

# RESEARCH UPDATE

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## Welcome to the Banco de España RESEARCH UPDATE

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The Banco de España is pleased to announce the release of the Fall 2019 issue of its *Research Update*. The *Update* aims to inform both academic and policy-oriented economists and financial specialists about publications, conferences, and other research activities at the Banco de España.

As usual, this issue includes several feature articles summarizing policy-relevant findings from recent Banco de España projects in diverse areas of research. First, J. Cloyne, C. Ferreira, M. Froemel and P. Surico argue that the monetary policy effects on firm investment occur mostly through the response to interest rate changes of young firms that do not pay dividends. Older firms that pay dividends are largely unaffected. C. Castro and J. Galán analyze the changes in total factor productivity of Spanish banks from the early 2000s. Since the height of the crisis, in contrast to what we observe for larger banks, the productivity of smaller banks has declined. The heterogeneity across banks is related to differences in risk, capital levels and input prices. Third, S. Párraga, studies changes in the pension system in Spain in the 80's and 90's, and finds that increases in the average pension have strong positive effects on pensioners' spending. L. Hospido, L. Laeven and A. Lamo look at the career progression of men and women at the ECB. They find that a wage gap in favor of men emerges within a few years of hiring, and that since 2010 there is no longer a gender promotion gap at the institution. Finally, M. Alloza and C. Sanz argue that a large fiscal stimulus in Spain (Plan E), consisting of the transfer of funds to municipalities across the country, reduced unemployment, particularly in the construction and industrial sectors.

Moreover, this *Update* reports on other research news, such as recent publications and current conferences, and contains the profiles of four newly hired researchers who are joining the Banco de España. Finally, in this issue we present the details of the newly launched data laboratory – BELab, designed to make high quality microdata compiled by the Banco de España available to outside researchers.

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

Óscar Arce  
Olympia Bover  
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Research Committee,  
Banco de España

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# FEATURES

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## **MONETARY POLICY, CORPORATE FINANCE AND INVESTMENT**

SUMMARY OF BANCO DE ESPAÑA WORKING PAPER N° 1911

JAMES CLOYNE, CLODOMIRO FERREIRA, MAREN FROEMEL  
AND PAOLO SURICO

*Using almost 30 years of detailed firm-level data for the U.S. and U.K., we provide novel evidence on how monetary policy affects firm investment and finance. We find that relatively young firms paying no dividends are the most sensitive in terms of capital expenditures, and their response to interest rate changes drives the movement in aggregate investment. On the other hand, older firms (that pay dividends) don't respond at all. The main mechanism behind these results works through the heterogeneous exposure to asset price movements. Standard theories of firm dynamics allow for only a marginal role of age as a predictor of the response to shocks. We present an extension which can reconcile model and data.*

### Revisiting the transmission mechanism of monetary policy

The global financial crisis, and the years that followed, have seen a surge in the need to re-evaluate how monetary policy transmits to the real economy. The standard view within policy circles and macroeconomic research before the crisis assigned a key role to the inter-temporal transmission channel; i.e. the willingness of both households and firms to modify the path of consumption / savings / investment when the path of real interest rates changes. During the last 10 years, however, both empirical and theoretical studies have challenged this view. It is now understood that, among other aspects, the role of developments in credit markets, the heterogeneity in balance sheet positions, the type of debt instruments as well as the liquidity of assets are key elements in the transmission mechanism. While several empirical studies have looked at the household sector [for example, Cloyne *et al.* (2019), Wong (2019)], considerably less is known for firms.

In this paper, we use detailed, easily accessible balance sheet data for publicly traded firms from Compustat for the U.S. and WorldScope (Thomson Reuters) for the U.K. together with state of the art identification and estimation strategies, in order to uncover the

response of different groups of firms to monetary policy surprises. Importantly, although we only focus on public firms, these represent 50%-60% of aggregate business investment, and account for most of aggregate growth rates. We then argue, that a firm's age (or corporate history), coupled with information about the dividend payment status, is a more robust predictor of the dynamic response to a shock than standard proxies of "financial constraints", such as leverage, liquidity and size. The main channel of transmission operates through the heterogeneity in the type of debt contracts used by firms, and how assets (collateral) valuations affect firms differently.

### Identifying monetary policy surprises

The first challenge we face is identifying and measuring unexpected and exogenous changes in monetary policy. Building on recent developments [Gurkaynak *et al.* (2005) and Gertler & Karadi (2015)], we first isolate a time series of monetary policy surprises by exploiting high-frequency variation in interest rate futures contracts within a 30 minute window around policy announcements. We then use this series of surprises as instrument for the reference rate when estimating the dynamic effect of monetary policy shocks on firms with different characteristics (age, leverage, size, liquidity, dividend payment status) using a local-projection, instrumental variable approach [see Jorda *et al.* (2017)].

### The heterogeneous response of investment

Our estimations uncover a strong heterogeneity across firms. Younger firms exhibit the largest adjustment in investment, while older firms present a response which is small and not statistically different from zero. Delving deeper, we show that such heterogeneity is mainly driven by younger firms that have not paid dividends in the recent past (1-3 years), and we associate this with the "life-cycle" component of the dividend payment decision for a firm. Crucially, these findings survive after

	Younger		Older	
	No dividends	Paid dividends	No dividends	Paid dividends
U.S.	75.5%	6.7%	13.0%	4.8%
	[66.1 , 84.8]	[1.8 , 11.6]	[5.1 , 20.9]	[1.7 , 7.6]
U.K.	83.6%	13.1%	2.9%	0.4%
	[70.4 , 96.8]	[2.9 , 23.2]	[-2.2 , 8.1]	[-5.9 , 6.9]

NOTE: “younger” firms are those that, at the time in which the monetary surprise hits the economy, have less than 15 years of corporate experience since incorporation; “older” firms are those with more than 15 years of experience. The variable “paid dividends” refers to those firms that distributed positive dividends in the year previous to the period in which the monetary surprise arrives; “no dividends” is the complement of that group. The first row in each country represents the weighted share of the average IRF explained by the corresponding group; the second row presents 95% CI in square brackets, computed from 500 bootstrap repetitions accounting for clustering at the firm level.

accounting for traditional measures of balance sheet position and financial constraints, such as asset size, liquidity, leverage or growth potential.

The above results on the average and heterogeneous investment responses, together with the response estimated from national accounts information, allow us to infer the contribution by each group of firms to the dynamic effect of a monetary policy shock on aggregate investment. These calculations are presented in Table 1: younger firms paying no dividends account for around 75% of the overall response of the economy; interestingly, this finding is very similar for both the U.S and the U.K.

### Exploring the mechanism: exposure to asset value fluctuations

In order to understand the mechanisms that can explain the heterogeneity results we have uncovered, we explore several other components of the firm’s balance sheet, as well as the structure and sources of finance and how these might differ by group of firms.

We first analyze cash-flows, and find that interest rate expenses, earnings and sales all respond significantly. However, they do so homogeneously for all firms. This implies that, although the availability of disposable liquidity after the shock could affect investment decisions, it cannot *by itself* account for the observed heterogeneity in investment.

We then show that the net worth / equity valuation of *all* firms is also significantly affected by monetary policy shocks, consistent with a general equilibrium effect

of monetary policy. Interestingly, though, borrowing *only* responds significantly for younger firms (paying no dividends). We argue, and provide evidence for, that this combination of dynamic responses can be explained by the different types of debt contracts that young and old firms have access to. As shown by Lian & Ma (2019), a significant share of the debt contracts are written against the earnings history of the firm, rather than against physical collateral. We find that this is particularly so for older firms (that pay dividends), while younger firms are usually required to provide some type of collateral. This is in line with the traditional view in policy and academic circles regarding the role of collateral and learning in addressing credit market frictions and information asymmetries. As a final step in this project, we provide a quantitative theory that can rationalize our results along the lines described here.

### Final remarks

The main contribution of this project is to provide novel evidence on the behavior of different firms following a monetary policy surprise. This is part of a broader and recent trend to reassess the monetary policy transmission mechanism. The fact that a significant share of aggregate fluctuations is accounted for by movements in business investment, implies it has become even more pressing to exploit granular data to inform both models and policy decisions. Standard theories of firm and industry dynamics, in a context with credit frictions, have difficulties in assigning an important role to a firm’s age (or corporate history) in understanding the response to shocks. We contribute on this front too, by providing an intuitive model mechanism that can reconcile theory with data.

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## **DRIVERS OF PRODUCTIVITY IN THE SPANISH BANKING SECTOR: RECENT EVIDENCE**

SUMMARY OF BANCO DE ESPAÑA WORKING PAPER N° 1912

CHRISTIAN CASTRO AND JORGE E. GALÁN

*We analyse the drivers of total factor productivity of Spanish banks from early 2000, including the last financial crisis and the post-crisis period. This allows us to study changes in productivity following a major restructuring process in the banking sector such as the one experienced in Spain. Overall, we find that following a period of continued growth, productivity declined after the height of the crisis, though large banks were less affected. We also find that risk, capital levels, competition and input prices were important drivers of the differences in productivity change between banks. Finally, our results suggest that, by the end of our sample period, there was still some room for potential improvements in productivity via exploiting scale economies and enhancing cost efficiency. These opportunities appear to be generally greater for the smaller banks in our sample.*

Following the crisis, the Spanish banking sector underwent a thorough restructuring process. Further to the reduction of their balance sheets and excess debt, banks also had to search for more diversified income sources, review their business models and reduce overcapacity and operating costs. With this process still under way, a key question for the sector is how to sustain its productivity and, as a corollary, whether there may still be room for further consolidation.

To help answer this question, we perform a total factor productivity (TFP) decomposition analysis to study the effects of changes in productivity in different types of Spanish banks in 2000-2015, and gain empirical insights into whether there may still be room to achieve further gains in scale economies and cost efficiency by the end of the period.

We consider the bank as a multiproduct firm that combines three types of activities: intermediation services, financial investments and fee-based services, following the intermediation approach (Sealey and Lindley, 1977) under which banks are assumed to use deposits and other inputs in order to produce loans and other outputs.

For the empirical methodology, we follow a variable cost frontier approach to decompose TFP (Berger and Humphrey, 1991) in the Spanish banking sector into cost efficiency, scale economies, technical change, equity capital, risk, input prices and mark-up

components. This approach takes into account an inefficiency component in the estimation which does not allow banks to operate at minimum feasible costs thereby affecting their productivity (Berger and Mester, 1997). Under this framework, inefficiency is related to the excessive use of inputs and their inadequate allocation given the input prices and the output produced. Previous studies have evidenced the importance of properly identifying economic efficiency and have identified that it widely dominates scale effects in banking (Berger and Humphrey, 1991; Grifell-Tatjéb and Lovell, 1997; Lozano-vivas, 1998). Finally, to measure risk-taking, we propose a composite ex-ante risk metric which is able to capture different sources of risks such as credit risk, liquidity, solvency, profitability and macroeconomic conditions.

The database we use includes Spanish commercial and saving banks over the period 2000-2015 thus enabling the highly expansive period prior to the crisis and also the crisis and post-crisis years to be taken into consideration. Our sample represents 90% of the total assets of banks and savings banks as a whole. When two banks merge, we consider that a new institution is created. The result of this process is an unbalanced panel composed of 50 entities over 16 years.

Focusing on our preferred empirical specification, we find that TFP increased remarkably during the years of credit expansion before the crisis. Main drivers during this period were technical change and cost efficiency improvements, which in turn were related to the innovation in financial instruments (Martin-Oliver *et al.*, 2013) and increasing competition in the sector (Casu and Girardone, 2006). This trend reversed during the crisis period, when the imbalances accumulated in previous years started to manifest in rapid increases of non-performing loans and deterioration of liquidity, solvency and profitability indicators. Afterwards, during the post-crisis period, productivity gradually started to recover, mainly due to the reduction of risk and improvements in efficiency.

We also find significant heterogeneity among banks of different sizes, not only in TFP growth but also in terms of its drivers. Large banks have taken advantage of scale economies and benefited more from technical change during the pre-crisis period, which allowed them to have higher TFP growth rates than small institutions. Once the crisis hit, productivity change

SCALE ECONOMIES BY SIZE OF BANKS

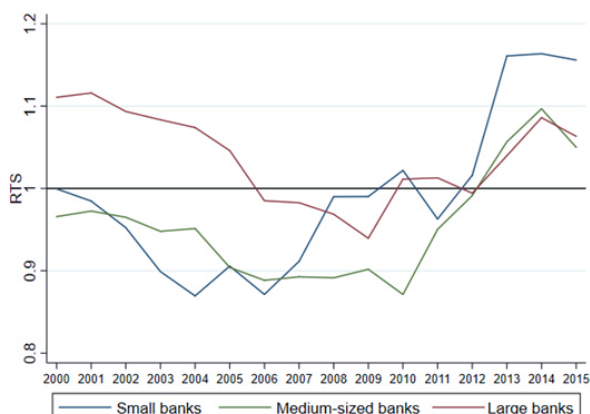


FIGURE 1

COST EFFICIENCY BY SIZE OF BANKS

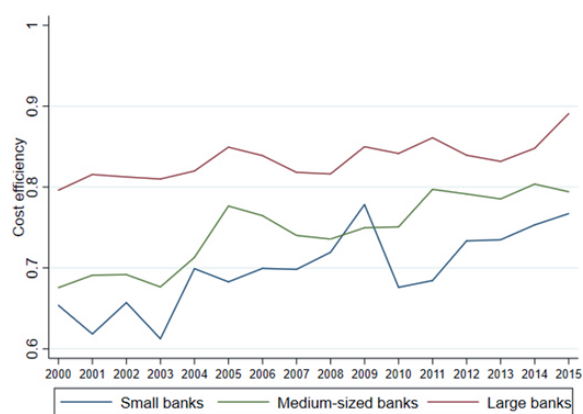


FIGURE 2

in large banks was more sensitive to variations in risk, but the net effect of the crisis was less severe than for small banks, which suffered an important decrease in efficiency. In the recovery phase, the reduction of risk and efficiency gains have been the main positive drivers of productivity, particularly for large banks. The mark-up component has also contributed positively to TFP of small banks in the post-crisis years while input prices have affected them negatively. In general, the negative effect of raising equity capital has been more limited as a TFP driver; however, its effect has become more important since the last years of the crisis, especially for small banks. Finally, the transformation of savings banks into commercial banks had positive effects on TFP since the cost structure of saving banks was identified to be relatively more expensive.

In addition, our analysis suggests that since the onset of the crisis, the reduction of banks' output and the restructuring process have brought new opportunities for exploiting scale economies and enhancing cost efficiency. Some of these opportunities were seized in the last two years of our sample period by almost all types of banks, particularly as result of the consolidation process which followed the crisis.

Overall, we find that by the end of our sample period, there would still be room for further potential improvements in productivity via exploiting scale economies and enhancing cost efficiency in the system (Figures 1 and 2). These opportunities appear to be greater for the smaller banks in the sample.

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## THE EFFECTS OF PENSION-RELATED POLICIES ON HOUSEHOLD SPENDING

SUMMARY OF BANCO DE ESPAÑA WORKING PAPER N° 1913

SUSANA PÁRRAGA RODRÍGUEZ

*This study analyzes empirically the direct effects of income changes on the elderly and pensioners' spending behavior. The identification method exploits the introduction of a new pension system in Spain during the 1980s and 1990s and constructs a narrative series of legislated pension changes, which is used in an instrumental setting (CQIV). My findings imply that increases in the average pension have strong positive effects on pensioner spending, particularly on the pensioners with the highest levels of expenditure, income, and wealth.*

### Introduction

Given the public policy open debate on pension systems reforms, this paper provides relevant insights for the design of policies that address the concerns about the financial sustainability of pension systems and the projected population ageing. In fact, although previous studies have found limited aggregate effects of fiscal actions involving old-age pensions (Romer and Romer 2016; Párraga-Rodríguez 2016, 2018), these estimates cannot fully explain the distributional impact of changes in benefits in pay-as-you-go systems. Thus, the question concerning what are the direct effects of pension-related policies on household spending remains open.

This paper presents evidence on the impact of unexpected permanent changes in public pensions on net recipients (pensioners). Consistent with the lifecycle/permanent-income hypothesis of consumption theory, some estimates imply that increases in the average pension have a roughly one-for-one effect on pensioner spending. To gain insights into the components of these high responses, I also look into the effects for different categories of expenditure, and across the distribution of pensioners' spending, income and wealth.

The estimation method exploits the significant deviation in pensioners' spending relative to working-age individuals caused by the introduction of a new welfare state legislation in Spain at the onset of Democracy. The identification strategy bases on a narrative analysis of legislated changes in public pensions adopted in Spain between 1979 and 1997. The result of the analysis is a record of likely exogenous pension-related policies that is used as an instrumental variable for aggregate

expenditure in public pensions to estimate the effects of changes in the average allowance on household-level spending. This strategy circumvents the lack of data on household income in the surveys covering the essential pre-treatment years.

### A new narrative series of pension-related policies

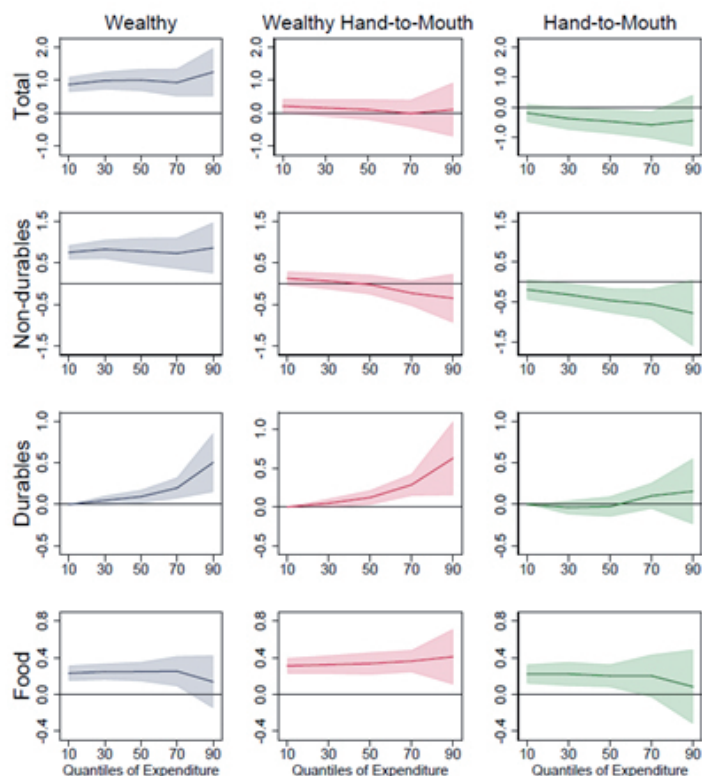
Directly using benefits income to estimate the impact of pension-related policies on household spending would fail to isolate other disturbances, therefore producing biased estimates. A narrative analysis categorizes policies as either exogenous or endogenous based on their motivation - assessed through a careful examination of multiple sources. I establish three exogenous motivations: i) ideological changes for reasons such as fairness or redistribution (for example, the introduction of non-contributory pensions); ii) purchasing power adjustments beyond (or below) the yearly change in CPI inflation; and, iii) structural reforms with long-run objectives or the result of a court ruling. Other policies, particularly those in compensation for other fiscal actions, or to boost economic growth in the short run, were considered endogenous.

In total, 27 exogenous fiscal shocks were identified. Their cumulative yearly impact is on average 4,552 pesetas (about 28 euros) per beneficiary, at 1992 prices. Considering only net increases, the impact rises to 6,676 pesetas per beneficiary or a little below 0.1% of GDP.

### The direct effects of pension-related policies on household spending

Figure 1 shows the different effects that pension-related policies have on pensioners' spending, grouping them according to their level of income and wealth. 'Wealthy' pensioners own real state and report relatively high levels of capital income. Conversely, 'wealthy hand-to-mouth' pensioners report no or little capital income but own housing, while 'hand-to-mouth' pensioners report none. Overall, the estimates suggest that pensioners with high levels of income and wealth benefit the most out of pension increases. However, the impact varies with the expenditure category. Particularly, the effects on durables expenditure (third row) are similar for the 'wealthy' and 'wealthy hand-to-mouth' – and even slightly stronger on the latter. When it comes to food





NOTES: (censored) quantile estimates for the pesetas increase in expenditure caused by a unit increase in the average pension. Shaded areas represent 95 percent confidence level intervals. Estimation sample 1977Q2 to 1997Q1; observations 130,321.

(bottom row), I do not find significant differences across groups, with the most substantial effects again on the 'wealthy hand-to-mouth'. Finally, to the exception of durables, the effects are not significantly heterogeneous across quantiles of expenditure for either group.

The paper explores further the heterogeneous effects of benefit increases with regressions that break down expenditures in more detail and for alternative groupings of pensioners. These results confirm that the strongest effects are on the pensioners with the highest levels of expenditure, income, and wealth. At the same time, pension-related policies targeted to pensioners with low-income levels affect spending on non-durables and necessities such as food positively. In turn, these results support the implicit assumption made in empirical analysis using aggregate data that recipients of social security benefits have high marginal propensity to consume, especially for expenditure on durables.

My findings have significant implications for the growing macroeconomic literature on the heterogeneous effects of fiscal policy. Notably, a simple classification

concerning net worth suffices to obtain significant heterogeneous effects out of benefit increases. This contrasts with recent advances in quantitative macroeconomic models with heterogeneous agents (Kaplan and Violante 2014; Eggertsson and Krugman 2012). The results also contrast with previous empirical analysis of the heterogeneous effects of temporary tax changes (Cloyne and Surico 2016; Misra and Surico 2014). A comparison with these papers points to the lower outstanding debt of the elderly, compared to working-age individuals, as the primary explanatory factor for the divergences.

## Conclusions

Summing up, this paper presents evidence that pension-related policies have significant real direct effects on household spending, particularly on the pensioners with the highest levels of expenditure, income or wealth. Thus, my findings suggest that recent international efforts to address the financial sustainability

of pension systems with policies that lower pension benefits will result in a substantial drop in pensioners' spending, with an associated fall in their welfare and living standards, while suggesting non-negligible adverse effects on the aggregate economy. However, further analysis on the aggregate impact of transfer changes would be necessary to draw a firmer conclusion on the aggregate effects of pension-related policies.

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## THE GENDER PROMOTION GAP: EVIDENCE FROM CENTRAL BANKING

SUMMARY OF BANCO DE ESPAÑA WORKING PAPER N° 1915

LAURA HOSPIDO, LUC LAEVEN AND ANA LAMO

*The underrepresentation of women in Economics is nowhere as visible as in central banks. In a new paper, we use anonymised personnel data to analyse the career progression of men and women at the ECB. A wage gap in favour of men emerges within a few years of hiring, with one important driver being the presence of children. Women were also less likely to be promoted to a higher salary band up until 2010, when the ECB issued a statement supporting diversity and took measures to support gender balance. Following this change, the promotion gap disappears. This results from a lower probability of women to apply for promotion, combined with a higher probability of women to be selected conditional on having applied. Competition from other candidates partly explains this applications gap. Following promotion, women perform better in terms of salary progression, suggesting that the higher probability to be selected is based on merit, not positive discrimination.*

### The underrepresentation of women in Economics

Economics remains a male-dominated field. In the US, women account for 30% of PhD graduates but a mere 14% of full professors in economics (CSWEP 2017). This underrepresentation of women is nowhere as visible as in central banks (OMFIF 2019).

Several explanations may account for the lack of women in high-level positions in the economics profession. One possibility is that the pool of potential applicants is male dominated. Women remain less likely to study economics, and macroeconomics in particular (Ginther and Kahn 2004). An alternative explanation is that women are less likely to apply for promotions because of gender differences in the preference for competitive environments (Niederle and Versterlund 2007) or in bargaining abilities in the labour market (Blackaby *et al.* 2005). The presence of children and trade-offs between family and career may also hold back women from pursuing promotions (Bertrand 2013). Finally, there may be gender-based discrimination in promotion decisions (Goldin and Rouse 2000).

Which of these explanations is more relevant? And can corporate diversity policies mitigate these biases? Despite a large body of literature on gender differences,

there is no agreement on the importance of diversity policies and their impact on labour market outcomes.

### The effect of diversity policies on labour market outcomes

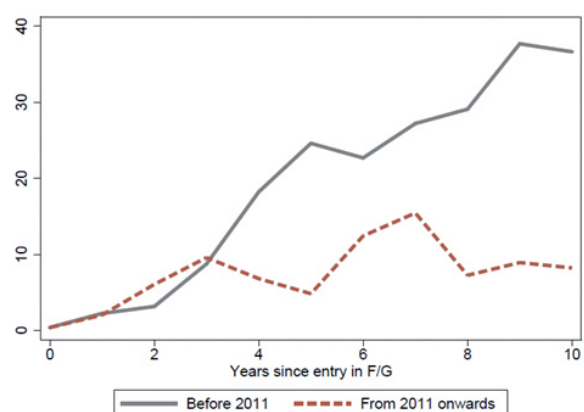
In the paper, we analyse the career trajectories of men and women at the ECB, using confidential anonymised personnel data during the period 2003-2017. Our analysis focuses on expert staff across four different salary bands representing different levels of seniority (expert, senior expert, principal expert, and advisor) in the policy areas, the research department, and the statistics department. With this selected group, we focus on a broadly homogeneous pool of staff in terms of human capital and experience, ensuring comparability across individuals.

We find that a gender wage gap emerges within a few years of hiring, despite broadly similar entry conditions in terms of salary levels and other observables. One important driver of this wage differential is the presence of children. We also find that women are less likely to be promoted to a higher salary band up until 2010, when the ECB issued a public statement supporting diversity and took several measures to support gender balance. Following this change, the promotion gap disappears.

Figure 1 shows the gender gap in promotions (defined as the difference in the promotion rates of men and women) from salary band F/G, which is the entry-level salary band for professional economists at the ECB. This promotion gap narrowed from 2011 onwards, following the policy change. While prior to 2011, the

GENDER GAP IN THE PROBABILITY OF PROMOTION FROM SALARY BAND F/G

FIGURE 1



gender promotion gap stood at over 36% after ten years since entry, this gap decreased to about 8% on average after 2011, a decline of about 80%.

Using 2012-2017 data on promotion applications and decisions, we explore the promotion process in depth, and confirm that during this most recent period, women are as likely to be promoted as men. This results from a lower probability of women applying for promotion, combined with a higher probability of women being selected conditional on having applied. Following promotion, women perform better in terms of salary progression, suggesting that the higher probability of being selected is based on merit, not positive discrimination. We do not find evidence that the composition of the selection committee, including the fraction of women on the panel, alters these results. Taken together, these results point to the effectiveness of corporate diversity policies in reducing gender bias in promotions and lend support to supply-side explanations for the existence of remaining gender differences in promotion outcomes.

Our results suggest that institutional efforts to reduce the gender promotion gap may have to include measures aimed at lowering the barriers for women to seek and apply for promotion opportunities. Such measures could range from offering assertiveness and interview trainings to enhanced child support benefits and services.

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## **JOBS MULTIPLIERS: EVIDENCE FROM A LARGE FISCAL STIMULUS IN SPAIN**

SUMMARY OF BANCO DE ESPAÑA WORKING PAPER N° 1922

MARIO ALLOZA AND CARLOS SANZ

*We estimate the employment effect of a large fiscal stimulus in Spain (Plan E), in which the national government transferred funds to municipalities to carry out local investment projects. Using a difference-in-difference approach by exploiting variation in the timing of the execution of projects across municipalities, we find that 100,000 euros of stimulus reduced unemployment by 0.62 jobs-years. We also present evidence on the transmission mechanism, finding that the effect was: i) initially concentrated in the construction and industrial sectors, but later spilled over to the broader economy, ii) larger for males than females, and iii) larger when the shock represented a higher share of the budget. Our estimate of the multiplier falls in the lower range of previous work.*

In the last decade, there has been renewed attention to fiscal policy. Given a macroeconomic environment characterized by a constrained monetary policy, understanding how effective government initiatives are in stimulating the economy has become an important topic of discussion among academics and policy makers. This is particularly relevant when analyzing the expansionary fiscal plans that were enacted in recent years to stimulate employment growth during recessions. However, it is challenging to identify the causal effects of such plans.

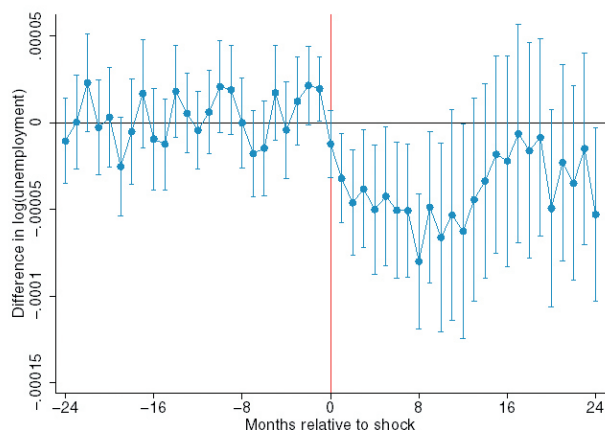
In this paper, we estimate the employment effects of a large, unanticipated fiscal stimulus in Spain (Plan Español para el Estímulo de la Economía y el Empleo, the Spanish Plan for the Stimulus of the Economy and Employment, commonly known as Plan E). This stimulus, approved in 2008, channeled almost 13 billion euros (around 1.2% of Spanish GDP) to municipal governments to execute public investment plans.

In our empirical analysis, we use municipality and monthly-level data on unemployment and the stimulus. While all municipalities received the same amount of resources (in per capita terms), there was variation in the timing of the execution of the projects. We exploit this variation in our estimation, performing a difference-in-difference analysis to establish a causal relationship. The key assumption is that “early” and “late” starters were on parallel trends around the time of the stimulus. While we cannot directly test this, we check whether “early” and “late” starters were on parallel trends in the months before the stimulus (placebo tests).

Reassuringly, the results indicate that this was indeed the case.

The main results are presented in Figure 1, where the vertical line ( $h=0$ ) represents the month of the stimulus. We find no “effect” on unemployment for  $h < 0$ , validating the parallel-trend assumption. We do observe significant effects for  $h > 0$ . In particular, the starting of a public investment project reduces unemployment on impact. This effect builds up over the first year and moderates towards the end of the second year. Our estimate of the jobs multiplier (the number of jobs created per million euros of public spending) is 5.7 jobs at the peak. Regarding the cumulative multiplier (the sum of the point multipliers over the considered horizon), we find that 100,000 euros reduced unemployment by 0.62 job-years.

EFFECT OF THE STIMULUS ON UNEMPLOYMENT FIGURE 1



While jobs multipliers are an object of interest in their own right [see, e.g., Wilson (2012)], they offer an incomplete view of the overall effects of the stimulus. To (partially) address this issue, we follow Chodorow-Reich (2019) and translate the employment multiplier to an output multiplier. Our estimates are consistent with an output multiplier of 0.3-0.5. This figure represents a strict lower bound, since our approximation ignores that new public capital could enhance economic activity in the medium and long run. Our jobs multiplier (and implied output multiplier) are compatible in size with aggregate estimations of nation-wide effects. This evidence suggests that there might be instances where the local multipliers are not always larger than nation-wide multipliers.

Finally, we provide evidence on the transmission channel of the stimulus. We find that: i) most of the effect was initially in the construction and industrial sectors, but later spilled over to the broader economy, ii) the stimulus reduced male more than female unemployment, and iii) while all municipalities received the same (per capita) amount of resources, the stimulus was more effective when the received amount represented a higher percentage of the budget.

Our work opens up avenues for future research. While we have focused on the effect of the fiscal stimulus on unemployment, there are other relevant dimensions that should be taken into consideration when evaluating the overall impact of the program. For example, it would be

interesting to see how the stimulus affected welfare in the medium and long run. We leave this question for future work.

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## RESEARCH INITIATIVES AT BANCO DE ESPAÑA

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THE BANCO DE ESPAÑA LAUNCHES ITS DATA LABORATORY (BELab).  
NEW MICRODATA ACCESS AGREEMENTS SIGNED WITH MERCANTILE REGISTERS



### BELab opens its “data room”

The Banco de España launched on July 22nd its data laboratory, called “BELab”, answering the growing international demand by researchers to gain access to granular and microdata. The research community will have from now on access, in a secure environment, to high-quality microdata compiled by Banco de España. This will be a stepwise process, which will lead to more databases available in BELab, as well as different means of access. In that way, the Banco de España follows the experience of other national central banks with data laboratories, members of the INEXDA network, which Banco de España joined in January 2018. INEXDA focuses on sharing knowledge about metadata, technical expertise on data access and confidential measures, and on harmonizing good practices in data laboratories.

The first phase of BELab begins with the dissemination of non-confidential data of non-financial corporations available in the Central Balance Sheet Data Office (CBSO). That means the access to microdata from annual accounts and other relevant information over a period of 23 years of more than 2 million companies, totalling 16.000.000 financial statements. To that aim, an agreement signed on 11 July 2019 between the Banco de España and CORPME (the Spanish Mercantile and Property Registrars’ Association), authorises the controlled use of this information by researchers in a “data room” opened in one of the premises of Banco de España in Madrid, in 522 Alcalá Street.

Initially the data will only be accessible in this safe environment, i.e. an on-site laboratory. The Banco de España IT and Statistics Departments are working to enlarge the set of databases available in BELab, when technical and anonymity conditions so allow. Furthermore, other means of access will be provided in the near future, such as remote-controlled access (via “citrix”, “no machine”, or other similar software

currently under study) and/or subrogated execution by employees of BELab, depending on the confidentiality level of the microdata. BELab will inform of the ongoing progress in its website.

Guidelines on how the Banco de España Laboratory Data works are published in the Banco de España’s website, please visit the “[Guidelines on the workings of the Banco de España Laboratory Data \(BELab\)](#)”. This document provides researchers with details about available data, how to gain access, conditions of use, software available in BELab workstations (Stata, R, Python, among others), the protocol for the input and output extraction, and the policy for the storage of data used in the projects. For more detailed knowledge of the dataset available in this first phase (balance sheet data of non-financial corporations), it is recommended to read the [Central Balance Sheet Data Office Microdata \(MCB\)](#). Moreover, to facilitate the design of the code and to reduce the time spent by researchers in the on-site laboratory, a sample file with fictitious data of all the variables included in the Microdata of Central Balance Sheet Data Office (MCB) is available at the following [link](#).

To know more about the project click on the [BELab website](#). Researchers can also contact us using this [Contact Form](#).

### Banco de España signs agreements with Mercantile Registers for microdata access

On July 2019 two agreements were signed between the Banco de España (under the coordination of the General Directorate Economics, Statistics and Research) and CORPME (the Spanish Mercantile and Property Registrars’ Association). The first



Premises of the BELab at Calle Alcalá, 522, Madrid.

agreement allowed to launch the initial phase of BELab and made possible the access of microdata from annual accounts deposited by non-financial corporations in the Mercantile Registers since 1994. The agreement was necessary to provide controlled access to qualified researchers to this information; although the data are publicly available, company by company, in Mercantile Registers applying official fees, BELab will allow the controlled access to more than 16.000.000 annual accounts of companies in a harmonized timeframe (around 100 harmonized items of information per year from 1995 to 2017).

In the same date, another agreement was signed to give the Banco de España access to the ultimate beneficial owner in the CORPME database. This dataset, created in 2018, provides information about the ultimate beneficial owner of a company, as well as the tree of corporate ownership relations. Hence, it provides crucial information to determine the companies' group structure. This information, additional to other currently available at the Statistics Department, will also help to set the profiling of groups structures for statistical and analytical purposes.



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ANA GÓMEZ LOSCOS, MARÍA DOLORES GADEA  
AND EDUARDO BANDRÉS  
EMPIRICAL ECONOMICS

### **THE SPANISH PERSONAL INCOME TAX: FACTS AND PARAMETRIC ESTIMATES**

ESTEBAN GARCÍA-MIRALLES, NEZIH GUNER AND ROBERTO RAMOS  
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### **FINANCIAL DEVELOPMENT, DEFAULT RATES, AND CREDIT SPREADS**

ALESSANDRO PERI AND OMAR RACHEDI  
ECONOMIC JOURNAL

### **MAPPING CHINA'S TIME-VARYING HOUSE PRICE LANDSCAPE**

MICHAEL FUNKE, DANILO LEIVA-LEON AND ANDREW TSANG  
REGIONAL SCIENCE AND URBAN ECONOMICS

### **AN ESTIMATED DSGE MODEL WITH LEARNING BASED ON TERM STRUCTURE**

PABLO AGUILAR AND JESÚS VÁZQUEZ  
MACROECONOMIC DYNAMICS

### **CONFIDENCE INTERVALS FOR BIAS AND SIZE DISTORTION IN IV AND LOCAL PROJECTIONS-IV MODELS**

GERGELY GANICS, ATSUSHI INOUE AND BARBARA ROSSI  
JOURNAL OF BUSINESS & ECONOMIC STATISTICS

### **MEASURING ECONOMIC AND ECONOMIC POLICY UNCERTAINTY AND THEIR MACROECONOMIC EFFECTS: THE CASE OF SPAIN**

CORINNA GHIRELLI, MARÍA GIL, JAVIER J. PÉREZ AND ALBERTO URTASUN  
EMPIRICAL ECONOMICS

### **THE ELASTICITY OF TAXABLE INCOME IN SPAIN: 1999-2014**

MIGUEL ALMUNIA AND DAVID LÓPEZ-RODRÍGUEZ  
SERIES-JOURNAL OF THE SPANISH ECONOMIC ASSOCIATION

# NEWS AND EVENTS

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## NEWS

### A NEW ECONOMIC POLICY UNCERTAINTY INDEX FOR SPAIN

In a recent [paper](#), [Corinna Ghirelli](#), [Javier J. Pérez](#) and [Alberto Urtasun](#) construct an index of economic policy uncertainty for Spain based on newspaper coverage frequency, that follows closely the procedure in “Measuring Economic Policy Uncertainty” by Scott R. Baker, Nicholas Bloom and Steven J. Davis [2016, QJE]. This new index for Spain is now hosted by the influential [Economic Policy Uncertainty website](#) of Baker, Bloom and Davis. The index is to be updated every month in this website.

## RECENT CONFERENCES

[LINK TO CONFERENCES PAGE](#)

### SPECIAL ISSUE ON TAXES AND TRANSFERS OF THE JOURNAL OF THE SPANISH ECONOMIC ASSOCIATION-SERIES

MADRID, 26 APRIL 2019

A selection of papers from the special issue on taxes and transfers of the Journal of the Spanish Economic Association-SERIEs were presented at a conference hosted by the Banco de España on April 26, 2019. Editors for this special issue were [Juan Carlos Conesa](#) (Stony Brook University) and [Javier J. Pérez](#) (Banco de España).

[Conference programme >](#)

### ESSIM 2019 CONFERENCE

RODA DE BARÀ (TARRAGONA), 7-10 MAY 2019

From May 7th to 10th, the Banco de España hosted the 27th CEPR European Summer Symposium in International Macroeconomics (ESSIM 2019) at its residence in Tarragona. The conference covered the following CEPR programme areas: International Macroeconomics and Finance (IMF), Monetary Economics and Fluctuations (MEF) and Macroeconomics and Growth (MG). [Charles Engel](#) (University of Wisconsin and CEPR), [Pete Klenow](#) (Stanford University and CEPR) and [Laura Veldkamp](#)

(Columbia University and CEPR) participated as guest speakers.

[Conference programme >](#)

### WAGE FLEXIBILITY AND ITS MACROECONOMIC IMPLICATIONS

MADRID, 22 MAY 2019

On May 22 2019, Banco de España hosted a workshop on “Wage flexibility and its macroeconomic implications”. The aim of the workshop was to analyze the costs and benefits of having higher wage flexibility. To this end, the first session presented two models deriving welfare implications of having higher wage flexibility under different macroeconomic circumstances. The second session presented two empirical papers regarding the potential effects of minimum wage developments in employment, technology and prices. Finally, the third session presented two papers regarding the effect of collective agreements on the response of wages and employment to negative shocks according to their different degree of centralization. Speakers were [Jordi Galí](#) (CREI), [Attila Lindner](#) (UCL), [Effrosyni Adamopoulou](#) (University of Mannheim), [Simon Janssen](#) (IAB Nuremberg), [Samuel Hurtado](#) (Banco de España) and [Sergio Puente](#) (Banco de España).

[Conference programme >](#)

### ECONOMIC CONSEQUENCES OF BREXIT

MADRID, 23 MAY 2019

On Thursday, 23rd May 2019 the Banco de España hosted a workshop on the opportunities and challenges for Europe that are associated to Brexit. The workshop brought together Brexit experts from academia, the private sector and policy making institutions. The keynote speech was given by [Gregory Thwaites](#) (Founders Pledge, Resolution Foundation and LSE).

[Conference programme >](#)

### EABCN CONFERENCE: ADVANCES IN BUSINESS CYCLE ANALYSIS

MADRID, 30-31 MAY 2019

On May 30-31 2019, the Banco de España hosted the EABCN Conference on Advances in Business Cycle

Analysis at its headquarters in Madrid. The conference covered a broad range of themes related to empirical aspects of business cycles –in particular novel methodologies for dating business cycles and their effects on the economy–. [Marc Giannoni](#) (Federal Reserve Bank of Dallas and CEPR), and [Lucrezia Reichlin](#) (London Business School and CEPR) gave a talk at the conference.

[Conference programme >](#)

#### **JOINT SEVENTH CEPR ECONOMIC HISTORY SYMPOSIUM AND FIFTH BANCO DE ESPAÑA ECONOMIC HISTORY SEMINAR**

RODA DE BARÁ (TARRAGONA), 30-31 MAY 2019

On 30-31 May 2019 the Joint Seventh CEPR Economic History Symposium and Fifth Banco de España Economic History Seminar took place in Roda de Bará (Tarragona). The symposium aimed at bringing together leading researchers in the field. The event covered topics such as (i) Macroeconomic and financial history, (ii) Economic growth in the very long run, (iii) Institutions and economic development and (iv) The history of the international economy.

[Conference programme >](#)

#### **SECOND CONFERENCE ON FINANCIAL STABILITY**

MADRID, 3-4 JUNE 2019

Banco de España in cooperation with CEMFI organized the Second Conference on Financial Stability, which was held at Banco de España in Madrid on 3-4 June 2019. The programme contained both theoretical and empirical papers related to financial stability issues, with a special focus on the analytical frameworks and tools for macro-prudential policies to address systemic risk. This conference is organized on a biennial basis, and aims at promoting the research and discussion of topics related to financial stability and macroprudential policy among academics, practitioners, and policy-makers.

[Conference programme >](#)

#### **SESSION “MONETARY POLICY IN THE NEW NORMAL” AT THE CENTRAL BANK RESEARCH ASSOCIATION (CEBRA) ANNUAL MEETING**

NEW YORK, 18-20 JULY 2019

The Banco de España participated in the CEBRA annual meeting as the organiser of one of the sessions,

entitled “Monetary Policy in the New Normal”. Several research papers relating to the possible design of monetary policy in the advanced economies in the coming decades were discussed during the session.

[Conference programme >](#)

#### **GLOBAL IMBALANCES AND CAPITAL FLOWS IN THE ERA OF NEW TECHNOLOGIES**

MADRID, 10-11 SEPTEMBER 2019

On 10-11 September 2019, the Banco de España hosted the Global Imbalances and Capital Flows in the Era of New Technologies conference, co-organized with the RBWC (Reinventing Bretton Woods Committee). The conference consisted of six sessions covering hot topics in the public debate: global imbalances, China, spillovers to emerging countries, reforms of the global financial system, central bank money, and capital movements in a digital economy. Participants included governors, sub-governors, officials of several international financial institutions, economists in the private sector and think-tanks, and academics.

[Conference programme >](#)

#### **THIRD BANCO DE ESPAÑA ANNUAL RESEARCH CONFERENCE**

MADRID, 16-17 SEPTEMBER 2019

On 16-17 September 2019, the Banco de España hosted its Third Annual Research Conference at its Madrid headquarters. This year the theme of the conference was “The EMU at 20: current status and the way forward”. Leading scholars such as Vítor Constâncio (University of Navarra), [Giancarlo Corsetti](#) (University of Cambridge), [Emmanuel Farhi](#) (Harvard University), [Jordi Galí](#) (CREI), [Luc Laeven](#) (European Central Bank), [Ramón Marimon](#) (European University Institute), [Ashoka Mody](#) (Princeton University), [Athanasios Orphanides](#) (MIT Sloan), [Carmen Reinhart](#) (Harvard Kennedy School), [Rafael Repullo](#) (CEMFI), [Hélène Rey](#) (London Business School), [Tano Santos](#) (Columbia University), [Markus Sihvonen](#) (Bank of Finland), and [Ivan Werning](#) (MIT), among others, participated.

[Conference programme >](#)

#### **2019 HYDRA WORKSHOP ON DYNAMIC MACROECONOMICS**

PALMA DE MALLORCA, 27-28 SEPTEMBER 2019

On 27-28 September, the seventeenth edition of the annual conference “2019 Hydra Workshop on Dynamic

Macroeconomics” took place in Palma de Mallorca. The conference was sponsored by the European Central Bank, the Bank of Finland, the Bank of Greece, the Swiss National Bank, the University of Bern, and the Banco de España, which was the local organizer. The conference featured frontier research in macroeconomics. Leading scholars, such as **Nobuhiro Kiyotaki** (Princeton University), **George-Marios Angeletos** (MIT), **Varadarajan Venkata Chari** (University of Minnesota), **Emmanuel Farhi** (Harvard University), and **Harris Dellas** (University of Bern), participated.

### SIXTIETH ANNIVERSARY OF THE 1959 STABILIZATION PLAN. CONFERENCE IN TRIBUTE TO JOAN SARDÀ

BARCELONA, 3 OCTOBER 2019

On 3 October, the Banco de España held in Barcelona a conference aimed at commemorating the sixtieth anniversary of the 1959 Stabilization Plan, the series of economic measures that set the course for the liberalization of the Spanish economy. The conference was also organized as a tribute to Joan Sardà, Director of the Banco de España Research Department at that time, and a key figure of the Plan design. The Governor of the Banco de España, **Pablo Hernández de Cos**, gave the Opening Remarks, and several sessions analysing the content and context of the Stabilization Plan were held.

### THIRD ANNUAL WORKSHOP OF THE ESCB RESEARCH CLUSTER 3

MADRID, 10-11 OCTOBER 2019

On 10-11 October, the Banco de España hosted the Third Annual Workshop of the ESCB Research Cluster 3 on “Financial Stability, Macroprudential Regulation and Microprudential Supervision”, jointly organized with the Bank of Greece. This is one of the three Research Clusters set up by the Heads of Research of the European System of Central Banks (ESCB), with the aim of fostering interaction and collaboration between ESCB researchers working on fields of common interest.

[Conference programme >](#)

## RECENT ECONOMIC RESEARCH SEMINARS

[LINK TO SEMINARS PAGE](#)

### ARE REFEREES AND EDITORS IN ECONOMICS GENDER NEUTRAL?

NAGORE IRIBERRI

UNIVERSIDAD DEL PAÍS VASCO

3 APRIL 2019

### HUMAN FRICTIONS IN THE TRANSMISSION OF ECONOMIC POLICY

MICHAEL WEBER

CHICAGO BOOTH

9 APRIL 2019

### COMPETITION AND INCENTIVES IN MORTGAGE MARKETS: THE ROLE OF BROKERS

CLAUDIA ROBLES-GARCIA

LONDON SCHOOL OF ECONOMICS

25 APRIL 2019

### THE TERM PREMIUM IN A FRACTIONALLY COINTEGRATED YIELD CURVE

ANTONIO MORENO

UNIVERSIDAD DE NAVARRA

6 MAY 2019

### QUANTIFYING MARKET POWER

JAN ECKHOUT

UNIVERSITAT POMPEU FABRA

15 MAY 2019

### OWNERS' LABOR SUPPLY AND FIRM DYNAMICS

EMIRCAN YURDAGUL

UNIVERSIDAD CARLOS III DE MADRID

20 MAY 2019

### RETHINKING CAPITAL REGULATION: THE CASE FOR A DIVIDEND PRUDENTIAL TARGET IN THE EURO AREA

MANUEL ALVARO MUÑOZ GARCIA

FINANCIAL AFFAIRS, MINISTER'S OFFICE

28 MAY 2019



## DISCRETIONARY NAVS

NEAL STOUGHTON

VIENNA UNIVERSITY OF ECONOMICS AND BUSINESS

29 MAY 2019

## OLD, FRAIL, AND UNINSURED: ACCOUNTING FOR FEATURES OF THE U.S. LONG-TERM CARE INSURANCE MARKET

ANTON R. BRAUN

FEDERAL RESERVE BANK OF ATLANTA

5 JUNE 2019

## NEO-FISHERIAN POLICIES AND LIQUIDITY TRAPS

FLORIN BILBIIE

UNIVERSITY OF LAUSANNE

11 JUNE 2019

## DECLINING LABOR AND CAPITAL SHARES

SIMCHA BARKAI

LONDON BUSINESS SCHOOL

12 JUNE 2019

## THE DYNAMICS OF RETURN MIGRATION, HUMAN CAPITAL ACCUMULATION, AND WAGE ASSIMILATION

JÉRÔME ADDA

BOCCONI UNIVERSITY

14 JUNE 2019

## OFFICIAL LENDING AND MARKET ACCESS: CATALYTIC EFFECTS IN THE EURO AREA

AITOR ERCE

EUROPEAN STABILITY MECHANISM

17 JUNE 2019

## EL TSUNAMI TECNOLÓGICO

ÁNGEL BONET

21 JUNE 2019

## GENDER AND CREDIT RISK: A VIEW FROM THE LOAN OFFICER'S DESK

JOSÉ GARCÍA-MONTALVO

UNIVERSITAT POMPEU FABRA

27 JUNE 2019

## SEMINARIO DE DISCUSIÓN SOBRE GOBERNANZA EUROPEA

MARZIA ROMANELLI, MIGUEL OTERO AND FEDERICO STEINBERG

BANCO DE ITALIA AND REAL INSTITUTO ELCANO

1 JULY 2019

## SUSTAINABILITY AND ADEQUACY OF THE SPANISH PENSION SYSTEM AFTER THE 2013 REFORM: A MICROSIMULATION ANALYSIS

CONCEPCIÓ PATXOT

UNIVERSITAT DE BARCELONA

4 JULY 2019

## BANK TRANSPARENCY AND DEPOSIT FLOWS

ITAY GOLDSTEIN

WHARTON SCHOOL - UNIVERSITY OF PENNSYLVANIA

10 JULY 2019

## GLOBAL TRENDS IN INTEREST RATES

MARCO DEL NEGRO

FEDERAL RESERVE BANK OF NEW YORK

21 AUGUST 2019

## FROM THEORY TO POLICY WITH GRAVITAS: A SOLUTION TO THE MYSTERY OF THE EXCESS TRADE BALANCES

YOTO YOTOV

DREXEL UNIVERSITY

13 SEPTEMBER 2019

## TERROR AND TOURISM: ECONOMIC CONSEQUENCES OF MEDIA COVERAGE

HANNES MUELLER

IAE-CSIC, BARCELONA

23 SEPTEMBER 2019

## EMPLOYMENT EFFECTS OF ALLEVIATING FINANCING FRICTIONS: WORKER-LEVEL EVIDENCE FROM A LOAN GUARANTEE PROGRAM

JULIEN SAUVAGNAT

BOCCONI UNIVERSITY

25 SEPTEMBER 2019

## NEW FACES



**ADRIÁN CARRO**  
Macroprudential Policy Division

ADRIÁN CARRO joined the Macroprudential Policy Division at the Banco de España in October 2019, after spending three years as a Postdoctoral Research Officer at the University of Oxford (Institute for New Economic Thinking). During his last two years in Oxford, he was also a Visiting Academic Fellow at the Macro-Financial Risks Division at the Bank of England. Adrián holds a PhD in Physics from the Universitat de les Illes Balears (Institute for Cross-Disciplinary Physics and Complex Systems, September 2016), an MSc in Theoretical Physics of Complex Systems from the Université Pierre et Marie Curie (Paris VI, July 2011), and a BSc (Licenciatura) in Physics from the Universidade de Santiago de Compostela (July 2010).

Adrián is generally interested in understanding the emergence of complex collective phenomena in social and economic systems in terms of the behaviours and interactions of their constituent elements. To this end, he develops agent-based models, i.e., computational simulations based on heterogeneous and interacting agents. During his MSc thesis and PhD research he focused on various stylised agent-based models and stochastic processes on complex networks, using a combination of mathematical analysis and computational simulations to study problems such as the formation

of opinions in social groups, the role of transportation costs for sustainable economic development, and herding behaviour in financial markets. More recently, in his postdoctoral research in collaboration with the Bank of England he has been developing a highly detailed and data-driven agent-based model of the UK housing market and its interaction with the mortgage lending sector. This project has delivered a virtual sandbox where the systemic and distributional effects of different macroprudential policies can be tested.

Currently, Adrián is collaborating with Bank of England researchers with the purpose of expanding the UK housing model in two main directions. On the one hand, they are introducing a well calibrated banking sector with heterogeneous banks, which will allow them to study the interaction between capital and product tools, both from a macro and a microprudential angle. On the other hand, they are also introducing stylised macroeconomic feedback loops in order to explore the dynamical properties of the system. In his future research, Adrián will be adapting the model to the particularities of the Spanish housing market. Finally, he is also interested in models of contagion and systemic risk, where he plans to contribute by exploring the effects of adding network features into current stress testing methodologies.



## BEATRIZ GONZÁLEZ

Sectoral Analysis Division

BEATRIZ GONZÁLEZ joined the Sectoral Analysis Division at the Banco de España in September 2019. She holds a PhD in Economics from Universidad Carlos III de Madrid (June 2019) and a Master in Economic Analysis from the same university. Prior to her graduate studies, Beatriz obtained a B.A. (Licenciatura) in Business from Universidad de Alcalá de Henares. During her PhD, she visited the University of Minnesota under the supervision of Timothy J. Kehoe. Throughout her studies at Universidad Carlos III, she was teaching assistant of the graduate course of Macroeconomics I in the PhD program. She was also teaching assistant of a wide range of undergraduate courses, such as Macroeconomics, Econometrics, Applied Economics or International Trade, both in English and Spanish.

Beatriz's research aims at understanding how changes in policies and in the economic environment impact corporate finance and investment choices of firms, how this shapes the size distribution of firms, and how these ultimately impact macroeconomic aggregates, such as aggregate output and TFP. In one of her papers, 'Macroeconomics, Firm Dynamics and IPOs', she sets up a quantitative firm dynamics model where firms feature a life cycle and the decision to list in a stock exchange

is endogenous. She tries to understand what are the reasons behind the spike of IPOs in the US during the 1990s and its subsequent decrease in the 2000s, and what their macroeconomic implications are. She finds that observed changes in corporate and dividend taxes encourage firms to do IPOs. However, other changes such as the increased access to debt, the changes in the idiosyncratic shock process firms face, and the increase in the fixed cost of operating as a public firm deter firms from doing IPOs. At the macro level, these changes increase output and TFP, and contribute to the increase in concentration. In a different paper, 'Taxation and the Life Cycle of Firms' (joint with Andrés Erosa), Beatriz studies how different forms of taxing capital income affect investment and financial policies over the life cycle of firms. She finds that different taxes affect differently old vs young firms, and that corporate taxes are the most hurtful for the latter.

In her ongoing projects, Beatriz is further exploring how taxes distort the investment in tangible versus intangible capital of firms, affecting growth over the life cycle, the size distribution of firms and aggregate output and TFP.

Research page: <https://beatrizgonzalezlopez.weebly.com>



## MARGARITA MACHELETT

Microeconomic Studies Division

MARGARITA MACHELETT joined the Microeconomic Analysis Division at the Banco de España in September 2019. She holds a Ph.D. in Economics from Brown University (May 2019). Margarita also holds a Magna Cum Laude Licenciante in Economics degree from the University of Buenos Aires. During her studies at Brown, Margarita was a teaching assistant in Labor, Education and Econometrics undergraduate courses. She was also a Doctoral Fellow at the Rhode Island Innovative Policy Lab.

Margarita's primary research fields are labor and education. She uses techniques from applied microeconomics to address questions related to gender-based price discrimination and the effects of government policies on children. In her recent work, "Gender price gaps and competition: Evidence from a correspondence study," she implemented a large-scale field experiment to test the existence of gender-based price discrimination in the US auto repair market. Her results provide evidence of statistical discrimination – women receive quotes that are higher than those received by men. This price gap, however, disappears when women customers signal to be searching for other price

quotes. She also finds that price gaps are reduced with increasing levels of competition – suggesting that competition is a powerful tool to combat gender bias in consumer markets.

In her additional work, "The causal impact of removing children from abusive and neglectful homes," she estimates the causal impact of out-of-home placements children experience in early childhood. She uses an instrumental variables method and works with comprehensive data from Rhode Island state department agencies from the US. She joins two decades of child protective services records with administrative records on academic outcomes from public schools, and finds that removal particularly helps girls. Out-of-home placements boost their test scores and reduce grade repetition, while there is no detectable impact on boys. These results suggest that removing girls can have beneficial impacts when child protective service investigators might differ in their choice between family preservation and foster care placement.

Research page:

<https://sites.google.com/view/margaritamachelett/home>



## MYROSLAV PIDKUYKO

Microeconomic Studies Division

MYROSLAV PIDKUYKO joined the Microeconomic Analysis division at the Banco de España in September 2019. He holds a Ph.D. in Economics from the University of Manchester (July 2019). Myroslav also holds an M.A. in Economics from CERGE-EI (Prague, Czech Republic), MSc in Statistics and BSc in Mathematics from Ivan Franko National University of Lviv (Lviv, Ukraine). During his post-graduate studies, he was a lecturer in Macroeconomics for graduate level and teaching assistant for various Economics undergraduate courses.

Myroslav's research interest lies in macroeconomics with a focus on household finance, incomplete markets, and inequality. In particular, his research focuses on distributional consequences of economic policies and the role of household's financial position in the propagation of such policies. His latest

research paper investigates the heterogeneous responses of households that differ by their housing tenure position to changes in housing credit policy. The paper uses exogenous intervention of US Government to secondary mortgage markets and finds significant differences in consumption responses for different groups of households.

His current projects focus on three broad areas: i) understanding the transmission mechanism of fiscal policies and the role of capital income risk in propagation of such policies; ii) the role of housing and mortgage markets on consumption and inequality; and iii) the determinants of human capital formation.

Research page:

<https://sites.google.com/site/myroslavpidkuyko/home>

## ANNOUNCEMENTS

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### JOB OPENINGS FOR PhD ECONOMISTS

The Banco de España is hiring in the job market. The Bank is interested in individuals with strong modeling and empirical skills to conduct high-quality policy-oriented research, to produce reports for the Bank's senior management and to write for the Bank's publications. The application deadline is 15 November 2019.

[Job posting >](#)

### UPCOMING CONFERENCES

[LINK TO CONFERENCES PAGE](#)

#### SIXTH WORLD BANK-BANCO DE ESPAÑA INTERNATIONAL POLICY CONFERENCE

MADRID, 28 OCTOBER 2019

On 28 October, the Banco de España will host the sixth edition of the World Bank-Banco de España International Policy Conference. This event aims at fostering the dialogue between policy makers and academics working on development economics, macroeconomic policies, and economic growth. The scope of the conference will be global, but special consideration will

be given to issues relevant to Latin America. Drawing on state-of-the-art economic policy and research, new evidence on the consequence of shocks of real nature (including trade wars and Brexit) for growth and development, as well as employment levels and wages, will be discussed. **Jaume Ventura** (CREI) will deliver the Keynote Address.

[Conference programme >](#)

#### DIGITALISATION AND INVESTMENT IN INTANGIBLE CAPITAL: THE SPANISH CASE WITHIN THE EUROPEAN UNION

MADRID, 4 NOVEMBER 2019

The Banco de España and the European Investment Bank (EIB) are organizing a Conference on "Digitalisation and Investment in Intangible Capital: The Spanish Case within the European Union" on 4 November 2019 at Banco de España's Headquarters in Madrid. Participants include speakers from different public and private institutions, the corporate sector and the academia. Governor Hernández de Cos will give the Opening Remarks and Emma Navarro, Vice President of the EIB, will give the Closing Remarks.

[Conference programme >](#)

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