



Munich Personal RePEc Archive

Global economy dynamics? Panel data approach to spillover effects

Gregory Daco and Fernando Hernandez Martinez and Li-Wu Hsu

March 2009

Online at <http://mpa.ub.uni-muenchen.de/18043/>

MPRA Paper No. 18043, posted 26. October 2009 09:13 UTC

**GLOBAL ECONOMY DYNAMICS?
PANEL DATA APPROACH TO SPILLOVER EFFECTS**

**GREGORY DACO
FERNANDO HERNÁNDEZ MARTÍNEZ
LI-WU HSU**

**FUNDACIÓN DE LAS CAJAS DE AHORROS
DOCUMENTO DE TRABAJO
Nº 449/2009**

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.

Global Economy Dynamics?

Panel Data Approach to Spillover Effects

Gregory Daco*
Fernando Hernández Martínez**
Li-Wu Hsu***

Abstract

Over the past year, there has been considerable debate about how the slowing of the United States and other major developed economies affects output growth across the world. The main purpose of this paper is to establish relevant conclusions on how the U.S., Euro Area and Japan gross domestic product growth affect international business cycle fluctuations, with the objective of identifying the main factors that influence spillovers into other countries. Using panel data regression, we conclude that output growth in the U.S. and Euro area are significant in explaining output growth across countries. Depending on the specifications, trade linkages play a significant role while financial linkages with respect to the three regions does not (except in one particular specification). There are signs of potential omitted variable bias in some regression indicating that some relevant variables have not been taken into account. There is also clear evidence of a structural change in the transmission mechanism of shocks after 1985 – since when shocks have become more country-specific.

Keywords: Output Growth, Trade and Financial Linkages, Structural Break, Cross-Section Panel Data.

JEL Classification: C23, F40

* Gregory Daco (positive4ever@yahoo.fr)

** Fernando Hernández Martínez (fhernanm@bu.edu), MA in Economics, Department of Economics, Boston University.

***Li-Wu Hsu (liwuhsu@bu.edu), PhD program in Finance, School of Management, Boston University

1. Introduction

Since the end of World War II, the United States has been described as the motor of the world economy. It is widely believed that a slowdown of its economic growth means that the rest of the world would suffer the same fate. However, in recent years, new potential global economic drivers have emerged such as the Newly Industrialized Economies (NIE) in East Asia, China and India, and more recently the “emerging economies”. In addition the Euro zone is taking a growing place at the forefront of economic leadership.

It is within this framework that this paper establishes relevant conclusions on how U.S., Euro Area and Japan economies affect international business cycle fluctuations. Using panel data regressions and data provided by Nikola Spatafora of the International Monetary Fund¹, our objective is to identify the major factors that influence economic spillovers from the three regions into countries across the world. Market spillovers result when market trading causes some economics benefits or losses to other market participants. We will focus mainly on trade and financial linkages as well as on the existence of a structural change in the transmission mechanism of shocks after 1985.

2. Motivation

In trying to understand the current economic linkages between the United States and the Euro area and Japan, one might find it useful to examine past economic data. Studying

¹ This study uses the data set from the recent IMF study: “Decoupling the Train?: Spillovers and Cycles in the Global Economy” , *World Economic Outlook, IMF*, 2007, April, (Helbing, T. *et al.*). The approach to our paper is however different in its specifications and results differ.

past recessions and slowdowns will prove insightful in understanding the mechanisms of current international business cycle linkages (Zarnowitz, 1992). Using the National Bureau of Economic Research (NBER) definition of economic recession² and slowdown³, the IMF compiles the change in GDP growth consequent to a recession or slowdown in the U.S. since 1974 (Table 1.1). It is very interesting to note that all recessions and slowdown have not had the same impact in magnitude or geographic spread. For instance, the 1982 recession led to a substantial GDP growth decline in Latin America, the Middle East and North Africa and East Asia while it did not lead to a reduction of GDP growth in industrialized countries. Conversely, the 1991 recessions affected industrialized countries negatively while the regions mentioned here above still had a positive GDP growth change. However, despite these variations across time, on average GDP recessions have reduced GDP growth in all the regions examined. In light of these observations, it would be crucial to find out the major elements which can explain economic divergence between countries. For this purpose, it will be relevant to examine the two primary channels through which U.S. recessions and slowdowns have affected other regions: trade linkages and financial linkages (IMF, World Economic Outlook, 2007, April).

3. Procedure

To assess the existence of economic decoupling, we will examine global economic data covering a wide range of variables. Using Panel Data Ordinary Least Squares

² NBER definition: “[...] a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in real GDP, real income, employment, industrial production, and wholesale-retail sales”.

³ IMF definition: “[...] periods during which the U.S. output was below potential (as determined by Hodrick-Prescott filter) and which were not considered as recessions by the NBER”.

Regressions (OLS), we estimate how the U.S., Euro area and Japan output growth affect other countries' GDP growth. We will use real GDP per capita growth (measured in Purchasing Power Parity terms) as the dependant variable. The independent variables will be:

- real GDP per capita growth in the U.S., Euro area, Japan*;
- trade linkages of each country with respect to the U.S., Euro and Japan;
- financial linkages of each country with respect to the U.S., Euro and Japan;
- governments debt as a percentage of GDP;
- **output gap as an indicator of a country's potential weaknesses.*
- **fuel exports as a percentage of total exports;*
- **a proxy of a consumer confidence index, using consumption spending as a percentage of GDP;*
- **an Asian crisis dummy representing the 1997-1998 Asian crisis.*
- **a dummy for the pre-post 1985 period.*

The above list includes variables that were already present in the original study as well as a large series of **new variables** (see **italic*) that we have added to the IMF study⁴. We shall now provide an a priori rationale for each variable. First, it seems relevant to include real GDP per capita growth of the U.S., Euro area and Japan as world economic drivers. Our intuition is that their growth (or lack thereof) can have large effects on economic growth in the rest of the world. Second, trade linkages and financial linkages are the two major transmission channels for economic shocks. Both play an important role in interconnecting the world markets as we will elaborate in the next section. An unexpected shock in a large market (like the U.S. market) will have consequences that

⁴ Helbing *et al.*: "Decoupling the Train?: Spillovers and Cycles in the Global Economy", *World Economic Outlook, IMF*, 2007, April.

span beyond the borders of that market. Third, government debt is an indicator of a country potential weakness. A country with large government debt is likely to be more affected by an adverse shock and hence we expect debt to be negatively correlated with output growth. Fourth, we consider output gap to be a variable of importance. Output gap⁵ indicates whether a country is above or below its potential output and therefore might be another indicator of a country's unstable situation. We would therefore expect its coefficient to be negative. Fifth, we choose fuel exports as a percentage of total export as a proxy to indicate whether a country might be insulated from negative shocks to the U.S., Euro area or Japan economy. A large exporter of fuel would tend to use its fuel export to protect itself against economic downturns. We have examined the possibility of multiplying this variable "fuel exports" with the Crude Oil price index to reveal increased insulation in times of rising oil prices but this proved insignificant. Sixth, we come up with a proxy for consumer confidence using the consumption percentage of GDP. It is extremely hard to gather information on a homogeneous consumer confidence index for all countries since 1970. Hence, we believe that final consumption expenditure relative to GDP would be an appropriate proxy of a consumer confidence index. Seventh, we include a dummy for the Asian crisis of 1997-1998. We believe that including this dummy will be relevant in the world and Asian groups. Eighth, we include another dummy to differentiate the pre-post 1985 periods. According to the literature, shocks prior to 1985 were "global" shocks in contrast with more country-specific shocks after 1985. Although we are conscious that this date is arbitrary, there seems to be a consensus on the structural break happening between 1984 and 1987. Finally, we think it might be judicious to run different panel data regressions for different regions. Indeed, an Asian country will not be influenced in the same manner

⁵ This was calculated using the Hodrick-Prescott filter.

by a U.S. recession than a North American economy, although this remains to be shown.

4. Trade Linkages

In general, a country's economic growth is expected to be positively influenced by growth in its trading partners. Fast growth in partner countries helps to get a larger market for a country exports⁶.

Three main factors seem to fit in order to explain the transmission of negative growth shocks in the U.S., Euro area and Japan to the rest of the world: exports exposure to the U.S., exchange rates and "economic vulnerabilities" (i.e. external debt). The first of these three factors is related to the idea that a country for which exports to the U.S. represent an important share of total export will be strongly dependent of U.S. imports from abroad. If the U.S. were to suffer a recession, this could lead to a reduction of spending, a possible cut in U.S. imports from abroad and a potential reduction of export revenues for the country. At a more subtle level, trade linkages also imply technology transfer and spillovers: less trade with the U.S. could reduce benefits from these spillovers (Arora and Vamvakidis, 2001). The second trade linkage factor is the evolution of the U.S. dollar exchange rate. A depreciation of the U.S. dollar relative to other currencies leads to reduce the competitiveness for those currencies. The trading partners might therefore suffer a "double blow". In contrast, if the U.S. dollar appreciates, as it was the case in the 1982 recession, then there is an "insulation phenomenon" due to increased competitiveness for those trading partner states.

⁶ Trade is not the unique channel which the above effects may operate, although is one of the most important, (Arora and Vamvadikis, 2006).

Furthermore, it seems that countries with a flexible exchange rate have been better able to mitigate the impacts of a U.S. recession (Helbling *et al.*, 2007). The third channel for trade linkages is related to a country's vulnerabilities. Countries' that have "bad balance sheets" run the risk of being more severely affected by U.S. economic downturns. A high level of public or external debt weakens the country and exposes it to more perils.

5. Financial Linkages

With financial markets becoming increasingly integrated, financial market linkages are also believed to be an increasingly important mechanism for the transmission of shocks across countries. Starting from the early 90s, there has been a tremendous increase in financial liberalization in developing countries and a substantial increase in financial interdependence of these with respect to the United States (and, lately with the Euro area and other major markets). This process turns in to raising the question of whether increased financial liberalization and interdependence have magnified the spillovers of financial shocks from the United States, Euro Area or Japan to the rest of emerging areas.

Financial linkages play an important role in determining how much of an economic shock will be transmitted from one country to another. There exists a large literature that comments on the increase in financial linkages throughout the world (Bordo and Helbling, 2003; Kose and Yi, 2002; Imbs, 2004 and 2006; Benelli and Ganguly, 2007). In his recent study, Imbs (2006) explains that there are two competing views that explain the effect of financial integration on output comovement. The first view stipulates that financially integrated countries would be "less synchronized". Financial

markets allow for consumption to be less correlated with production and thus it lets to economies to specialize differently according to their comparative advantages. Backus, Kehoe and Kydland (1994), use a different approach based on return differentials: financial flows usually go to the country experiencing a positive technology shock from the unaffected country and hence, leading to negatively synchronized outputs. The alternative explanation, based on Obstfeld (1994), shows that similar activities necessitate financial investments. Hence financially integrated countries will tend to have more synchronized output, as their funding requirements are similar. Imbs shows that empirical data points towards the second explanation as the dominant one.

Using the magnitude of gross financial assets, Helbling *et al.* (2007) illustrate that, since 1970, both developed and emerging economies have increased their financial linkages: gross external assets of industrial countries have risen from 28 percent to 155 percent of GDP in 2004. The authors further point out towards a positive relation between output growth correlation (with the U.S.) and correlation between stock market indices. This indicates that financial linkages should be an integral part of any study on comovement.

In trying to understand how financial linkages affect output growth comovement, one must distinguish two main channels: asset prices and price volatility. First, equity prices across countries have had a tendency to become more correlated over the last decade. According to Peter Berezin (IMF, 2007), the median stock market correlation coefficient among G7 economies has risen from 0.55 to 0.69 while the long-term bond yield correlation rose from 0.54 to 0.8 between the 1995-99 and 2000-06 periods. Second, as Engle and Susmel (1993) show, volatility of prices across countries has generally follows a similar trend of increased correlation. The intuition behind this

phenomenon is that volatility reflects uncertainty about future asset prices. Hence, greater uncertainty about the policy of a large economy will generate similar uncertainty among economies interlinked with this country.

6. The Model

The model can be formally described as follows:

$$Y_{i,t} = \alpha_{i,t} + \gamma_{i,t} + Y_{U.S.,t} + Y_{EU,t} + Y_{JP,t} + Y_{CHN,t} + Trade_{us,t} + Trade_{EU,t} + Trade_{JP,t} + Fin_{U.S.,t} + Fin_{EU,t} + Fin_{JP,t} + Ngap_{i,t} + Pop_{i,t} + Fuel_{i,t} + Confi_{i,t} + Libor + Tt_gr_{i,t} + Dbt_{i,t} + D_I + Asia_{(0.1)} + u_{i,t}$$

Where, $u_{i,t} = \mu_i + v_{i,t}$ for $t = 1, \dots, 36$ (N = 36 years)

In the above equation:

- i. $Y_{xx,t}$ represents the per capita growth of the GDP of country “xx”.
- ii. $Trade_{xx,t}$ represents the trade linkage of country i with respect to the area “xx” (U.S., Euro area or Japan). This variable is computed as the sum of imports and exports to the designated area as a percentage of GDP.
- iii. $Fin_{xx,t}$ represents financial linkages between the country i and the area “xx”. Three different approaches were used to estimate the latter. We first used total net portfolio flows with each region (U.S., Euro area and Japan) as a percentage of GDP. This approach yielded insignificant results. An alternative way to model the financial linkages was found in Imbs (2004) where the financial linkages are modelled as $|NFA_i/GDP_i - NFA_{xx}/GDP_{xx}|$. In this specification NFA is the net foreign assets. This methodology reflects

the fact that 2 countries with important (positive or negative) foreign asset positions will generally have more intense capital flows and hence more financial linkages. Finally, we computed averages between periods of the above specification to capture a bigger part of *financial flow* changes.

- iv. Ngap is the output gap calculated as deviation of the output from its trend using the Hodrick-Prescott filter.
- v. Pop is the population growth rate.
- vi. Fuel represents fuel exports as a percentage of total exports.
- vii. Confi is a proxy for a consumer confidence index calculated as consumption as a percentage of GDP.
- viii. Libor is the London Interbank Offered Rate used as an interest rate indicator.
- ix. Tt_gr is the growth rate in terms of trade.
- x. Dbt is the central government debt as a percentage of GDP.
- xi. D₁ is a dummy variable for the pre/post 1985 period. It is equal to 1 for the post 1985 period.
- xii. Asia is a dummy for the Asian crisis. It is equal to 1 for the countries affected in 1997⁷.
- xiii. $\alpha_{i,t}, \gamma_{i,t}$ are the constant and the temporary factor respectively.

7. Results

The data used is a cross-sectional panel data – two-dimensional data - containing observations on multiple economic variables for the annual time period 1970-2005. The data corresponds to U.S., Euro Area, Japan and different countries classified in several

⁷ Indonesia, South Korea, Thailand, Hong Kong, Malaysia, Laos and the Philippines

world areas depending on economic level growths. As in all cross-sectional data sets, the *values* of the data points have meaning, but the *ordering* of the data points does not.

The approach has been applied to a broad cross-section of countries and a series of panel regressions estimated, relates growth in domestic output per capita to various combinations of variables of U.S. growth, euro area growth, and Japanese growth. The coefficients on these foreign growth variables provide a measure of the importance of spillovers.

Finally, table I on the appendix shows up all the different countries included in the panel data which have been classified by economic areas.

1. Structural Change after 1985

The literature reviewed on the subject of output comovement seems to indicate the existence of a structural change in the transmission of output shocks after 1985. The generally accepted view is that prior to 1985, these shocks were more often worldwide shocks (i.e. the Oil crises). In contrast, output shocks since 1985 have tended to be more country specific shocks.

In order to test the existence of a structural change for the period after 1985, we computed a “Chow break test”. This test concluded to the existence of a structural change. We therefore decided to include a dummy indicating the pre/post 1985 period.

2. Hausman Test

The generally accepted way of choosing between fixed and random effects is running a Hausman test. After a brief review of the existing literature on panel data, we concluded to the necessity of running a Hausman test for each regression.

3. World Analysis

In order to assess the impact of the United States, the Euro area and Japan on the rest of the world, we first examined a regression including all the variables defined in equation (1.1). The inclusion of all variables serves as a benchmark for the subsequent analysis. The results for this first regression are illustrated in column A1 of Table.1.

First, these show that the GDP growth of the U.S. and Euro area have significant effects on economic growth across countries. In a somewhat surprising way, our results show (and these results are consistent throughout) that the Euro area seems to have a bigger impact on economic growth across the World. GDP growth declines of 1 percent in the region lead to a 0.62 percent decline average across countries. Overall Japan's GDP growth rate is not significant in explaining changes in output growth in other countries. Second, the results reveal that trade linkage with the U.S. and the Euro area have positive but not significant growth effects while linkages with Japan seem to have a positive significant effect impact on gross domestic product growth in the rest of the world. Given Japan's "lost decade" and its limited output growth recovery since then, this result might reflect that all of Japan's spillover effects are channelled through trade linkages (given the specification of our model). Third, none of the financial linkages are significant and the signs are negative for the U.S. and Euro area. This gives credence to

the theory of Backus, Kehoe and Kydland (1994) according to which, more financial integration leads to less output comovement. We will later use an alternative approach (A6 and A7) by using averages of financial linkages between periods in view of obtaining more significant results. Fourth, the three other significant variables are population growth that has a negative effect on GDP growth, the confidence index which has a negative coefficient and the constant term. All other variables are not significant.

In a subsequent regression we get rid of variables which overall seem to have a negligible effect in explaining GDP growth rates across countries. The results of this regression are exposed in column A2 of Table 1. Although the R-squared for this equation is much less than the preceding, interesting clearer results appear. First, growth in the U.S. and Euro area are significant and have effects that are closer in magnitude, with a one percent GDP growth decline having respectively a 0.22 and 0.42 percent effect on growth across countries. This results that the Euro area output growth has a dominating effect over the U.S output growth on GDP growth across the world goes against the popular belief that the U.S. economy is the most important and influence one in terms of potential worldwide spillover effects. One potential explanation could be that we have omitted some significant variable (related to linkages with the Euro area or the U.S.) that has explanatory power for output growth across countries and that is correlated with the variables in our model. This phenomenon would lead to omitted variable bias – and hence give us surprising coefficients. Furthermore, although the Japan coefficient is still not significant, its sign is now positive. Second, trade linkages with respect to the three areas display significant positive coefficients. The U.S. and Euro area have similar effects while again, Japan has substantially larger spillover

effects. Again, this might be due to the specification of our model. As in A1, the financial linkages variables are insignificant.

In order to have a better insight on the respective effects of trade linkages, financial linkages and the pre/post 1985 dummy variable, we run three regression including only the GDP growth rates of the three regions (A3), the GDP growth rates and the trade linkages with the three regions (A4) and the GDP growth rates and the financial linkages (A5). In all regressions, we include the dummy variable for the pre/post 1985 period.

In regression A3, the results are consistent with the previous ones. They show a 0.23 and 0.47 percent growth declines in the case of U.S. and Euro area growth slowdowns of one percent. Again population growth is significant and has a negative impact on growth. The LIBOR rate appears to be significant and positive (although very close to zero). The pre/post 1985 dummy variable is also significant and positive, (0.006).

To illustrate the effects of trade linkages, we run a regression excluding financial linkages (A4). The results are similar to the ones obtained in A2. GDP growth rates in the three regions have positive effects on output growth accross countries although only the U.S. and Euro area rates are significant. The trade linkages are significant in all three cases with the effects of the U.S. and the Euro area being almost identical and the Japan coefficient being much larger. The 1985 period dummy variable coefficient is very close to zero and non significant.

Finally, we run a regression excluding trade linkages and including financial linkages (A5). This is done in order to verify whether financial linkages might have a relation with production growth rates across the world. Financial linkages only play a minor role in explaining output growth rate across countries. The R-squared for this regression is 0.05 which is much lower than the R-squared obtained in the previous regressions.

Furthermore, we observe that none of the financial linkages with our regions of interest are significant. It is important to mention at this point that in order to obtain significant results for trade linkages, two different measures were used. As mentioned in the methodology section, we use total net portfolio flows with each region (U.S., Euro area, Japan) as a percentage of GDP in one instance and, $|NFA_i/GDP_i - NFA_{xx}/GDP_{xx}|$ where NFA is the net foreign assets in another instance. Unfortunately, these specifications result in non-significant results.

In pursue of better results for financial linkages, we adopt a new approach (A6 and A7). This approach consists in taking the average between two periods of the above described indicator: $|NFA_i/GDP_i - NFA_{xx}/GDP_{xx}|$. In using this methodology, our aim is to better encompass the notion of financial flows. The previous variable is indeed a static one that might not be adequate in reflecting the dynamics of financial linkages across countries.

In the regression A6, we repeat the estimation process of A2 (a benchmark for our results). At a first glance, the estimates are consistent with the one obtained in A2. However, we observe that financial linkage with respect to U.S. are now significant though the sign of the coefficient is surprising since financial linkage with U.S. have

negative effects on growth of GDP across countries. In A7, where we exclude trade linkages, this negative coefficient is still significant and negative. A logical conclusion is that financial linkages with the U.S. lead to decreased output growth. As mentioned above, these results thus lean in favour of Backus, Kehoe and Kydland (1994) in saying that more financial ties lead to desynchronized output growth.

4. Advanced Economies

Regression B1 shows the results obtained when taking into account all relevant variables. Several coefficients turn out to be significant namely GDP growth for the U.S. and the Euro area, trade linkages with the three regions and financial linkages with the U.S. Concerning output growth effects, a 1 percent shock to the Euro area GDP growth rate has a spillover effect of 0.61 percent across advanced economies. As we will elaborate in the next section this might be due to a large percentage of countries from the Advanced Economies group being Euro area countries or having strong linkages with it. Moreover, in specifications B1 and B2, we notice that although all three trade linkages coefficients are significant, the Japanese one dominates the other two areas, US and Euro. This leads us to think that there may be a specification omission: we might have omitted a significant variable for growth across advanced economies that is related to the Japanese economy (trade or financial linkages). If this is the case, then it might just be that the Japanese trade linkage variable incorporates other spillover effects not specifically related to trade.

In the specification B3, we include only financial linkages as $|NFA_i/GDP_i - NFA_{xx}/GDP_{xx}|$. The results confirm, as expected, that growth in the U.S. and Euro area

significantly explain output growth across advanced economies. We observe that Japan's GDP growth also has significant explanative power. One must however ponder upon the quantitative interpretation of these results. As previously observed, Euro area's output growth has larger effects on growth of advanced economies, U.S. GDP growth which, appear surprising and counterintuitive. However, given the composition of the advanced economies group (see appendix), these results become understandable. Indeed, our specification of the advanced economies includes all countries that make up the Euro area. It is therefore not surprising to obtain such results. Taking out the Euro area countries from this group proves difficult as we would only have about ten countries left in the group (which would not yield convincing panel data interpretation). Concerning the negative coefficient of Japan's output growth, one has to take into account that none of the advanced economies are Asian countries. Hence, obtaining a coefficient close to zero and slightly negative should come as no surprise.

5. Asia

Similarly to the world analysis, six types of regressions have been run to explain whether a 1 percentage point decline in US, Euro Area and Japan growth causes spillovers. Table C shows the results on these regressions (C1, C2, C3, C4, C5 and C6) where these last two regressions use average financial linkages. All six regressions are random-effects regressions, and display statistical significance at 5 percent level.

In regression C1, all variables are included except for Fuel Exports/ Total Exports and Government Debt/GDP which were deemed insignificant. First, we observe that output growth in the three regions does not play a significant role in explaining output growth

across countries. Second, trade linkages coefficients are significant in all three cases. Growth in Asian economies is positively related to trade linkages of with US and Japan while negatively related to the Euro Area. The population gap, the Libor rate, the Asian crisis dummy all have significant coefficients of the similar magnitude to the world regressions.

Regression C2 is run excluding the financial linkages variables. In this case, both GDP and Trade linkages variables turn out to be significant. We observe that one percent output declines in the U.S. and in Japan similar effect of the order of 0.35 percent declines in growth rates across Asian economies. In contrast with the previous regression, Japanese trade linkage are now insignificant. Furthermore, these results show that trade linkages with the Euro area as well as its output growth have a negative correlation with GDP growth across countries. This would indicate that a negative shock to the Euro area economy would positively influence Asian growth, a surprising result.

In regression C3, we exclude trade linkages. In this specification, the coefficients have the same signs as previously but their magnitudes are larger. This might be a sign of omitted variable bias in which the trade linkages (not included) influence the error term and are correlated with output growth – the same conclusion can be made for regression excluding financial linkages.

Regression C4 relates excludes trade and financial linkages. The output growth coefficients indicate that declines in US and Japan GDP growth would have a 0.5 percent impact on growth across Asian economies. This is a larger magnitude with

respect to coefficient obtained in C1. It is also relevant the coefficient of 0.70 in the output gap and therefore, C4 might indicate again the presence of omitted variable bias. Population growth is negatively correlated with output growth and its coefficient is measured by a -0.81 coefficient.

Financial average linkages are included for C5 and C6 estimations. Both regressions show similar results in terms of U.S. and Euro trade. However, the new specification does not improve the significance of financial linkages in explaining output growth across Asian economies.

6. Latin America

Specification D1 shows that only GDP growth in the U.S. has significant effects on economic growth across Latin America. On average, 1 percent decrease in U.S. output growth would lead to a 0.2 percent decrease in GDP growth rate across Latin America. We further observe that financial linkages with all three regions are significant although the signs of the coefficients for the U.S. and Japan are negative. As mentioned previously this lends credence to the view that financial linkage lead to output desynchronization. All other variables display consistent results with previous regressions.

When we exclude financial linkages (specification D2) only Japanese output growth has a significant effect in explaining growth across Latin American economies. As we have seen in the Asian regressions, this could evidence of omitted variable bias. Indeed, in specification C1, financial linkages with the U.S. display negative coefficients. If these

were to be correlated with output growth – which is possibly the case – excluding these would tend to reduce the importance of growth spillovers and might lead to insignificance. A second observation in this regression is that trade linkages with Japan have a larger effect on output growth than trade linkage with the U.S. It turns out to be surprising. In this sense, and regarding to Latin America, Japan is the second largest trading partner after the United States.

In the specification D3, we include only financial linkages. As expected, these results confirm that growth in the U.S. significantly explains output growth across Latin America. Besides, Latin America is also strongly financial interdependent in U.S. and Euro Area. In specification D4, we exclude financial and trade linkages. We find both U.S. and Japan GDP growth have significant explanative power since the coefficient is positive and significant. Japan economics affects Latin America economies through output growth and trade linkages. On the other side, the U.S economy affects Latin America economies through growth, trade and financial linkages.

8. Conclusions

Throughout our specifications, our results are consistent in magnitude and signs of the coefficients. This indicates that the general specification of our model is reasonable. Growth of output in the U.S. and in the Euro are significant in explaining growth differences across countries while gross domestic growth rates in Japan are significant only for Asia. The overall results show that a one percent drop in output growth in the U.S., Euro area and Japan respectively lead to – on average – reductions between 0.15 and 0.5 percent, between 0.4 and 0.65 percent and between 0 and 0.5 percent in output

growth across countries. These general results overshadow two key surprising findings. First, overall growth in the Euro area dominates the spillover effects of growth in the U.S. Second, in the Asian regression Euro area output growth produces negative effects for growth across countries. These results may originate from omitted variable bias in the sense that our specification might have omitted some variable(s) relevant in explaining GDP growth across the studied regions and correlated with the Euro area's output growth.

We observe the predominance of trade linkages over financial linkage in term of explanative power. Indeed, trade linkages are significant in almost every regression – although the coefficients differ across regions. In contrast, financial linkages are only occasionally significant.

Furthermore, despite using three different formulations to try and encompass financial linkages, we have not managed to yield overall significance (similar to that of trade linkages). We believe that this does not refute the importance of financial linkages. On the contrary, it illustrates the need for an adequate specification of the financial linkages that would fully grasp their growth spillover effects.

We conclude to the existence of a structural break in the transmission of growth spillover in 1985. Although this date is arbitrary, our test for structural change and the literature reviewed on the matter gives credence to the existence of a shift from worldwide shocks to more country specific shocks around the period 1985-1987.

Finally, in the light of current events, this study shows that shocks in major economies can potentially have important spillover effects across the world. Although these effects differ in magnitude – and sometimes in directions – it is undeniable that they exist. The extent to which they are channelled through the rest of the world then depends on country specific characteristics such as macroeconomic policies, exchange rate systems and “economic vulnerabilities”.

References:

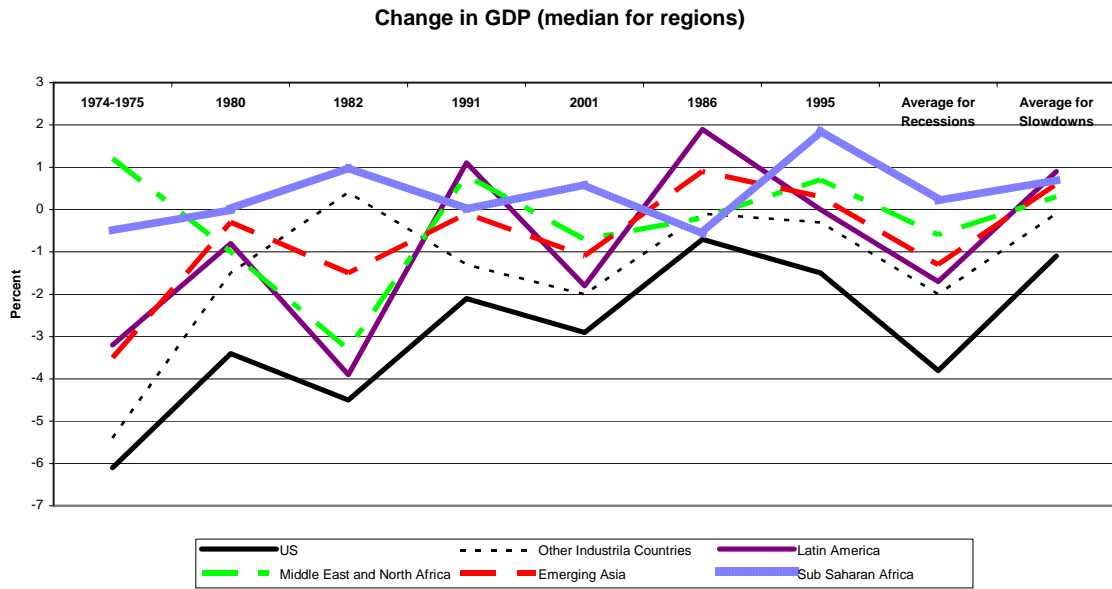
- **Arora, V., Vamvakidis, A.:** “The Impact of U.S. Growth on the Rest of the World: How Much Does it Matter?”, *Journal of Economic Integration*, Vol. 21 No. 1, 2006, March.
- **Backus, K., Kehoe P.J. and Kydland F.E.:** “Source Dynamics of the Trade Balance and the Terms of Trade: The J-Curve?”, *The American Economic Review*, Vol. 84, No. 1, pp. 84-103, March.
- **Benelli, R., Ganguly, S.:** “Financial Linkages Between the United States and Latin America - Evidence from Daily Data”, *IMF Working Paper 07/262*, 2007.
- **Bordo, M., Helbing, T.:** “Have National Business Cycles Become More Synchronized?”, *Macroeconomic Policies in the World Economy*, Berlin-Heidelberg: Springer Verlag, 2004.
- **Engle, R.F., and Susmel, R.:** “Common Volatility in International Equity Markets,” *Journal of Business and Economic Statistics*, Vol. 11, pp. 167–76, 1993, April.
- **Helbing, T., Bayoumi, T.:** “Are They All in the Same Boat? The 2000-2001 Growth Slowdown and the G-7 Business Cycle Linkages”, *IMF Working Paper 03/46*, 2003.
- **Helbing, T., Berezin, P., Kose, A. Kumhof, M., Laxton, D. and Spatafora, N.:** “Decoupling the Train? Spillovers and Cycles in the Global Economy”, *World Economic Outlook, International Monetary Fund*, April 2007.
- **Hoffmaiter, A., Roldos, J.:** “The Source of Macroeconomic Fluctuations in Developing Countries: Brazil and Korea”, *Journal of Macroeconomics*, Vol. 23, pp. 213-39, 2001, spring.

- **Imbs, J.:** “Trade, Finance, Specialization, and Synchronization,” *Review of Economics and Statistics*, Vol. 86, pp. 723–34, 2004, August.
 ———, “The Real Effects of Financial Integration,” *Journal of International Economics*, Vol. 68 (March), pp. 296–324, 2006.
- **International Monetary Fund:** *World Economic Outlook*, 2007, April.
- **Kose, M. A. and Yi, K.M.:** “Can the Standard International Business Cycle Model Explain the Relation Between Trade and Comovement?” *Journal of International Economics*, Vol. 68, pp. 267–95, 2006, March.
- **Lumsdaine, R., Prasad, E.:** “Identifying the Common Component of International Economic Fluctuations: A New Approach”, *Economic Journal* Vol. 113, pp. 101-207, 2003, January.
- **Monfort, A., Renne, J., Ruffer and R., Vitale, G.:** “Is Economic Activity in the G7 Synchronized? Common Shocks Versus Spillover Effects”, *CEPR Discussion Paper No. 4119*, 2003.
- **Obstfeld, M. :** “Risk Sharing, Global Diversification and Growth”, *American Economic Review* No 84, pp 1310-1329, 1994.
- **Stock, J., Watson, M.:** “Understanding Changes in Business Cycle Dynamics”, *Journal of the European Economic Association* Vol.3, 2005, September.
- **Stock, J., Watson, M.:** “Vector Autoregression”, *Journal of Economic Perspectives* Vol. 15/4, 2001, fall.
- **Zarnowitz, V.:** *Business Cycles: Theory, History, Indicators, and Forecasting*, NBER Studies in Business Cycles, Vol. 27, University of Chicago Press, 1992.

	Advanced Economies	Other Advanced Economies	Emerging Asia	Emerging Europe	Other Emerging Economies	Rest of the World	Others
United States	United States						
Japan	Japan						
Euro Area	Austria, Belgium, France, Germany, Italy, Luxembourg, Finland, Netherlands, Greece, Ireland, Portugal, Spain, Slovenia						
Latin America					Argentina, Brazil, Chile, Colombia, Mexico, Uruguay	Bolivia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haití, Honduras, Nicaragua, Panama, Paraguay, Peru, Venezuela, Barbados, The Bahamas, Antigua & Barbuda, Dominica, Grenada, Guyana, Belize, Jamaica, Netherlands Antillas, St. Kitts & Nevis, St. Lucia, St. Vincent & Grenadina, Suriname, Trinidad & Tobago	
Africa					South Africa	Djibouti, Algeria, Angola, Botswana, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Benin, Equatorial Guinea, Ethiopia, Gabon, Ghana, Gambia, Guinea Bissau, Côte d'Ivoire, Kenya, Lesotho, Madagascar, Malawi, Mali, Rwanda, Mauritania, Mauritius, Morocco, Mozambique, Niger, Nigeria, Zimbabwe, Zambia, Burkina Faso, Uganda, Tunisia, Togo, Tanzania, Swaziland, Sudan, Namibia, Sierra Leone, Senegal, Seychelles, St. Tome Principe, Rwanda	
Asia			Bangladesh, Bhutan, China, Myanmar, Cambodia, Sri Lanka, Mongolia, Taiwan, Hong Kong, India, Indonesia, Korea, Lao, Malaysia, Maldives, Nepal, Pakistan, Philippines, Singapore, Thailand, Vietnam, Salomon Islands, Fiji, Kiribati, Vanuatu, Papua New Guinea, Samoa, Tonga				
Middle East		Israel, Cyprus			Egypt, Jordan	Bahrain, Iran, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Rep., United Arab Emirates, Republic of Yemen, Libya	
Others		UK, Denmark, Norway, Sweden, Switzerland, Canada, Iceland, Australia, New Zealand		Turkey, Malta, Poland, Macedonia, Albania, Bulgaria, Czech Republic, Slovak Republic, Estonia, Latvia, Hungary, Lithuania, Croatia, Romania		Bosnia-Herzegovina, Croatia, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, Serbia, Uzbekistan, Armenia, Azerbaijan, Belarus	Afghanistan, Brunei, Eritrea

Table I. Countries by Economic Areas

Graph 1.1.: US economic recessions and slowdown



World	TABLE A				
	A1	A2	A3	A4	A5
Observations	712	596	758	621	732
Fixed/Random Effects	RE	FE	FE	FE	FE
GDPus growth	0.18 (0.001)	0.22 (0.000)	0.23 (0.000)	0.19 (0.000)	0.20 (0.000)
GDPeu growth	0.62 (0.000)	0.42 (0.000)	0.47 (0.000)	0.46 (0.000)	0.51 (0.000)
GDPjp growth	-0.02 (0.723)	0.024 (0.679)	0.044 (0.422)	0.03 (0.561)	0.04 (0.517)
Trade_us	0.006 (0.755)	0.045 (0.078)		0.05 (0.036)	
Trade_eu	0.007 (0.567)	0.047 (0.016)		0.05 (0.003)	
Trade_jp	0.14 (0.001)	0.33 (0.000)		0.33 (0.000)	
Financial_us	-0.012 (0.414)	-0.023 (0.126)			-0.016 (0.292)
Financial_eu	-0.006 (0.735)	0.017 (0.388)			0.014 (1.000)
Financial_jp	0.008 (0.248)	-0.002 (0.819)			0.038 (0.482)
Output Gap	0.005 (0.459)	0.002 (0.657)	0.003 (0.478)	0.002 (0.670)	0.02 (0.620)
Population Growth	-0.53 (0.005)	-0.89 (0.000)	-0.53 (0.000)	-0.75 (0.000)	-0.69 (0.000)
Fuel exports/Total Exports	0.000 (0.441)				
Confidence Index	-0.085 (0.000)				
Libor	0.000 (0.598)	0.000 (0.194)	0.000 (0.037)	0.000 (0.526)	0.000 (0.504)
Terms of Trade growth	0.002 (0.927)	0.005 (0.576)	0.006 (0.702)	0.005 (0.724)	0.006 (0.727)
Central Governement Debt/GDP	0.006 (0.173)				
1985 Dummy	-0.003 (0.312)	0.000 (0.950)	0.006 (0.020)	-0.004 (0.127)	0.001 (0.700)
Asia Crisis Dummy	-0.001 (0.956)	-0.01 (0.514)	-0.019 (0.235)	-0.007 (0.641)	0.006 (0.239)
Constant	0.07 (0.000)	-0.02 (0.000)	0.004 (0.330)	-0.002 (0.001)	0.016 (0.001)
R-squared	0.29	0.19	0.09	0.17	0.05
Wald Test (pvalue)	0.000	0.000	0.000	0.000	0.000

Financial average	
A6	A7
686	706
FE	FE
0.19 (0.000)	0.20 (0.000)
0.47 (0.000)	0.53 (0.000)
0.009 (0.883)	0.005 (0.930)
0.045 (0.083)	
0.06 (0.007)	
0.35 (0.000)	
-0.01 (0.006)	-0.16 (0.000)
0.008 (0.766)	0.05 (0.842)
0.008 (0.780)	-0.1 (0.718)
0.001 (0.785)	0.02 (0.651)
-0.87 (0.000)	-0.687 (0.000)
0.000 (0.560)	0.000 (0.401)
0.003 (0.852)	0.007 (0.685)
0.004 (0.141)	0.001 (0.590)
-0.008 (0.609)	-0.018 (0.270)
-0.016 (0.017)	0.018 (0.000)
0.18	0.05
0.000	0.000

Bold denotes significance at 0.05

Bold Italic denotes significance at 0.10

Advanced Economies	TABLE B			
	B1	B2	B3	B4
Observations	587	631	607	651
Fixed/ Random Effects	RE	RE	RE	RE
GDPus growth	0.13 (0.006)	0.14 (0.003)	0.14 (0.004)	0.15 (0.004)
GDPeu growth	0.61 (0.000)	0.58 (0.000)	0.66 (0.000)	0.63 (0.000)
GDPjp growth	-0.072 (0.210)	-0.040 (0.443)	-0.011 (0.057)	-0.073 (0.159)
Trade_us	0.042 (0.017)	0.042 (0.007)		
Trade_eu	0.027 (0.010)	0.022 (0.014)		
Trade_jp	0.35 (0.000)	0.27 (0.000)		
Financial_us	-0.008 (0.061)		-0.005 (0.217)	
Financial_eu	0.000 (0.994)		0.009 (0.737)	
Financial_jp	-0.001 (0.953)		0.005 (0.860)	
Output Gap	0.000 (0.902)	0.000 (0.877)	0.001 (0.761)	0.001 (0.754)
Population Growth	-0.94 (0.000)	-0.91 (0.000)	-0.75 (0.000)	-0.73 (0.000)
Fuel exports/Total Exports				
Confidence Index				
Libor	0.000 (0.197)	0.000 (0.341)	0.000 (0.009)	0.000 (0.197)
Terms of Trade growth	-0.008 (0.593)	-0.007 (0.607)	0.008 (0.616)	-0.08 (0.597)
Central Government Debt/GDP				
1985 Dummy	-0.000 (0.744)	0.000 (0.953)	0.004 (0.100)	0.004 (0.080)
Asia Crisis Dummy				
Constant	-0.007 (0.175)	-0.006 (0.214)	0.007 (0.15)	0.006 (0.116)
R-squared	0.24	0.2178	0.20	0.19
Wald Test (pvalue)	0.000	0.000	0.000	0.000

Bold denotes significance at 0.05

Bold Italic denotes significance at 0.10

Asia	TABLE C					
	C1	C2	C3	C4	C5	C6
Observations	100	107	100	107	94	94
Fixed/ Random Effects	RE	RE	RE	RE	RE	RE
GDPus growth	0.24 (0.152)	0.35 (0.044)	0.53 (0.003)	0.52 (0.004)	0.14 (0.398)	0.33 (0.065)
GDPeu growth	-0.50 (0.058)	-0.59 (0.029)	-0.60 (0.048)	-0.57 (0.055)	-0.41 (0.129)	-0.33 (0.273)
GDP jp growth	-0.065 (0.751)	0.34 (0.060)	0.50 (0.013)	0.51 (0.007)	0.10 (0.607)	0.47 (0.017)
Trade_us	0.23 (0.001)	0.17 (0.011)			0.26 (0.001)	
Trade_eu	-0.54 (0.000)	-0.35 (0.000)			-0.44 (0.000)	
Trade_jp	0.18 (0.036)	0.072 (0.347)			0.064 (0.488)	
Financial_us	-0.08 (0.095)		-0.10 (0.058)		-0.007 (0.326)	-0.10 (0.061)
Financial_eu	0.045 (0.460)		0.11 (0.096)		0.023 (0.847)	-0.097 (0.467)
Financial_jp	0.043 (0.072)		-0.021 (0.379)		0.011 (0.926)	0.12 (0.349)
Output Gap	1.03 (0.000)	0.87 (0.000)	0.69 (0.000)	0.70 (0.000)	0.99 (0.000)	0.73 (0.000)
Population Growth	-0.93 (0.061)	-0.78 (0.043)	-0.80 (0.045)	-0.81 (0.012)	-1.20 (0.017)	-0.49 (0.188)
Fuel Exports/ Total Exports						
Libor	-0.002 (0.031)	-0.001 (0.266)	-0.000 (0.971)	0.000 (0.517)	-0.003 (0.004)	-0.003 (0.014)
Terms of Trade Growth	0.059 (0.429)	0.14 (0.066)	0.15 (0.076)	0.17 (0.032)	0.11 (0.145)	0.10 (0.225)
Central Government Debt/GDP						
1985 Dummy	0.016 (0.082)	0.010 (0.286)	0.009 (0.358)	0.006 (0.519)	-0.006 (0.483)	-0.025 (0.007)
Asia Crisis Dummy	-0.042 (0.019)	-0.037 (0.054)	-0.045 (0.031)	-0.041 (0.051)	-0.034 (0.071)	0.034 (0.097)
Constant	0.042 (0.006)	0.046 (0.002)	0.054 (0.001)	0.041 (0.011)	0.076 (0.000)	0.095 (0.000)
R-squared	0.6150	0.5392	0.4637	0.4267	0.6144	0.5115
Wald-test (grades)	0.000	0.000	0.000	0.000	0.000	0.000

Bold denotes significance at 0.05

Bold Italic denotes significance at 0.10

Latin America	TABLE D			
	D1	D2	D3	D4
Observations	619	850	624	884
Fixed/ Random Effects	RE	FE	RE	RE
GDPus growth	0.2 (0.073)	0.15 (0.117)	0.21 (0.059)	0.22 (0.018)
GDPeu growth	-0.02 (0.901)	0.007 (0.96)	-0.03 (0.849)	0.02 (0.895)
GDPjp growth	0.06 (0.644)	0.35 (0.001)	0.06 (0.65)	0.28 (0.006)
Trade_us	-0.001 (0.913)	0.07 (0.000)		
Trade_eu	-0.048 (0.524)	-0.03 (0.568)		
Trade_jp	0.54 (0.000)	0.28 (0.01)		
Financial_us	-0.15 (0.001)		-0.165 (0.000)	
Financial_eu	0.22 (0.001)		0.25 (0.000)	
Financial_jp	-0.08 (0.003)		-0.099 (0.000)	
Output Gap				
Population Growth	-1.22 (0.000)	-1.1 (0.000)	-1.17 (0.000)	-0.83 (0.000)
Fuel exports/Total Exports				
Confidence Index				
Libor	-0.002 (0.014)	-0.002 (0.002)	-0.002 (0.01)	-0.001 (0.03)
Terms of Trade growth	0.02 (0.119)	0.036 (0.004)	0.023 (0.078)	0.035 (0.006)
Central Governement Debt/GDP				
1985 Dummy	0.003 (0.570)	-0.001 (0.798)	0.003 (0.559)	0.003 (0.413)
Asia Crisis Dummy				
Constant	0.041 (0.000)	0.009 (0.337)	0.05 (0.000)	0.02 (0.007)
R-squared	0.17	0.14	0.15	0.12
Wald Test (grades)	0.000	0.000	0.000	0.000

Bold denotes significance at 0.05

Bold Italic denotes significance at 0.10

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 credito.
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 Faña 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 Faña 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.
V́ctor 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 simultaneizar 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 Zárata-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
Víctor 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 Faña
- 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 Henríque 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 María 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