolonia: efectos de la implantación del EEES sobre los resultados académicos
Carmen Florido, Juan Luis Jiménez e Isabel Santana
- 420/2008 The welfare effects of the allocation of airlines to different terminals
M. Pilar Socorro and Ofelia Betancor
- 421/2008 How bank capital buffers vary across countries. The influence of cost of deposits, market power and bank regulation
Ana Rosa Fonseca and Francisco González
- 422/2008 Analysing health limitations in Spain: an empirical approach based on the European Community household panel
Marta Pascual and David Cantarero

- 423/2008 Regional productivity variation and the impact of public capital stock: an analysis with spatial interaction, with reference to Spain
Miguel Gómez-Antonio and Bernard Fingleton
- 424/2008 Average effect of training programs on the time needed to find a job. The case of the training schools program in the south of Spain (Seville, 1997-1999).
José Manuel Cansino Muñoz-Repiso and Antonio Sánchez Braza
- 425/2008 Medición de la eficiencia y cambio en la productividad de las empresas distribuidoras de electricidad en Perú después de las reformas
Raúl Pérez-Reyes y Beatriz Tovar
- 426/2008 Acercando posturas sobre el descuento ambiental: sondeo Delphi a expertos en el ámbito internacional
Carmen Almansa Sáez y José Miguel Martínez Paz
- 427/2008 Determinants of abnormal liquidity after rating actions in the Corporate Debt Market
Pilar Abad, Antonio Díaz and M. Dolores Robles
- 428/2008 Export led-growth and balance of payments constrained. New formalization applied to Cuban commercial regimes since 1960
David Matesanz Gómez, Guadalupe Fugarolas Álvarez-Ude and Isis Mañalich Gálvez
- 429/2008 La deuda implícita y el desequilibrio financiero-actuarial de un sistema de pensiones. El caso del régimen general de la seguridad social en España
José Enrique Devesa Carpio y Mar Devesa Carpio
- 430/2008 Efectos de la descentralización fiscal sobre el precio de los carburantes en España
Desiderio Romero Jordán, Marta Jorge García-Inés y Santiago Álvarez García
- 431/2008 Euro, firm size and export behavior
Silviano Esteve-Pérez, Salvador Gil-Pareja, Rafael Llorca-Vivero and José Antonio Martínez-Serrano
- 432/2008 Does social spending increase support for free trade in advanced democracies?
Ismael Sanz, Ferran Martínez i Coma and Federico Steinberg
- 433/2008 Potencial de Mercado y Estructura Espacial de Salarios: El Caso de Colombia
Jesús López-Rodríguez y Maria Cecilia Acevedo
- 434/2008 Persistence in Some Energy Futures Markets
Juncal Cunado, Luis A. Gil-Alana and Fernando Pérez de Gracia
- 435/2008 La inserción financiera externa de la economía francesa: inversores institucionales y nueva gestión empresarial
Ignacio Álvarez Peralta
- 436/2008 ¿Flexibilidad o rigidez salarial en España?: un análisis a escala regional
Ignacio Moral Arce y Adolfo Maza Fernández
- 437/2009 Intangible relationship-specific investments and the performance of r&d outsourcing agreements
Andrea Martínez-Noya, Esteban García-Canal & Mauro F. Guillén
- 438/2009 Friendly or Controlling Boards?
Pablo de Andrés Alonso & Juan Antonio Rodríguez Sanz

- 439/2009 La sociedad Trenor y Cía. (1838-1926): un modelo de negocio industrial en la España del siglo XIX
Amparo Ruiz Llopis
- 440/2009 Continental bias in trade
Salvador Gil-Pareja, Rafael Llorca-Vivero & José Antonio Martínez Serrano
- 441/2009 Determining operational capital at risk: an empirical application to the retail banking
Enrique José Jiménez-Rodríguez, José Manuel Fera-Domínguez & José Luis Martín-Marín
- 442/2009 Costes de mitigación y escenarios post-kyoto en España: un análisis de equilibrio general para España
Mikel González Ruiz de Eguino
- 443/2009 Las revistas españolas de economía en las bibliotecas universitarias: ranking, valoración del indicador y del sistema
Valentín Edo Hernández
- 444/2009 Convergencia económica en España y coordinación de políticas económicas. un estudio basado en la estructura productiva de las CC.AA.
Ana Cristina Mingorance Arnáiz
- 445/2009 Instrumentos de mercado para reducir emisiones de co2: un análisis de equilibrio general para España
Mikel González Ruiz de Eguino
- 446/2009 El comercio intra e inter-regional del sector Turismo en España
Carlos Llano y Tamara de la Mata
- 447/2009 Efectos del incremento del precio del petróleo en la economía española: Análisis de cointegración y de la política monetaria mediante reglas de Taylor
Fernando Hernández Martínez
- 448/2009 Bologna Process and Expenditure on Higher Education: A Convergence Analysis of the EU-15
T. Agasisti, C. Pérez Esparrells, G. Catalano & S. Morales
- 449/2009 Global Economy Dynamics? Panel Data Approach to Spillover Effects
Gregory Daco, Fernando Hernández Martínez & Li-Wu Hsu
- 450/2009 Pricing levered warrants with dilution using observable variables
Isabel Abinzano & Javier F. Navas
- 451/2009 Information technologies and financial performance: The effect of technology diffusion among competitors
Lucio Fuentelsaz, Jaime Gómez & Sergio Palomas
- 452/2009 A Detailed Comparison of Value at Risk in International Stock Exchanges
Pilar Abad & Sonia Benito
- 453/2009 Understanding offshoring: has Spain been an offshoring location in the nineties?
Belén González-Díaz & Rosario Gandoy
- 454/2009 Outsourcing decision, product innovation and the spatial dimension: Evidence from the Spanish footwear industry
José Antonio Belso-Martínez

- 455/2009 Does playing several competitions influence a team's league performance? Evidence from Spanish professional football
Andrés J. Picazo-Tadeo & Francisco González-Gómez
- 456/2009 Does accessibility affect retail prices and competition? An empirical application
Juan Luis Jiménez and Jordi Perdiguero
- 457/2009 Cash conversion cycle in smes
Sonia Baños-Caballero, Pedro J. García-Teruel and Pedro Martínez-Solano
- 458/2009 Un estudio sobre el perfil de hogares endeudados y sobreendeudados: el caso de los hogares vascos
Alazne Mujika Alberdi, Iñaki García Arrizabalaga y Juan José Gibaja Martíns
- 459/2009 Imposing monotonicity on outputs in parametric distance function estimations: with an application to the spanish educational production
Sergio Perelman and Daniel Santin
- 460/2009 Key issues when using tax data for concentration analysis: an application to the Spanish wealth tax
José M^a Durán-Cabré and Alejandro Esteller-Moré
- 461/2009 ¿Se está rompiendo el mercado español? Una aplicación del enfoque de feldstein –horioka
Saúl De Vicente Queijeiro, José Luis Pérez Rivero y María Rosalía Vicente Cuervo
- 462/2009 Financial condition, cost efficiency and the quality of local public services
Manuel A. Muñiz & José L. Zafra
- 463/2009 Including non-cognitive outputs in a multidimensional evaluation of education production: an international comparison
Marián García Valiñas & Manuel Antonio Muñiz Pérez
- 464/2009 A political look into budget deficits. The role of minority governments and oppositions
Albert Falcó-Gimeno & Ignacio Jurado
- 465/2009 La simulación del cuadro de mando integral. Una herramienta de aprendizaje en la materia de contabilidad de gestión
Elena Urquía Grande, Clara Isabel Muñoz Colomina y Elisa Isabel Cano Montero
- 466/2009 Análisis histórico de la importancia de la industria de la desalinización en España
Borja Montaña Sanz
- 467/2009 The dynamics of trade and innovation: a joint approach
Silviano Esteve-Pérez & Diego Rodríguez
- 468/2009 Measuring international reference-cycles
Sonia de Lucas Santos, Inmaculada Álvarez Ayuso & M^a Jesús Delgado Rodríguez
- 469/2009 Measuring quality of life in Spanish municipalities
Eduardo González Fidalgo, Ana Cárcaba García, Juan Ventura Victoria & Jesús García García
- 470/2009 ¿Cómo se valoran las acciones españolas: en el mercado de capitales doméstico o en el europeo?
Begoña Font Belaire y Alfredo Juan Grau Grau
- 471/2009 Patterns of e-commerce adoption and intensity. evidence for the european union-27
María Rosalía Vicente & Ana Jesús López

- 472/2009 On measuring the effect of demand uncertainty on costs: an application to port terminals
Ana Rodríguez-Álvarez, Beatriz Tovar & Alan Wall
- 473/2009 Order of market entry, market and technological evolution and firm competitive performance
Jaime Gomez, Gianvito Lanzolla & Juan Pablo Maicas
- 474/2009 La Unión Económica y Monetaria Europea en el proceso exportador de Castilla y León (1993-2007): un análisis de datos de panel
Almudena Martínez Campillo y M^a del Pilar Sierra Fernández
- 475/2009 Do process innovations boost SMEs productivity growth?
Juan A. Mañez, María E. Rochina Barrachina, Amparo Sanchis Llopis & Juan A. Sanchis Llopis
- 476/2009 Incertidumbre externa y elección del modo de entrada en el marco de la inversión directa en el exterior
Cristina López Duarte y Marta M^a Vidal Suárez
- 477/2009 Testing for structural breaks in factor loadings: an application to international business cycle
José Luis Cendejas Bueno, Sonia de Lucas Santos, Inmaculada Álvarez Ayuso & M^a Jesús Delgado Rodríguez
- 478/2009 ¿Esconde la rigidez de precios la existencia de colusión? El caso del mercado de carburantes en las Islas Canarias
Juan Luis Jiménez y Jordi Perdiguero
- 479/2009 The poni test with structural breaks
Antonio Aznar & María-Isabel Ayuda
- 480/2009 Accuracy and reliability of Spanish regional accounts (CRE-95)
Verónica Cañal Fernández
- 481/2009 Estimating regional variations of R&D effects on productivity growth by entropy econometrics
Esteban Fernández-Vázquez y Fernando Rubiera-Morollón
- 482/2009 Why do local governments privatize the provision of water services? Empirical evidence from Spain
Francisco González-Gómez, Andrés J. Picazo-Tadeo & Jorge Guardiola
- 483/2009 Assessing the regional digital divide across the European Union-27
María Rosalía Vicente & Ana Jesús López
- 484/2009 Measuring educational efficiency and its determinants in Spain with parametric distance functions
José Manuel Cordero Ferrera, Eva Crespo Cebada & Daniel Santín González
- 485/2009 Spatial analysis of public employment services in the Spanish provinces
Patricia Suárez Cano & Matías Mayor Fernández
- 486/2009 Trade effects of continental and intercontinental preferential trade agreements
Salvador Gil-Pareja, Rafael Llorca-Vivero & José Antonio Martínez-Serrano
- 487/2009 Testing the accuracy of DEA for measuring efficiency in education under endogeneity
Salvador Gil-Pareja, Rafael Llorca-Vivero & José Antonio Martínez-Serrano
- 488/2009 Measuring efficiency in primary health care: the effect of exogenous variables on results
José Manuel Cordero Ferrera, Eva Crespo Cebada & Luis R. Murillo Zamorano

- 489/2009 Capital structure determinants in growth firms accessing venture funding
Marina Balboa, José Martí & Álvaro Tresierra
- 490/2009 Determinants of debt maturity structure across firm size
Victor M. González
- 491/2009 Análisis del efecto de la aplicación de las NIIF en la valoración de las salidas a bolsa
Susana Álvarez Otero y Eduardo Rodríguez Enríquez
- 492/2009 An analysis of urban size and territorial location effects on employment probabilities: the spanish case
Ana Viñuela-Jiménez, Fernando Rubiera-Morollón & Begoña Cueto
- 493/2010 Determinantes de la estructura de los consejos de administración en España
Isabel Acero Fraile y Nuria Alcalde Fradejas
- 494/2010 Performance and completeness in repeated inter-firm relationships: the case of franchising
Vanessa Solis-Rodriguez & Manuel Gonzalez-Diaz
- 495/2010 A Revenue-Based Frontier Measure of Banking Competition
Santiago Carbó, David Humphrey & Francisco Rodríguez
- 496/2010 Categorical segregation in social networks
Antoni Rubí-Barceló
- 497/2010 Beneficios ambientales no comerciales de la directiva marco del agua en condiciones de escasez: análisis económico para el Guadalquivir
Julia Martin-Ortega, Giacomo Giannoccaro y Julio Berbel Vecino
- 498/2010 Monetary integration and risk diversification in eu-15 sovereign debt markets
Juncal Cuñado & Marta Gómez-Puig
- 499/2010 The Marshall Plan and the Spanish autarky: A welfare loss analysis
José Antonio Carrasco Gallego
- 500/2010 The role of learning in firm R&D persistence
Juan A. Mañez, María E. Rochina-Barrachina, Amparo Sanchis-Llopis & Juan A. Sanchis-Llopis
- 501/2010 Is venture capital more than just money?
Marina Balboa, José Martí & Nina Zieling
- 502/2010 On the effects of supply strategy on business performance: do the relationships among generic competitive objectives matter?
Javier González-Benito
- 503/2010 Corporate cash holding and firm value
Cristina Martínez-Sola, Pedro J. García-Teruel & Pedro Martínez-Solano
- 504/2010 El impuesto de flujos de caja de sociedades: una propuesta de base imponible y su aproximación contable en España
Lourdes Jerez Barroso y Joaquín Teixeira Quirós
- 505/2010 The effect of technological, commercial and human resources on the use of new technology
Jaime Gómez & Pilar Vargas

- 506/2010 ¿Cómo ha afectado la fiscalidad a la rentabilidad de la inversión en vivienda en España?
Un análisis para el periodo 1996 y 2007
Jorge Onrubia Fernández y María del Carmen Rodado Ruiz
- 507/2010 Modelización de flujos en el análisis input-output a partir de la teoría de redes
Ana Salomé García Muñiz
- 508/2010 Export-led-growth hypothesis revisited. a balance of payments approach for Argentina, Brazil,
Chile and Mexico
David Matesanz Gómez & Guadalupe Fugarolas Álvarez-Ude