BANCO DE **ESPAÑA** Eurosistema

# Spring 2014 RESEARCH UPDATE

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Welcome to the Banco de España

# RESEARCH UPDATE

Central banking requires continual research input to inform policies, regulations, and decisions. For this reason, economic research is a fundamental part of the mission of the Eurosystem as a whole and of all individual NCB members. Research takes many forms: monitoring and forecasting of economic trends, publication of statistics, analyzing proposed policy changes, and also more fundamental investigation of the mechanisms that drive growth and fluctuations in real and financial variables. Ongoing participation in the latest macroeconomic debates can be especially important when – as in the last few years – events turn in unforeseen directions.

This is the first issue of the Banco de España Research Update, a new publication that will highlight economic research activities at the Bank, twice annually. Each Update will report on the latest working papers published at the Bank, and list the most recent staff publications in scholarly journals (this serves to replace the Bank's earlier annual Research Memorandum). There will be brief reports on conferences and announcements of upcoming events, and profiles of researchers affiliated with the Bank, especially new hires and visitors and people who are taking on new responsibilities.

Each *Update* will also feature short articles on recent Banco de España research initiatives that deserve particular attention. Consumer debt levels are an issue of concern in the aftermath of the recent economic crises. The Spanish Survey of Household Finances, which was developed at the Banco de España, has served as a reference for the new European Household Finance and Consumption Survey (HFCS), which monitors consumer finances across fifteen Eurozone countries in a harmonized way. Preliminary findings from the first wave of the HFCS were published in 2013. An article in this *Research Update* discusses how debt varies across the population both within and across European countries, and which institutional factors appear most relevant for explaining cross-country differences in the debt distribution.

Recent events have also made clear that monitoring inflation is by no means sufficient for achieving the goal of price stability. While consumer price inflation was low at the beginning of the past decade, a number of other indicators, such as current account balances and measures of public and private indebtedness, suggested large and growing imbalances. A second feature in this inaugural issue discusses a procedure for using measures of imbalances to identify the cyclical component of output growth. Such an improved output gap measure might allow earlier corrective policy actions when the difference between current and sustainable growth rates appears excessive.

We highlight these and other Banco de España research activities, trusting that they will interest the broader research community, in Spain and internationally, and thereby contribute to an improved understanding of economic policy.

Luis M. Linde Governor of the Banco de España

#### RECENT RESEARCH

## GROWTH BEYOND IMBALANCES. SUSTAINABLE GROWTH RATES AND OUTPUT GAP REASSESSMENT

ENRIQUE ALBEROLA, ÁNGEL ESTRADA AND DANIEL SANTABÁRBARA WORKING PAPER Nº 1313

The 'Great Recession' was preceded by a prolonged period of high growth, accompanied by low and stable inflation, the so-called 'Great Moderation'. During that period, potential growth estimates were trending upwards, so output was not perceived to be far above potential. However, other imbalances were progressively accumulating, eventually bringing about the worst crisis in decades. This paper proposes a methodology to obtain a measure of sustainable growth rates, as an alternative to potential growth measures. The new measure uses a variety of imbalance indicators to infer the part of the business cycle related to economic imbalances. As a result, the paper reassesses the behavior of output gaps in the US, the UK, Spain, Germany, and China, both in the 'Great Moderation' period and during the 'Great Recession', on the basis of the proposed sustainable growth measure. In countries that exhibited large imbalances prior to the crisis, the sustainable growth measure remains more stable than the standard potential growth measure did during that period, so the inferred output gaps are larger.

#### Introduction

The global financial crisis of 2008 was preceded by a protracted phase of economic expansion coupled with low inflation and macroeconomic stability. This period came to be known as the 'Great Moderation', where observed growth was considered to be underpinned by solid economic foundations. However, domestic and external economic and financial imbalances were accumulating, and eventually led to the worst crisis in decades, which has become known, in contrast to the previous period, as the 'Great Recession'.

Although there were warnings from various institutions that the increasing imbalances indicated that the observed growth rates were unsustainable, the dominant perception was that the high growth rates were there to stay. The progressive increase in the estimated potential growth rate contributed to - and was a reflection of this perception. In that respect, the experience of the crisis reveals the weaknesses of standard potential growth estimates as a tool to capture the sustainable rate of growth of the economy. The main limitation of the potential growth estimates is the consideration of just one indicator to sum up the imbalances of the economy: the inflation rate, which is supposed to capture the deviations of observed from structural unemployment. But during the last decade or so, inflation rates, represented by consumer prices (CPI), seem not to have been a sufficient indicator of the macroeconomic imbalances of the economy. At a time when inflation had stabilized, other indicators of imbalances showed a significant widening in many countries. The current account deficits of countries such as the US, the UK and Spain increased significantly, while at the same time, potential growth estimates remained quite strong, or even increased. The crisis has shown that observed growth in that period was excessive and its nature pernicious for the stability of the system.

This paper presents a methodology to obtain estimates of sustainable growth rates. The sustainable growth rate is defined as the output growth that does not generate or widen macroeconomic imbalances, which are identified through a wide set of domestic and external indicators. The methodology is analogous to that used to estimate potential growth, with two major modifications. First, several refinements to the components of production are made in order to obtain a more precise framework to assess cyclical fluctuations related to imbalances. Second, we consider a rich set of economic and financial variables which may reflect economic imbalances, in order to identify which imbalances drive the business cycle.

#### Macroeconomic imbalances and potential growth

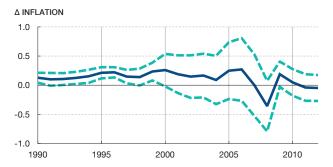
In recent years there have been a significant number of contributions to the literature on imbalance indicators.

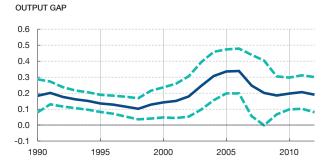
This reflects the consensus among analysts and policymakers on the relevance of imbalances for explaining the current crisis and the need to correct them before starting a new period of robust, sustainable and balanced growth. In fact, several international organizations have developed frameworks for the evaluation and early detection of macroeconomic imbalances. Based on those precedents, we consider a wide battery of imbalance indicators, classified in three groups. First, those based on the behavior of prices, including the real effective exchange rate for the external sector, and the Consumer Price Index (CPI) and the GDP deflator for the domestic sector. The second group includes real flow variables. In this category we have analyzed the current account from the external perspective, and private and public balances (and their components), housing investment, and the share of the non-tradable sector from the domestic side (all of them as a percentage of GDP). Finally, the third group of imbalance indicators considers real stocks, also as a percentage of GDP. The specific indicators in this group are net foreign assets for the external sector, and private and public debt for the domestic one.

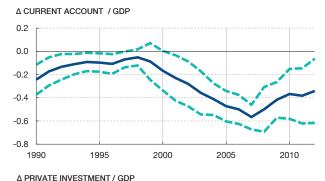
Standard potential output methodology considers CPI inflation a sufficient statistic for all macroeconomic imbalances. Therefore, one required property of standard potential output estimates would be for them to be unrelated to other macroeconomic imbalances. Another desirable property of potential growth estimates made over time - real time estimates, as opposed to ex-post estimates - is that they should be unrelated to ex-post output gaps. Both elements might entail relatively minor revisions of potential growth estimates when new information arrives. However, the following stylized facts reveal that neither desirable property holds and, therefore, the standard potential growth estimates are providing misleading signals of the magnitude of the economic slack and, ultimately, of the imbalances that an economy faces. To ascertain formally whether these properties hold, we test to what extent the real time potential growth estimates are systematically associated with the changes in the imbalances indicators (see figure 1).

The significance of these relationships is assessed by estimating 8-year window rolling bivariate regressions for the pooled data of the United States, the United Kingdom, Spain and Germany of potential growth estimates and the corresponding imbalance indicator. The first result is that, as expected, real-time potential output is effectively uncorrelated with inflation developments. Second, the ex-post output gap is

SIMPLE REGRESSION COEFFICIENT WITH REAL-TIME POTENTIAL GROWTH Assessed in t+1, 95% confidence interval









SOURCE: Own calculations.

clearly associated with real-time potential growth, which is an implicit recognition that such potential growth estimates did not fully capture the trend component of GDP and were largely uncertain. Third, the estimates of potential growth are correlated with different measures of external imbalances or domestic ones. Fourth, real-time potential growth estimates tend to increase when imbalances are rising, and to decrease when correcting.

#### Methodology

There are various different methodologies available for estimating the output gap and potential GDP growth. In our case multivariate methods are the preferred option, as they allow us to incorporate the information from the imbalance indicators. Among these, the production function approach seems to be the most suitable, since it takes into account the technological capacities of the economy and the primary productive factor endowments. A production function is a mathematical tool summarizing the productive process of an economy. At the aggregate level, it is assumed that production (Y) requires the involvement of two primary inputs, capital (K) and labor (L), and that technological progress (total factor productivity, TFP) is possible. Assuming that the production function exhibits constant returns to scale and is twice differentiable, the growth rate of production can be expressed as follows:

$$\Delta y = \alpha \Delta I + (1 - \alpha) \Delta k + \Delta t f p$$
 [1]

where  $\Delta$  is the first difference, lower case letters represent logs, and  $\alpha$  is the elasticity of output with respect to labor. The first order profit maximization condition of the producing firm implies that, under perfect competition in the input and product markets,  $\alpha$ will be equal to the labor income share.

Expression [1] has four observable variables (output, labor, capital and the labor share of income); therefore TFP growth can be obtained as a residual. To obtain the series of sustainable growth rates ( $\Delta y^*$ ) it is necessary to evaluate the sustainable levels of the primary factors of production and total factor productivity ( $\Delta I^*$ ,  $\Delta k^*$  and  $\Delta tfp^*$ ), weighted by the labour share of income. Labor input is proxied by total hours worked, the product of the number of persons employed and the average number of hours worked per person. Total employment can be calculated as the product of three variables: i) the population of working age; ii) the participation rate; and iii) one minus the unemployment rate. To obtain sustainable labour growth it is necessary to identify the sustainable growth rate of these four variables, as all of them could be influenced by the imbalances. In the case of the capital stock, it is taken into account that capital is not always used with the same intensity, through the explicit consideration of the capacity utilization indicator. Furthermore, the capital stock is also disaggregated into residential and non-residential, to account for the different productivity of both elements. The sustainable capital will be constructed by first identifying the sustainable counterparts of residential and nonresidential capital stocks and that of capacity utilization. Finally, sustainable total factor productivity growth is individually identified.

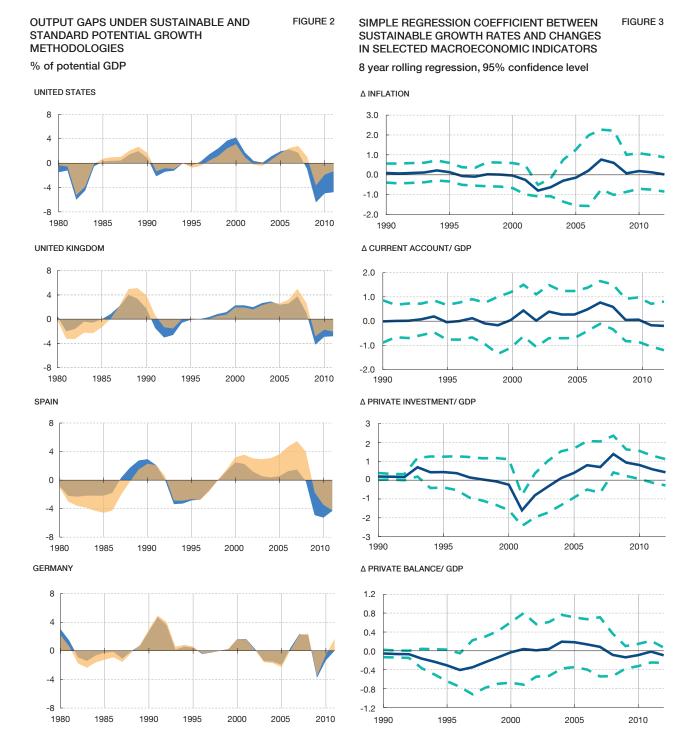
To extract the sustainable components for each element of the production factor defined previously, a statistical procedure is used based on Planas and Rossi (2010). It establishes that every economic variable can be disaggregated in a cyclical and a trend component. The trend component shows a unit root with drift, and the transitory component is characterized by regular oscillations. This transitory component is identified with the help of the imbalances indicators, since theory establishes that they are heavily influenced by economic conditions. The best example of this association is the Phillips curve.

Summarizing, the first stage of the analysis is to identify the imbalances which predict the cyclical component of each production factor. The second is to construct sustainable GDP by adding up the permanent components of the production factors, once the relevant imbalances have been taken into account.

#### Results

In the case of the *United States*, the most informative indicators for identifying the permanent and cyclical components of the constituents of the production function were the current account, the public and private sector balances, and residential investment. In the *United Kingdom* this role was played by the current account balance, the financing needs of the public sector and residential investment. In Spain the current account balance, the private sector financing needs and the public sector balance are the most relevant indicators, while residential investment was, somewhat paradoxically, not so important. In Germany, the nontradable sector and the private and public sectors balances are the key indicators to identify sustainable growth. Finally, in the case of China, the current account balance and the public balance appear to be the imbalances that best help to identify sustainable growth.

Figure 2 displays the differences between traditional output gaps and those estimated with this methodology. As can be seen, in the case of the current account deficit countries, sustainable output gaps tend to be more volatile than standard gaps prior to the 'Great Recession'. This obviously implies that sustainable growth is more stable than potential. Differences with



SOURCE: Own calculations.

SUSTAINABLE OUTPUT

traditional methodology in the cases of Germany and China (not shown in the figure) are minor.

POTENTIAL OUTPUT

Figure 3 shows the statistical relationship between sustainable growth estimates and a set of macroeconomic imbalances (in a similar way to how potential output is shown in figure 1). First, sustainable growth estimates, like standard potential growth estimates, are not correlated with inflation developments. Second, unlike potential growth estimates, sustainable growth is not correlated with other indicators of imbalances, apart from residential investment. Therefore, we would expect sustainable growth rates to be less prone to revisions than potential growth, at least in this regard. However,

SOURCE: Own calculations.

this should be proven formally, by generating real-time sustainable growth estimates.

#### Conclusions and further work

Most of the methodologies used to obtain trend growth rates are based on the concept of potential growth, and thus only take into account one particular imbalance, namely, inflation. This paper proposes a new methodology to estimate sustainable growth rates that considers the informational content of other imbalance indicators apart from inflation. For the five countries analyzed, the use of different imbalance indicators provides valuable information to identify the

cyclical component of activity, although not all of them are relevant for all countries. We consider this paper a first step towards obtaining more reliable estimates of sustainable growth, which could be improved in several ways. First, we could discriminate between the impact of refinements in the production function and that of imbalances on the sustainable growth estimates. Second, we need to analyze real time revisions of sustainable growth using this methodology, as a further check of the robustness of the estimates. Finally, integrating the analysis in a real multi-equation framework would improve the empirical approach, and we are confident that our results are robust to this extension.

# THE DISTRIBUTION OF DEBT ACROSS EURO AREA COUNTRIES: THE ROLE OF INDIVIDUAL CHARACTERISTICS. **INSTITUTIONS AND CREDIT CONDITIONS**

OLYMPIA BOVER (BANCO DE ESPAÑA), JOSE MARIA CASADO (BANCO DE ESPAÑA), SONIA COSTA (BANCO DE PORTUGAL), PHILIP DU CAJU (BANQUE NATIONALE DE BELGIQUE), YVONNE MCCARTHY (CENTRAL BANK OF IRELAND), EVA SIERMINSKA (CEPS / INSTEAD RESEARCH INSTITUTE), PANAGIOTA TZAMOURANI (BANK OF GREECE), ERNESTO VILLANUEVA (BANCO DE ESPAÑA) AND TIBOR ZAVADIL (NARODNA BANKA SLOVENSKA)

WORKING PAPER Nº 1320

In 2006, the European Central Bank established the Household Finance and Consumption Network (HFCN) to implement a harmonized survey, comparable across countries, relating to finances and consumption of European households. One of the reference points for this European project was the Spanish Survey of Household Finances (Encuesta Financiera de las Familias, EFF) which was developed by Olympia Bover at the Banco de España. Three waves of EFF data are now available, for 2002, 2005, and 2008, and the fourth wave, for 2011, will be available in early 2014.

After some years of preparatory work, more than 62,000 households were surveyed in fifteen Eurozone countries between 2009 and 2011, comprising the first wave of the Household Finance and Consumption Survey (HFCS). The data, and preliminary results on debt, assets, and consumption, were published in April of 2013.

The working group on household debt was chaired by Olympia Bover, and included participants from many European national banks and research institutes. The working group has documented how the distribution of debt across households differs between countries in the Eurozone. A non-technical summary of the research is provided here; the full paper is aviable in the working paper series of the ECB, the Banco de España, and several other central banks.

#### Non-Technical Summary

In this paper we present an up-to-date assessment of the differences across euro area countries in the distributions of various measures of debt conditional on household characteristics. We consider three different outcomes: the probability of holding debt, the amount of debt held and, in the case of secured debt, the interest rate paid on the main mortgage. The analysis relies on the new Household Finance and Consumption Survey (HFCS), a harmonized survey that contains information on household demographics, debt, wealth and income across euro area countries.

The data reveal striking differences in the incidence, amount and cost of debt held by comparable households across countries in the Euro area. For example, nearly half of all Dutch households hold secured debt while only one in ten Italian households do. Furthermore, debt-to-income ratios of Austrian debt holders are three times smaller than those of Dutch households. In terms of explaining debt holdings within countries, we find the age, income and education level of household members to be important demographic considerations. In this context, we find evidence of a hump-shaped profile of secured debt holding over age cohort groups. Specifically, the propensity to borrow tends to peak for cohorts aged 35-44 at the time of the survey, before the (crosssectional) income profile peaks, possibly suggesting a role for secured debt in smoothing household consumption. Nevertheless, cross-country differences in the age, income and education profiles of borrowers are substantial. There is also substantial heterogeneity in how mortgage interest rates are related to income or borrower age across countries.

As a next step, we examine the role of legal and economic institutions in accounting for the different impacts of household characteristics on debt patterns across countries. In particular, we analyze the role of the legal enforcement of contracts, measured by the time needed to repossess a house; the tax treatment of mortgage repayments; regulatory loan-to-value ratios; and the depth of information available about borrowers and credit conditions. Theoretical and quantitative models have stressed the role of each of these institutions in shaping the distribution of debt outcomes among age or income groups. For example, the models of Chambers et al. (2009a) and Ortalo-Magné and Rady (1999, 2006) analyze the impact of loan-to-value ratios on the chances of young and low-income households holding debt. Another strand of the literature discusses how the supply and distribution of debt is affected by bank losses in the event of non-repayment, measured as the opportunity and uncertainty costs of longer repossession processes (Jappelli et al; 2005), or by the presence of the bankruptcy option (Livshits et al; 2007 or Chatterjee et al; 2007). Gervais (2002) examines the impact of tax exemptions on mortgage repayments on the demand for housing at different stages of the life cycle and Edelberg (2006) discusses the consequences of improved borrower information on the pricing of default risk and on the amount of debt granted to households that, at the time of loan application, are most likely to repay. Finally, Campbell and Cocco (2003) report simulations that suggest that fixed rate mortgages are most attractive for the borrowing behavior of households with riskier income profiles.

Our findings from the second stage suggest that among all the institutions we consider, the length of repossession best explains the features of the distribution of debt we analyze. In countries with one standard deviation longer repossession periods, we find that the proportion of households with secured debt is 12 per cent smaller, the amount borrowed by the youngest set of households (conditional on borrowing) is 8 per cent less than that of our reference group, and the interest rates paid by low income households are 0.3 percentage points higher. These results are robust to the inclusion of other institutions. Regulatory loan-to-value ratios, the taxation of mortgages and the prevalence of interest-only or fixedrate mortgages deliver less robust results.

One interpretation of our results is that the supply of secured credit is affected by legal processes that delay the recovery of collateral in the case of non-repayment. In this case, banks react to expected losses due to longer repossession periods not only by rationing quantities or rejecting applications but also by pricing secured debt differently across income groups and charging relatively higher interest rates to low income households.

Finally, we have documented substantial heterogeneity in the distribution of household debt across countries. Such diversity has implications for a wide array of outcomes including macroeconomic policy - the consequences of an interest rate increase, for example, depend on the fraction and the characteristics of indebted households - and financial stability - loan arrears depend on the income, age and household structure of indebted households. Those outcomes merit further research.

# 2013 WORKING PAPERS LINK TO WORKING PAPERS PAGE

#### **LOGIT PRICE DYNAMICS**

JAMES COSTAIN AND ANTON NAKOV WORKING PAPER N° 1301

We propose a near-rational model of retail price adjustment consistent with microeconomic and macroeconomic evidence on price dynamics. Our framework is based on the idea that avoiding errors in decision making is costly. Given our assumed cost function for error avoidance, the timing of firms' price adjustments is determined by a weighted binary logit, and the prices they choose are determined by a multinomial logit. We build this behavior into a DSGE model, estimate the decision cost function by matching microdata, and simulate aggregate dynamics using a tractable algorithm for heterogeneous-agent models.

Both errors in the prices firms set, and errors in the timing of these adjustments, are relevant for our results. Errors of the first type help make our model consistent with some puzzling observations from microdata, such as the coexistence of large and small price changes, the behavior of adjustment hazards, and the relative variability of prices and costs. Errors of the second type increase the real effects of monetary shocks, by reducing the correlation between the value of price adjustment and the probability of adjustment, (i.e., by reducing the 'selection effect'). Allowing for both types of errors also helps reproduce the effects of trend inflation on price adjustment behavior.

Our model of error-prone pricing in many ways resembles a stochastic menu cost (SMC) model, but it has less free parameters than most SMC models have, and unlike those models, it does not require the implausible assumption of i.i.d. adjustment costs. Our derivation of a weighted logit from control costs oers an alternative justication for the adjustment hazard derived by Woodford (2008). Our assumption that costs are related to entropy is similar to the framework of Sims (2003) and the subsequent 'rational inattention' literature. However, our setup has the major technical advantage that a firm's idiosyncratic state variable is simply its price level and productivity, whereas under rational inattention a firm's idiosyncratic state is its prior (which is generally an infinite-dimensional object).

#### INSOLVENCY INSTITUTIONS AND EFFICIENCY: THE SPANISH CASE

MIGUEL GARCÍA-POSADA WORKING PAPER Nº 1302

The paper warns about the potential efficiency losses associated with low business bankruptcy rates (number of firms filing for bankruptcy as a proportion of the total stock of firms) and shows that welfare could be improved by increasing the protection of creditors in the bankruptcy system. These ideas are illustrated with the Spanish case. The paper also predicts a positive correlation between welfare and bankruptcy rates, a finding that seems consistent with the empirical evidence. The argument, analysed with an incomplete contracts model à la Bolton and Scharfstein (1996), is as follows. The low efficiency and low creditor protection of the Spanish bankruptcy system relative to those of an alternative insolvency institution, namely the mortgage system, mean that firms and their creditors mainly deal with credit provision and eventual insolvency through the latter. However, in order to use the mortgage system, some firms must overinvest in capital assets (real estate, equipment) since those are the assets that can be pledged as mortgage collateral. This overinvestment leads to productive inefficiencies, which may be very costly for industries that require a high level of other factors of production (e.g. R&D). Furthermore, the mortgage system is too creditor friendly, in the sense that it always grants the control of the firm's assets to creditors in the event of default. Since creditors are inherently biased towards liquidation, this leads to some inefficient liquidations.

# FIRM SIZE AND JUDICIAL EFFICACY: EVIDENCE FOR THE CIVIL PROCEDURES IN SPAIN

MIGUEL GARCÍA-POSADA AND JUAN S. MORA-SANGUINETTI WORKING PAPER Nº 1303

The literature has found that the size of firms matters for innovation and productivity and, thus, for economic performance. It is therefore worth explaining why enterprises in Spain are small in international terms. Our findings indicate that the quality of the institutional

environment plays a role. Specifically, this paper analyses the different channels through which the efficacy of Spanish courts may affect the size of the companies at the provincial level. Regarding the existing literature, this paper is innovative in several important respects. First, we disentangle the impact of judicial efficacy on average firm size by differentiating between the effect on the growth of incumbent firms (intensive margin) and the effect on entry and exit rates (extensive margin), finding clear evidence of the former but not of the latter. We do so by using a firm-level database of more than half a million companies and real data (not estimates) on judicial efficacy at the local level. Second. this paper is the first to analyse the relationship between firm size and the effectiveness of justice after the reform of the civil procedures in 2000. Finally, and most significantly, it is the first paper in the literature to analyse the specific impact of the various civil procedures, both at the declaratory and the executory stage. In general, we find that judicial efficacy has a positive effect on firm size, but it critically depends on the type of the procedure, something that the previous literature has overlooked. More specifically, judicial efficacy matters at the declaratory stage (e.g. when a debt is declared and recognised by a judge), while it does not have a significant impact on size at the executory stage.

# COMMODITY PRICES AND THE BUSINESS CYCLE IN LATIN AMERICA: LIVING AND DYING BY COMMODITIES?

MAXIMO CAMACHO AND GABRIEL PEREZ-QUIROS WORKING PAPER Nº 1304

We analyze the dynamic interactions between commodity prices and output growth of the seven biggest Latin American exporters: Argentina, Brazil, Colombia, Chile, Mexico, Peru and Venezuela. Using a novel definition of Markovs witching impulse response functions, we find that the response of their respective output growth to commodity price shocks is time-dependent, sizedependent and sign-dependent. Overall, the major evidence of asymmetries in output growth responses occurs when commodity price shocks lead to regime shifts. Accordingly, we consider that the design of optimal counter-cyclical stabilization policies in this region should take into account that the reactions of economic activity vary considerably across business cycle regimes.

#### **ESTIMATION OF REGULATORY CREDIT RISK MODELS**

CARLOS PÉREZ MONTES

WORKING PAPER Nº 1305

This article estimates a general credit risk model with both macroeconomic and latent credit factors for Spanish banks during the period 2004-2010. The proposed framework allows to estimate with bank level data both the standard credit risk model of Basel II and generalized models. I find evidence of persistence in the credit latent factor and of a significant effect of GDP growth and interbank rates on loan default rates. The estimated default correlation is low across specifications. The model is also used to calculate the impact on the probabilities of default of stressed economic scenarios.

## THE EFFECT OF FORECLOSURE REGULATION: EVIDENCE FOR THE US MORTGAGE MARKET AT STATE LEVEL

FERNANDO LÓPEZ VICENTE

WORKING PAPER Nº 1306

Do laws to protect borrowers curb foreclosures? This question is addressed by analysing the impact of foreclosure laws on default rates at state level in the US mortgage market. Using panel data techniques, we find a statistically significant effect of regulation on the different stages of the foreclosure process. More precisely, we analyse the effect of regulation on 60-day delinquencies and foreclosure starts, with a focus on three protective elements commonly found in state foreclosure laws, namely requiring a judicial process, granting a redemption period and banning a deficiency judgment. We find that, whereas protective states exhibit, on average, lower 60-day delinquency rates, more protection does not ultimately bring about lower foreclosure rates. Lenders seem to ration credit to mitigate costly protective laws, thereby reducing delinquency rates; but this effect is overshadowed by a moral hazard problem since, once borrowers are delinquent, they have incentives to take advantage of the protection due to the lower costs of foreclosure. We also find that the recent housing market crisis has exacerbated that behaviour. Finally, we show that lengthening the foreclosure process is no cure for the foreclosure crisis.

#### TESTING WEAK EXOGENEITY IN COINTEGRATED PANELS

ENRIQUE MORAL-BENITO AND LUIS SERVEN

WORKING PAPER Nº 1307

For reasons of empirical tractability, analysis of cointegrated economic time series is often developed in a partial setting, in which a subset of variables is explictly modeled conditional on the rest. This approach yields valid inference only if the conditioning variables are weakly exogenous for the parameters of interest. This paper proposes a new test of weak exogeneity in panel cointegration models. The test has a limiting

Gumbel distribution that is obtained by first letting T →  $\infty$  and then letting N  $\rightarrow \infty$ . We evaluate the accuracy of the asymptotic approximation in finite samples via simulation experiments. Finally, as an empirical illustration, we test weak exogeneity of disposable income and wealth in aggregate consumption.

TERM STRUCTURE ESTIMATION, LIQUIDITY-INDUCED HETEROSKEDASTICITY AND THE PRICE OF LIQUIDITY RISK

EMMA BERENGUER, RICARDO GIMENO AND JUAN M. NAVE WORKING PAPER Nº 1308

Since the seminal paper of Vasicek and Fong (1982), the term structures of interest rates have been fitted assumina that yields are cross-sectionally homoskedastic. We show that this assumption does not hold when there are differences in liquidity, even for bonds of the same issuer. Lower turnover implies higher volatility. In addition, a minimum tick size for bond price negotiation will produce higher volatility for bonds approaching their maturity dates. To show these effects, we use data for Spanish sovereign bonds from 1988 to 2010, covering more than 700 bonds and 5000 trading days. We estimate the out-of sample error for each bond and day. The variance of these errors is found to be negatively correlated with each bond's turnover and duration, while the mean of the errors is found to be directly correlated with the estimated variance. As a result, we propose a modified Svensson (1994) yield curve model to fit the term structure, adding a liquidity term and estimating parameters by weighted least-squared errors to take into account the liquidity induced heteroskedasticity.

#### FISCAL MULTIPLIERS IN TURBULENT TIMES: THE CASE OF SPAIN

PABLO HERNÁNDEZ DE COS AND ENRIQUE MORAL-BENITO WORKING PAPER Nº 1309

What are the output responses to fiscal policy? Despite important advances reported in the literature, quantifying the size of the fiscal multiplier remains a challenge. Indeed, the guest to estimate a unique fiscal multiplier is probably an ill-posed one. The magnitude of the multiplier may well depend on country- and timespecific characteristics of the fiscal stance under scrutiny. In this paper, we estimate state-specific multipliers for Spain depending on the state of the economy in several of its dimensions. The government spending multiplier is estimated to be larger during recessions and periods of banking stress, but much smaller (or even negative) during periods of weak public

finances. Combining these three dimensions into a single global turmoil indicator by the use of principal component analysis, the estimated multipliers are 1.4 for crisis (or turbulent) times and 0.6 for tranquil times

#### DSGE MODELS AND THE LUCAS CRITIQUE

SAMUEL HURTADO

WORKING PAPER Nº 1310

Modern DSGE models are microfounded and have deep parameters that should be invariant to changes in economic policy, so in principle they are not subject to the Lucas critique. But the literature has already established that misspecification issues also cause parameter instability after policy changes in DSGE models. This paper will look at the implications of parameter shifts for econometric policy evaluation, to see whether policy advice derived from DSGE models would have differed fundamentally from that which the policymakers of the 1970s derived from their reducedform Phillips curves. The results show drift in most parameters, including those that are supposedly structural (such as the share of capital in production, habits or the elasticity of labor supply to the real wage), and major shifts in the impulse response functions derived from the real-time estimation of the model. After the expansionary monetary shocks of the early 1970s, a standard DSGE model would have behaved very similarly to an old-style Phillips curve, with marked shifts in parameter values and impulse response functions.

# FISCAL DELEGATION IN A MONETARY UNION WITH **DECENTRALIZED PUBLIC SPENDING**

HENRIQUE S. BASSO AND JAMES COSTAIN WORKING PAPER Nº 1311

This paper studies the effects of delegating control of sovereign debt issuance to an independent authority in a monetary union where public spending decisions are decentralized. The model assumes that no policy makers are capable of commitment to a rule. However, consistent with Rogoff (1985) and with the recent history of central banking, it assumes that an institution may be designed to have a strong preference for achieving some clear, simple, quantitative policy goal.

Following Beetsma and Bovenberg (1999), we show that in a monetary union where a single central bank interacts with many member governments, debt is excessive relative to a social planner's solution. We extend their analysis by considering the establishment of an independent fiscal authority (IFA) mandated to maintain long-run budget balance. We show that delegating sovereign debt issuance to an IFA in each member state shifts down the time path of debt, because this eliminates aspects of deficit bias inherent in democratic politics. Delegating to a single IFA at the union level lowers debt further, because common pool problems across regions' deficit choices are internalized.

The establishment of a federal government with fiscal powers over the whole monetary union would be less likely to avoid excessive deficits, because only the second mechanism mentioned above would apply. Moreover, the effective level of public services would be lower, if centralized spending decisions are less informationally efficient.

#### DOES INCOME DEPRIVATION AFFECT PEOPLE'S MENTAL WELL-BEING?

MAITE BLÁZQUEZ CUESTA AND SANTIAGO BUDRÍA WORKING PAPER Nº 1312

This paper uses panel data from the 2002-2010 waves of the German Socio-Economic Panel dataset (SOEP) to assess the impact of income deprivation upon individual mental well-being. Unobserved heterogeneity is controlled for by means of a random effects model extended to include a Mundlak term and explicit controls for the respondents' personality traits. The paper shows that, for a given household income, a less favourable relative position in the income distribution is associated with lower mental well-being. This effect is not statistically significant among women, though. Among men, a one standard deviation increase in income deprivation is found to be as harmful as a reduction in permanent household income of almost 30%. Interestingly, this impact is found to differ among individuals endowed with different sets of non-cognitive skills. We suggest that policies, practices and initiatives aimed at improving well-being among European citizens require a better understanding of individuals' sensitiveness to others' income.

# GROWTH BEYOND IMBALANCES. SUSTAINABLE GROWTH RATES AND OUTPUT GAP REASSESSMENT

ENRIQUE ALBEROLA, ÁNGEL ESTRADA AND DANIEL SANTABÁRBARA WORKING PAPER Nº 1313

See Features section.

## DISENTANGLING CONTAGION AMONG SOVEREIGN CDS SPREADS DURING THE EUROPEAN DEBT CRISIS

CARMEN BROTO AND GABRIEL PEREZ-QUIROS

WORKING PAPER Nº 1314

During the last crisis, developed economies' sovereign Credit Default Swap (hereafter CDS) premia have gained in importance as a tool for approximating credit risk. In this paper, we fit a dynamic factor model to decompose the sovereign CDS spreads of ten OECD economies into three components: a common factor, a second factor driven by European peripheral countries and an idiosyncratic component. We use this decomposition to propose a novel methodology based on the real-time estimates of the model to characterize contagion among the ten series. Our procedure allows the country that triggers contagion in each period, which can be any peripheral economy, to be disentangled. According to our findings, since the onset of the sovereign debt crisis, contagion has played a non-negligible role in the European peripheral countries, which confirms the existence of significant financial linkages between these economies.

#### ARE THERE ALTERNATIVES TO BANKRUPTCY? A STUDY OF SMALL BUSINESS DISTRESS IN SPAIN

MIGUEL GARCÍA-POSADA AND JUAN S. MORA-SANGUINETTI WORKING PAPER N° 1315

Small businesses, the majority of Spanish firms, rarely file for formal bankruptcy, and this has been the case even during the current economic crisis. This suggests that bankruptcy law has a limited role to play in the distress of small firms. We propose an explanation based on two premises: (i) bankruptcy procedures are more costly and drawn out than the main alternative procedure, the mortgage foreclosure; (ii) personal bankruptcy law is unattractive to the individual debtor. Empirical analyses on a large micro data sample of Spanish, French and UK firms corroborate our hypothesis. It is important to note that these results are based on data that do not yet capture the impact of recent reforms of the Spanish insolvency framework.

#### AGGLOMERATION MATTERS FOR TRADE

ROBERTO RAMOS AND ENRIQUE MORAL-BENITO WORKING PAPER Nº 1316

We use a unique administrative dataset of Spanish exporters to document the existence of exporters' geographical agglomeration by export destination. We reveal that firms selling to countries with worse business regulations, a dissimilar language and a different currency tend to cluster significantly more. We then assess the implications of exporters' geographical agglomeration for firms' behavior and for the estimated welfare gains from trade. On the one hand, we find that exporters engage in more stable trade relationships with those countries that are the export destinations of nearby firms. On the other, we introduce agglomeration in a model of international trade à la Melitz (2003). Using our Spanish firm-level data, we find that, relative to a model without agglomeration, taking this phenomenon into account increases the elasticity of welfare with respect to fixed trade costs by 44%.

#### RETIREMENT PATTERNS OF COUPLES IN EUROPE

LAURA HOSPIDO AND GEMA ZAMARRO

WORKING PAPER Nº 1317

In this paper we study the retirement patterns of couples in a multi-country setting using data from the Survey of Health, Aging and Retirement in Europe. In particular, we test whether women's (men's) transitions out of the labor force are causally related to the actual realization of their husbands' (wives') transition, using the institutional variation in country-specific early and full statutory retirement ages to instrument the latter. Exploiting the discontinuities in retirement behavior across countries, we find a significant joint retirement effect, especially for women, of around 16 to 18 percentage points. For men, we find a similar but less precise effect. Our empirical strategy allows us to give a causal interpretation to the effect we estimate. In addition, this effect has important implications for policy analysis.

# SHORT-TERM FORECASTING FOR EMPIRICAL ECONOMISTS. A SURVEY OF THE RECENTLY PROPOSED ALGORITHMS

MAXIMO CAMACHO, GABRIEL PEREZ-QUIROS AND PILAR PONCELA WORKING PAPER N° 1318

Practitioners do not always use research findings, as the research is not always conducted in a manner relevant to real-world practice. This survey seeks to close the gap between research and practice in respect of short-term forecasting in real time. To this end, we review the most relevant recent contributions to the literature, examining their pros and cons, and we take the liberty of proposing some avenues of future research. We include bridge equations, MIDAS, VARs, factor models and Markov-switching factor models, all allowing for mixed-frequency and ragged ends. Using the four constituent monthly series of the Stock-Watson coincident index, we evaluate their

empirical performance to forecast quarterly US GDP growth rates in real time. Finally, we review the main results having regard to the number of predictors in factor-based forecasts and how the selection of the more informative or representative variables can be made.

# THE IMPACT OF INTERBANK AND PUBLIC DEBT MARKETS ON THE COMPETITION FOR BANK DEPOSITS

CARLOS PÉREZ MONTES WORKING PAPER N° 1319

The growth in the interest rates paid on Spanish public debt since 2008 and the impairment of the interbank market have generated concerns about their effects on competition for bank deposits in Spain. I combine a nested logit model of bank deposit supply with a structural model of competition to measure the impact of the reference interest rates on public debt and interbank markets on the returns on deposits and funding policy of Spanish banks in the period 2003-2010. The interbank rate is found to be more closely correlated with the return on deposits than the interest rate on public debt, but the connection between interbank rates and deposit returns is significantly weaker in the crisis period 2008-2010. Counterfactual analysis shows a signifi cant effect of the interbank rate and investment opportunities in public debt on deposit rates and bank profits, and that observed deposit rates are on average 115bp above collusive levels.

# THE DISTRIBUTION OF DEBT ACROSS EURO AREA COUNTRIES: THE ROLE OF INDIVIDUAL CHARACTERISTICS, INSTITUTIONS AND CREDIT CONDITIONS

OLYMPIA BOVER, JOSE MARIA CASADO, SONIA COSTA, PHILIP DU CAJU, YVONNE MCCARTHY, EVA SIERMINSKA, PANAGIOTA TZAMOURANI, ERNESTO VILLANUEVA AND TIBOR ZAVADIL

WORKING PAPER Nº 1320

See Features section.

# EMPLOYMENT POLARISATION IN SPAIN OVER THE COURSE OF THE 1997-2012 CYCLE

BRINDUSA ANGHEL, SARA DE LA RICA AND AITOR LACUESTA WORKING PAPER N° 1321

This article analyses changes in the occupational employment share in Spain for the period 1997-2012 and the way particular sociodemographics adapt to those changes. There seems to be clear evidence of employment polarisation between 1997 and 2012,

which accelerates over the recession. Changes in the composition of the labour supply cannot explain the increase in the share of occupations at the low end of the wage distribution. Sector reallocation might have partially contributed to explaining the polarisation process in Spain during the years of expansion (1997-2007), but it is a minor factor during the recession. The polarisation of occupations within sectors observed especially during the recession appear to be related to a decline in routine tasks. This is compensated by an increase in occupations with non-routine service contents, which are found both at the low and high end of the wage distribution. Instead, abstract content-intensive jobs do not appear to increase their share in total employment during these 15 years. The paper finds that this process has affected males more than females because of the higher concentration of the former in more routine-intensive occupations. Among males, for workers under 30 years we find a decrease in the share of occupations with more routine tasks, which turns into increases in others with more abstract content and particularly with more nonroutine service content. Instead, male workers over 30 years seem to remain in declining occupations to a greater extent. Females of different ages are not affected by the abovementioned changes.

#### MEASUREMENT ERROR IN IMPUTATION PROCEDURES

RODOLFO G. CAMPOS AND ILIANA REGGIO

WORKING PAPER Nº 1322

We study how estimators used to impute consumption in survey data are inconsistent due to measurement error in consumption. Previous research suggests instrumenting consumption to overcome this problem. We show that, if additional regressors are present, then instrumenting consumption may still produce inconsistent estimators due to the likely correlation between additional regressors and measurement error. On the other hand, low correlations between additional regressors and instruments may reduce bias due to measurement error. We apply our findings by revisiting recent research that imputes consumption data from the CEX to the PSID.

# MEETING OUR D€STINY. A DISAGGREGATED €URO AREA SHORT TERM INDICATOR MODEL TO FORECAST GDP (Y) **GROWTH**

PABLO BURRIEL AND MARÍA ISABEL GARCÍA-BELMONTE WORKING PAPER Nº 1323

In this paper we propose a new real-time forecasting model for euro area GDP growth, D€STINY, which attempts to bridge the existing gap in the literature between large- and small-scale dynamic factor models. By adopting a disaggregated modelling approach, D€STINY uses most of the information available for the euro area and the member countries (around 100 economic indicators), but without incurring in the finite sample problems of the large-scale methods, since all the estimated models are of a small scale.

An empirical pseudo-real time application for the period 2004-2013 shows that D€STINY's forecasting performance is clearly better than the standard alternative models and than the publicly available forecasts of other institutions. This is especially true for the period since the beginning of the crisis, which suggests that our approach may be more robust to periods of highly volatile data and to the possible presence of structural breaks in the sample.

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#### PATTERNS OF CONVERGENCE AND DIVERGENCE IN THE EURO AREA

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#### **WORKSHOP ON EXPECTATIONS AND MACROECONOMICS**

MADRID, 10-11 JUNE 2013

On 10-11 June 2013, the Banco de España hosted a workshop on 'Expectations and Macroeconomics' at its headquarters in Madrid. The conference, organized by Juan F. Jimeno of the Research Division of the Banco de España, and Albert Marcet of Institut d' Anàlisi Econòmica (IAE) of the Consejo Superior de Investigaciones Científicas (CSIC), analyzed recent work modeling consumers' and investors' expectations to better understand instability in financial markets and the macroeconomy.

Several papers in the conference presented new models of the learning process. Other papers modeled how learning by consumers or financial market participants might lead to bubbles or other forms of aggregate instability. In addition, the workshop considered empirical evidence on consumer expectations in the light of new survey data and other empirical evidence.

#### **CENTRAL BANK (R)EVOLUTIONS**

MADRID, 17 JUNE 2013

The conference 'Central Bank (R)evolutions' was coorganized by the Banco de España and the World Bank, and took place at the Banco de España on 17 June, 2013. The discussions analyzed the changes and



challenges for central banks in the new economic and financial environment. The one-day conference was opened by Governor Linde, and gathered a selected group of academics and high level officials from central banks and international institutions.

The event consisted of three parts. The first part analyzed the position of macroprudential policies within and with respect to central banks, and their interaction with other goals of supervisory and monetary policies. In the second part, the challenges for central banks in the management of and exit from the crisis were discussed. The debate in this session focused on financial stability and the role that central banks are playing in this area, the larger scope and leadership of central banks in policymaking, and the risks that this higher policy exposure entails. The conference was closed with a keynote lecture by Professor Markus Brunnermeier, of Princeton University, on the role of monetary and macroprudential policies in a monetary union.

#### GERMÁN BERNÁCER PRIZE CEREMONY

MADRID, 24 SEPTEMBER 2013

The 2012 Bernácer Prize of the Observatorio del Banco Central Europeo (OBCE) was awarded to Prof. Nicholas Bloom of Stanford University. The prize is awarded annually to an outstanding European economist under forty years of age.

The prize cited Bloom's models and empirical evidence showing that uncertainty about economic conditions and economic policy can be a driving force behind recessions. It also cited his work developing international surveys to identify successful management practices.

The prize ceremony took place at the Banco de España headquarters in Madrid, where Prof. Bloom was welcomed by Governor Linde.

# GROWTH AND IMBALANCES: POTENTIAL VS. SUSTAINABLE GROWTH. INVITED SESSION IN LACEA

MEXICO CITY, 1 NOVEMBER 2013

In keeping with its long-established collaboration with LACEA – the Latin American and Caribbean Economic Association – the Banco de España organized and chaired a session at the LACEA meetings on the relation between growth and imbalances, with a focus on Latin America. The panel consisted of one paper by the Banco de España and another from the IMF, which were discussed by senior economists from the Inter-American Development Bank and the Banco de Mexico.

# XI EMERGING MARKET WORKSHOP: THE NEW ECONOMIC LANDSCAPE IN THE AFTERMATH OF THE CRISIS

MADRID, 4-5 NOVEMBER 2013

The Emerging Market Workshop, a joint venture with other Eurosystem central banks, was celebrated in Madrid on 4-5 November, 2013. The contributed papers covered a wide range of issues, mostly related to macrofinancial questions, presented by central bank staff from Europe and America. A recurrent theme was the position of emerging markets economies in the aftermath of the crisis, from an economic and financial perspective. There were also several references to the euro area crisis and how it compares to past turbulence in Latin America and other emerging economies.

#### **CELEBRATING 25 YEARS OF TRAMO-SEATS**

MADRID. 13-14 MARCH 2014

On 13-14 March 2014, the Banco de España organized and hosted a conference on time series analysis entitled 'Celebrating 25 years of TRAMO-SEATS'. As the name indicates, the conference served to reflect on the TRAMO-SEATS software suite, which is widely used internationally for removing seasonal components from economic time series data. The software package was originally developed by Agustín Maravall of the Dept. of Monetary and Financial Studies of the Banco de España. Besides commemorating the 25th anniversary of the release of the software, the conference also served to honor Dr. Maravall on his seventieth birthday.

The conference brought together leading time series theorists and practitioners, who presented papers addressing a number of issues involving the separation of data series into components of different frequencies.

The first day finished with a roundtable discussion of the advantages and disadvantages of seasonal adjustment, and the conference closed with a presentation by Dr. Maravall on the interaction between seasonal adjustment and extraction of unobserved components from time series.

The conference was organized by Gabriel Pérez Quirós (Banco de España), Gabriele Fiorentini (Univ. of Florence) and Enrique Sentana (CEMFI).

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ALBERT MARCET

IAE-CSIC, ICREA, Barcelona GSE and UAB 16 JANUARY 2013

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JULIÁN MESSINA

World Bank

15 MARCH 2013

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**CARLO MENON** 

OECD - Banca d'Italia 27 MARCH 2013

# THE MACROECONOMIC EFFECTS OF THE SOVEREIGN DEBT CRISIS IN THE EURO AREA

STEFANO NERI

Banca d'Italia

17 APRIL 2013

#### ESTIMATING FISCAL LIMITS: THE CASE OF GREECE

**NORA TRAUM** 

North Carolina State University

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D.S.G. POLLOCK

University of Leicester

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#### **GREEK DEBT EXCHANGE: AN AUTOPSY**

CHRISTOPH TREBESCH

University of Munich 29 MAY 2013

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NURIA RODRÍGUEZ-PLANAS

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Universidad Carlos III de Madrid

4 JUNE 2013

#### IS THE GDP GROWTH RATE IN NIPA A WELFARE MEASURE?

**OMAR LICANDRO** 

IAE-CSIC 5 JUNE 2013

#### COMBINING BENCHMARKING AND CHAIN-LINKING FOR SHORT-TERM REGIONAL FORECASTING

TONI ESPASA

Universidad Carlos III de Madrid

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MANUEL BAGUES

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# PERFORMANCE PAY AND THE AUTOCOVARIANCE STRUCTURE OF EARNINGS AND HOURS

**BENTLEY MACLEOD** 

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## WHEN CREDIT DRIES UP: JOB LOSSES IN THE GREAT **RECESSION**

SAMUEL BENTOLILA

CEMFI

3 JULY 2013

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JUAN JOSÉ GANUZA AND FERNANDO GÓMEZ

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STEFAN VAN HEMMEN

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## **PROFILES**

# **ÓSCAR ARCE**

Division Head

Macroeconomic Analysis and Forecasting Division Economic Analysis and Forecasting Department DG Economics, Statistics, and Research



ÓSCAR ARCE returned to the Banco de España in November 2012, when he was appointed to head the Macroeconomic Analysis and Forecasting Division.

Óscar holds an undergraduate degree from the Univ. of Valladolid, and an MSc from University College London. He obtained doctorates from the Univ. of Burgos in 2002, and from the London School of Economics in 2005, where his dissertation was supervised by Prof. Nobuhiro Kiyotaki. He joined the Dept. of Monetary and Financial Studies in the Banco de España in 2004, but left to join Economic Bureau of the Prime Minister in 2008. In 2009 he was appointed Director of the Research and Statistics Department of the Spanish Securities Market Commission (Comisión Nacional del Mercado de Valores, CNMV). During his time at the CNMV he expanded the research department and established two new units, one devoted to the valuation of complex financial assets and another to promoting financial literacy. We talked with him about his research agenda as he rejoins the Banco de España.

Q: Please tell us something about your main lines of research over the course of your career.

My PhD thesis was on the interactions between monetary and fiscal policy, including some work on the so-called fiscal theory of the price level. Then I moved to more macro-financial areas. During my first stay at the Banco de España, I worked on issues related to housing markets, housing bubbles, and on macroeconomic models with financial frictions, including several papers on the role of imperfect competition in the banking sector. When I moved to the CNMV, obviously I became interested in areas more related to the securities markets. I did some more applied, empirical research on several

topics including securitizations, asset-backed securities markets, and credit default swaps, which were very relevant at that time. I also studied the effects of restrictions on short sales in the equity markets, which was a crucial issue for the CNMV. I also did some work documenting the difficulties of small and medium enterprises to access financing, and the potential role of capital markets to alleviate those problems, both in Spain and elsewhere.

Q: Since you moved back to the Banco de España, you have returned to macroeconomic modeling. Tell us what you are working on now.

In the rather scarce time I have to conduct research now, my co-authors and I have been building a dynamic macroeconomic model to understand the adjustment of an economy like the Spanish one in a context of deleveraging and internal devaluation. We are working with the class of models that Javier Andrés and Carlos Thomas and I used in a couple of papers we published earlier. That is, we are looking at a real economy with financial frictions, in which collateral is required to obtain credit, as in the model of Kiyotaki and Moore. Our model also includes long-term debt, housing market, and an external sector, which are key elements in the ongoing adjustment of the Spanish economy. We characterize the transition path of the economy as it converges to a lower level of debt, and we are able to study the impact of several types of reforms. For example, we find that reforms that make goods and labor markets more efficient can be helpful not only in the long run, as typically thought in the previous literature, but also in shorter horizons, as short-term contractionary effects of these reforms, namely, higher real interest rates, are found to be muted in scenario of widespread private deleveraging.

Q: Many economists have expressed concern that deflation raises the real value of debt, making deleveraging more difficult. Does your model address this issue?

Yes, many people are worried about debt deflation nowadays. But much of that concern comes from considering static, partial equilibrium arguments. In general equilibrium, a fall in wages is likely to be accompanied by a decrease in unemployment. So it is not obvious that wage moderation would lead to a decrease in total labor income. Also, in a dynamic context, improved expectations can stimulate current consumption and investment. On the other hand, we are rather confident that internal devaluation is playing a key role in supporting the Spanish external sector, which is a key element for the recovery of our economy. So protracted disinflation in an environment like the current one may not be as hard as some commentators fear.

Q: On the topic of general equilibrium macroeconomic models, what role do you see for them at the Banco de España in the medium term?

For many years, the Bank has used a large-scale time series mode - the MTBE (Modelo Trimestral del Banco de España) - as its main mid-term forecasting instrument. In addition, we have some simpler time series models for generating very short-term forecasts (or 'nowcasting'), such as the ñ-STING (España Short Term Indicator of Growth) developed by Gabriel Pérez Quirós, and related models that we have built here in the Forecasting Division, like the so-called SIB (Simple Is Beautiful) model.

Around ten years ago, an effort began to develop an alternative, a detailed dynamic general equilibrium model that was eventually named BEMOD (Banco de España Model). But that model has not been used as much as was initially hoped. It has been useful for comparison with our MTBE forecasts, and for some calibration and policy-evaluation purposes. But we do not see it becoming one of our main forecasting tools.

Q: But some countries, like Canada and Sweden, do seem to find general equilibrium models useful for forecasting.

For whatever reason, it seems that general equilibrium models can work relatively well for some small open economies. But for a medium-sized Eurozone member, like Spain, empirical general equilibrium modeling is more challenging. Where general equilibrium models remain very useful is for policy analysis. For those purposes, I prefer relatively simple models, where the mechanisms involved can be seen clearly and intuitively. But nonetheless incorporating general equilibrium effects into policy models is important, because otherwise many of the implications of policy changes would be left out of the analysis.

#### Q: Tell us about your work at the CNMV.

When I arrived at the CNMV, the global financial crisis was already underway, and it was important at that time to reinforce the analytical capacity of the Commission and to enhance its international profile by upgrading its role in the relevant international regulators forums (like IOSCO, ESMA or the ESRB). We expanded the Economics and Research Department by hiring a number of new researchers. We also established a new unit dedicated to asset valuation, so we needed economists with asset pricing expertise. Among other tasks, that unit was charged with estimating the value of some relatively complex securities that were offered to retail investors, so that we could judge whether they were being sold at a fair price. We also provided some additional support to a special unit responsible for the implementation of the CNMV strategy to promote financial education among the general population that included, among other elements, the Financial Education Programme jointly launched by the CNMV and Banco de España.

Q: Which insights from your work with the CNMV are likely to be relevant for you here at the Banco de España?

In particular, I think my experience at the CNMV may provide me some guidance for better incorporating the role of financial markets and financial frictions into macroeconomic-oriented analysis.

RESEARCH PAGE:

http://www.bde.es/investigador/staff/54.htm

## **NEW FACES**



HENRIQUE BASSO Staff economist Research Division Monetary and Financial Studies Department DG Economics, Statistics, and Research

HENRIQUE BASSO joined the Research Division of the Bank of Spain in 2012. He received his B.A. in Economics in 1997 from the State University of Campinas, Sao Paulo, Brazil, and his PhD in Economics from University of London, Birkbeck College in October, 2008. Before the PhD he worked at JPMorganChase in London for almost 4 years. Between 2008 and 2012, he was a Research Fellow at Uppsala University in Sweden, and an Assistant Professor of Economics at the University of Warwick in the UK.

His latest research projects focus on the impact of bank portfolio choice on risk premia. The first project proposes a model of endogenous variations in term spreads driven by banks' portfolio decisions while facing maturity risk. The key result in this study is that undertaking maturity risk exposure is more costly when banks expect lower portfolio returns. Hence, when economic activity is reaching

its peak, expected profitability is relatively high and spreads are low; during recessions expected profitability is relatively low and spreads are high, in line with the time series evidence on term spreads. The second project investigates, empirically and theoretically, the link between the volume of securitization and bond and equity premia. Securitization relaxes both the funding and risk constraints banks face while setting their portfolio. Higher volumes of securitization, which are a result of low information asymmetry between financial intermediaries and final investors, allow banks to increase asset holdings. This process lowers risk premia, even if the fundamental risk profile of assets remains the same. Other research interests include monetary and fiscal institutional design, international macroeconomics, and financial dollarization.

#### **RESEARCH PAGE:**

http://www.bde.es/investigador/staff/116.htm



DAVID LÓPEZ-RODRÍGUEZ Staff economist Economic Policy Analysis Division Economic Analysis and Forecasting Department DG Economics, Statistics, and Research

DAVID LÓPEZ RODRÍGUEZ obtained his bachelor's degree at the Univ. of Barcelona in 2003, and was awarded both the university's extraordinary prize and the National First Prize of the Education Ministry for his work. After beginning his research work at the Univ. of Barcelona, he won fellowships from the La Caixa and Rafael del Pino foundations to continue his studies at Columbia University in New York. For his M.A at Columbia he specialized in macroeconomics and international economics; subsequently he obtained his Ph.D. at Columbia in 2011 with the dissertation Essays on the Political Economy of Redistributive and Allocation Policies in Competitive Democracies. He visited the Research Division of the Banco de España in 2012, and then joined the Dept. of Economic Analysis and Forecasting in 2013.

His doctoral research analyzed the political determinants underlying the establishment of redistributive policies and the provision of public services. In particular, he studied how electoral

competition and ideology affect the structure of taxes and the provision of public services such as health and education. He is now doing work in public economics and applied macroeconomics, with particular emphasis on Spanish microdata. On one hand, he is studying empirically how taxes and fiscal reforms affect the decisions of firms

and individuals. On the other hand, his work in applied macroeconomics studies the effects of financial regulations on credit cycles and on real estate prices.

#### **RESEARCH PAGE:**

http://www.bde.es/investigador/staff/117.htm

#### VISITING FELLOWS

#### JUSTIN MCCRARY

Professor, School of Law Univ. of California, Berkeley

JUSTIN MCCRARY obtained his bachelor's degree from Princeton University in 1996. He then worked at the New York Federal Reserve Bank for two years, after which he began his studies at the University of California, Berkeley, obtaining his Ph.D. in economics in 2003. From 2003 to 2007, he was an Assistant Professor of Public Policy and of Economics (by courtesy) at the University of Michigan. In 2008, McCrary took a new post in the law school at the University of California, Berkeley. He has been Professor of Law since 2010. His research encompasses many different subjects in economics, including labor economics, econometric methods, the economics of crime, monetary policy, and finance. On the law side, his research touches primarily upon employment discrimination and business law.

Justin is visiting the Research Division from September 2013 to August 2014. His current projects include an examination of the impact of monetary policy on the European and Spanish economy in the wake of the Great Recession, an investigation of the role of tick sizes in financial markets on the utilization of dark pools and the prevalence of high frequency trading, and connecting econometrics methods typically employed in the analysis of time series with the methods employed in the analysis of regression discontinuity designs.

#### RESEARCH PAGE:

http://emlab.berkeley.edu/~jmccrary/

#### ULRICH WAGNER

Assistant Professor, Dept. of Economics Univ. Carlos III de Madrid

**ULRICH WAGNER** is visiting the Research Division from September 2013 until June 2014. He received his undergraduate training in economics at the Universities of Hamburg, Kiel and Paris (Panthéon-Sorbonne), and completed a PhD in Economics at Yale University in 2006. Before joining Universidad Carlos III de Madrid as an Assistant Professor of

Economics in 2008, he was an Earth Institute Fellow at Columbia University.

Ulrich specializes in public economics, environmental economics, and industrial organization. His current research focuses on the empirical evaluation of market-based policy instruments aimed at reducing

industrial pollution emissions. He uses confidential microdata from administrative sources in France, Germany and the UK, but has also collected data pertaining to aspects of energy use and climate policy through telephone interviews with managers of almost 1,000 manufacturing firms in six European countries. He has been using both kinds of data for a broad-based policy evaluation of the EU Emissions Trading Scheme, a policy that has created a multibillion Euro market for emission rights traded among 11,000 polluters in 31 European countries.

His research at the Bank of Spain investigates the impact of this policy on the international competitiveness of manufacturing firms in France and Germany. Specifically, he studies whether the policy caused firms to reduce their exports or to increase prices of emissions-intensive products.

#### **RESEARCH PAGE:**

http://www.eco.uc3m.es/~uwagner/research.html

#### ILIANA REGGIO

Department of Economics Universidad Carlos III de Madrid

ILIANA REGGIO is affiliated with Universidad Carlos III de Madrid. She received her B.A. from Univ. de la República, Uruguay, a graduate degree from Univ. Torcuato Di Tella, Argentina, and her PhD in Economics from UCLA in 2008. Her work has been published in journals such as the European Economic Review, the Journal of Development Economics, and Economics Letters.

Iliana visited the Research Division from September 2013 to March 2014. Her research project at the Banco de España studied how unemployment affects household consumption in Spain in the current recession, both directly in the case of households with unemployed members, and

indirectly, through expectations, for households that have kept their jobs. The project used data on consumption, unemployment, and socioeconomic characteristics from the Encuesta de Presupuestos Familiares, as well as data from the Encuesta Financiera de las Familias on households' expectations about income, actual income, and wealth. Preliminary results show that consumption responds strongly to the aggregate unemployment rate, and that the reduction in consumption by the employed seems to be driven by changes in expectations, not by changes in current income.

RESEARCH PAGE:

http://www.eco.uc3m.es/~ireggio/

# **UPCOMING CONFERENCES**

LINK TO CONFERENCES PAGE

## 22ND CEPR EUROPEAN SUMMER SYMPOSIUM IN INTERNATIONAL MACROECONOMICS (ESSIM) RODA DE BARÁ, TARRAGONA

MADRID, 27-30 MAY, 2014 HOST: BANCO DE ESPAÑA

The 22nd CEPR European Summer Symposium in International Macroeconomics (ESSIM) will take place 27-30 May 2014 at the Banco de España facilities in Tarragona, Spain.

ESSIM is an annual meeting that brings together about 75 economists from across Europe and key researchers from outside the region to focus on international economics and other areas of macroeconomics. It provides a unique opportunity for macroeconomists from different institutions and countries to discuss research, and for young researchers to meet and discuss their work with senior economists. The programme combines workshop sessions with time for collaboration and consultation; participants are asked to stay for the whole week (arriving the evening of 26 May, and leaving the morning of 31 May).

The organisers of the conference will be Antonio Ciccone (University of Mannheim, Barcelona GSE, and CEPR), Giancarlo Corsetti (University of Cambridge and CEPR), James Costain (Banco de España), Wouter den Haan (London School of Economics and CEPR) and Richard Portes (London Business School and CEPR).

## THIRD JOINT WORKSHOP ON INTERNATIONAL FINANCIAL MARKETS

MADRID. 9-10 JUNE 2014

On the days 9-10 June, 2014, the Banco de España will host a Workshop on International Financial Markets. The workshop, jointly organized with the Bank of Canada and now in its third year, will draw together researchers from academia and central banking to discuss both theoretical and empirical research. Topics of particular interest for this conference include international asset pricing and exchange rates, spillovers from unconventional monetary policies across countries, market comovements and capital flows across borders, the financialization of commodity markets, and effects of regulation and policy on international financial markets. The conference is organized by Antonio Diez de los Ríos and Jean Sebastien Fontaine of the Bank of Canada, and José Manuel Marqués, Ricardo Gimeno, and José María Serena of the Banco de España.

#### FINANCING GROWTH: LEVERS. BOOSTERS AND BRAKES

MADRID. 23-24 JUNE 2014

On 23-24 June, 2014, the Banco de España will host a conference on economic growth entitled 'Financing growth: Levers, boosters and brakes'. The workshop is the third in a series jointly organized with the World Bank. It will bring together researchers from academia and central banking to analyze the relationship between finance and growth, especially in the context of emerging markets, and of Latin America in particular.

Topics of particular interest for the conference include access to finance; financial networks; entrepreneurship; effects of deleveraging; and monetary, macroprudential and regulatory policies. Luigi Zingales (Chicago Booth School of Business) will present a keynote address. The conference is organized by Enrique Alberola, Ignacio Hernando, Javier Vallés, and Francesca Viani of the Banco de España; Tito Cordella and Tatiana Didier of the World Bank; Javier Andrés (Univ. of Valencia), Alberto Martín (CREI and IMF), Ugo Panizza (Geneva), and Javier Suárez (CEMFI).