

OECD Economics Department Working Papers No. 973

An Analysis of Productivity Performance in Spain Before and During the Crisis: Exploring the Role of Institutions

Juan S. Mora Sanguinetti,

Andrés Fuentes

https://dx.doi.org/10.1787/5k9777lqshs5-en

OECD

Unclassified **ECO/WKP(2012)50**

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development **30-Jul-2012**

English - Or. English

ECONOMICS DEPARTMENT

ECO/WKP(2012)50
Unclassified

Cancels & replaces the same document of 21 June 2012

AN ANALYSIS OF PRODUCTIVITY PERFORMANCE IN SPAIN BEFORE AND DURING THE CRISIS: EXPLORING THE ROLE OF INSTITUTIONS

ECONOMICS DEPARTMENT WORKING PAPER No. 973

by Juan S. Mora-Sanguinetti and Andrés Fuentes

All Economics Department Working Papers are available through OECD's Internet website at www.oecd.org/eco/workingpapers

JT03325082

Complete document available on OLIS in its original format
This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

English - Or. English

ABSTRACT/RÉSUMÉ

An analysis of productivity performance in Spain before and during the crisis: Exploring the role of institutions

The Spanish economy experienced significantly weaker labour productivity growth than other OECD economies and failed to catch up with the most advanced economies in the period 1996-2007. In recent years labour productivity growth has accelerated, but this recovery is likely to be due to cyclical and temporary factors. The aim of this paper is to identify what factors weigh on weak trend productivity growth. The relatively weak performance largely reflects the low growth of total factor productivity within a wide range of sectors, with very limited impact of composition effects, while the capital stock and educational attainment of the workforce have grown relatively strongly. The paper investigates the role of some institutions in deterring innovation, competition and the growth of successful firms. It argues that Spain needs to have a more flexible labour market and collective bargaining system to improve productivity performance. Productivity performance would also benefit from a more flexible business environment in such a way that both entry and exit of firms in the economy are less costly, including a reform of bankruptcy legislation, steps to make civil judicial procedures more efficient and a greater reduction of barriers to entry into the retail trade sector.

JEL Classification: O4, J24, K0
Keywords: Productivity, institutions

****

Analyse de la performance de la productivité en Espagne avant et durant la crise : le rôle des institutions

L'économie espagnole a enregistré une croissance nettement plus faible de la productivité du travail que les autres économies de l'OCDE et elle n'a pas réussi à rattraper les économies les plus avancées sur la période 1996-2007. Ces dernières années, la croissance de la productivité du travail s'est accélérée, mais ce redressement est vraisemblablement dû à des facteurs conjoncturels et temporaires. L'objet de cette étude est d'identifier les facteurs qui pèsent sur la croissance de la productivité. La faiblesse relative de la performance reflète en grande partie la médiocre progression de la productivité totale des facteurs dans un large éventail de secteurs, avec un impact très limité des effets de composition, alors que le stock de capital et le niveau de formation de la main-d'œuvre ont assez fortement progressé. Cette étude examine dans quelle mesure certains dispositifs institutionnels ont joué contre l'innovation, la concurrence et le développement d'entreprises prospères. L'Espagne, est-il observé, doit pouvoir s'appuyer sur un marché du travail et un système de négociations collectives plus flexibles pour améliorer sa performance en termes de productivité. La performance sur le plan de la productivité bénéficierait aussi de davantage de flexibilité dans l'environnement des entreprises, de façon qu'aussi bien les entrées que les sorties d'entreprises de l'économie soient moins coûteuses, ce qui suppose une réforme de la législation sur les faillites, des mesures pour rendre les procédures judiciaires au civil plus efficientes et un abaissement plus marqué des barrières à l'entrée dans le secteur du commerce de détail.

Classification: O4, J24, K0
Mots clés: Productivité, institutions

© OECD (2012)

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for commercial use and translation rights should be submitted to rights@oecd.org

TABLE OF CONTENTS

An analysis of productivity performance in Spain before and during the crisis: Exploring the role of institutions 5

Productivity performance in Spain: an overview 5
Labour productivity growth in Spain has been weak 5
Explaining the contributions to weak labour productivity growth 7
The recovery in productivity after 2008 16
The role of business dynamics and firms' size on productivity performance in Spain 16
Business dynamics and firm size affect productivity 16
Firm size and turnover are substantially lower than in other countries 17
The design of some institutions hampers productivity growth 20
The effects of the dual labour market on productivity 21
Collective bargaining arrangements hamper productivity improvements 22
Barriers to entry are still high, notably in retail trade 23
Bankruptcy institutions in Spain are inefficient 26
The performance of the judicial system in Spain shows some weaknesses 29
Conclusions 31

Bibliography 31

Tables

1. Value added growth, productivity growth, and growth contributions 9
2. Educational attainment of immigrants and native workers in Spain 11
3. Shift share analysis of labour productivity of market sectors in selected OECD countries 14
4. Labour productivity growth, TFP contribution and share in total economy value added, by sector) 15
5. Share of employment in firms with fewer than 20 employees (per cent) 18
6. Average firm size (number of employees) 18
7. Firm productivity by size class (2006) 20
8. Share of employed workers receiving training paid by their employers by type of contract 22
9. OECD indicator on regulation of retail trade 23
10. Distribution of enterprises by their number of employees in retail trade (2007) 24
11. OECD PMR indicators. Barriers to entrepreneurship: low-level indicators 25
12. World Bank Doing Business indicators: 25
13. Business bankruptcies per 10 000 firms 28
14. Results of the World Business Environment Survey (2000) 29
15. World Bank Doing Business indicators: 30

Figures

1. Annual growth of GDP at constant prices per hour worked across selected OECD 5
2. Labour productivity gaps of Spain with respect to selected countries 6
3. Labour productivity gaps of Spain with respect to selected countries 6
4. Annual total factor productivity growth 12
5. Gross expenditure on research and development 12
5. Employees in manufacturing enterprises by firm size 19

Boxes

Box 1. Labour productivity measures and comparisons across countries. Some methodological issues... 7
Box 2. Decomposition of labour productivity growth... 8
Box 3. The effect of immigration on the productivity of the Spanish economy ... 10
Box 4. Shift-share analysis of productivity growth... 13
Box 5. Size and productivity of enterprises in the manufacturing sector... 19
Box 6. Recent efforts to reduce entry barriers in service sectors ... 26
Box 7. International studies comparing the performance of judicial systems... 29

AN ANALYSIS OF PRODUCTIVITY PERFORMANCE IN SPAIN BEFORE AND DURING THE CRISIS: EXPLORING THE ROLE OF INSTITUTIONS

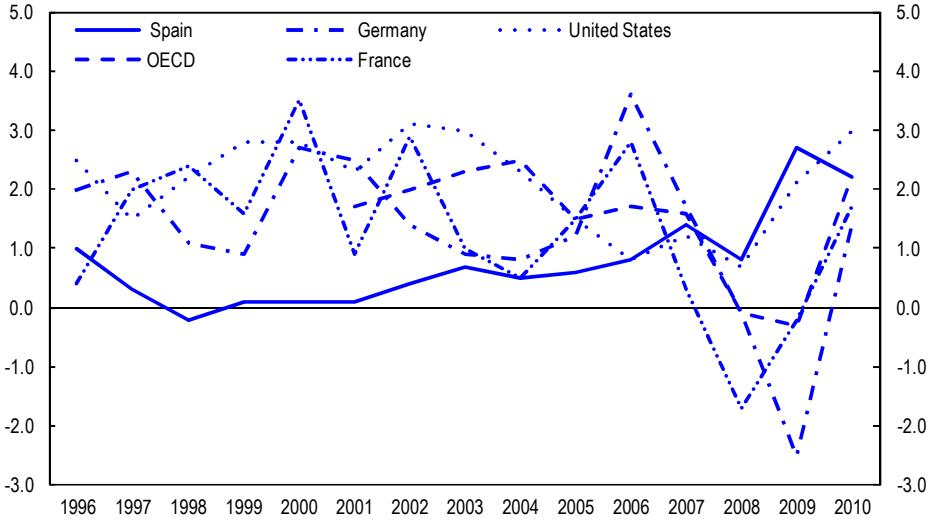
Juan S. Mora-Sanguinetti and Andrés Fuentes[1]

Productivity performance in Spain: an overview

Labour productivity growth in Spain has been weak

Economy-wide labour productivity growth, has been weak in Spain compared to other advanced economies and the OECD area in the period 1996-2006 (Figure 1). However, since 2007 growth of labour productivity has matched the rate of growth of the U.S. and surpassed the rate of growth of Germany and France. It accelerated markedly in 2009, which is likely to be largely due to cyclical and other temporary factors (see below).

Figure 1. Growth of GDP at constant prices per hour worked across selected OECD



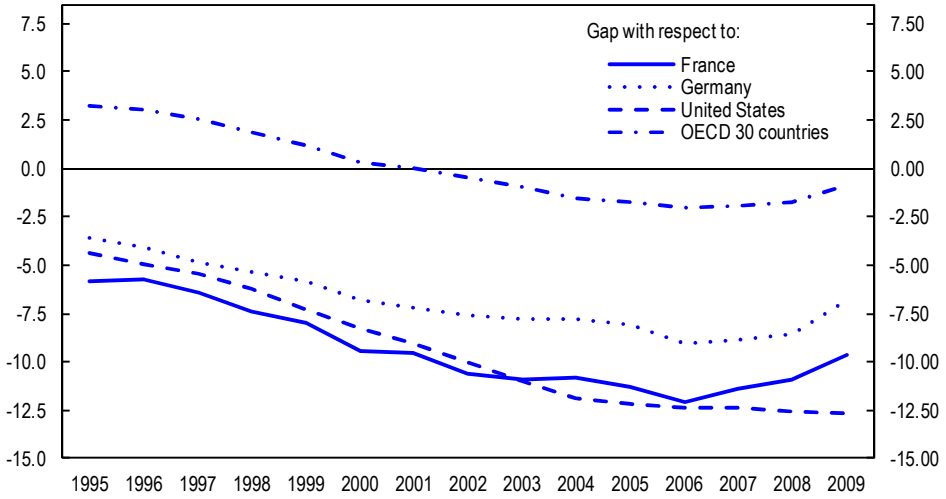
Source: OECD (2012), OECD Productivity database.

1. Juan S. Mora Sanguinetti is Economist at the Economic Analysis and Forecasting Department of the Banco de España – Eurosystem (seconded to the OECD secretariat during the preparation of this study) (juans.mora@bde.es). Andrés Fuentes is Senior Economist at the Economics Department of the OECD. The authors are indebted to Sylvie Foucher-Hantala who calculated shift share and specialisation effects on productivity. We are in special debt to Anita Wölfl and Miguel García-Posada (Banco de España – Eurosystem and Universidad Carlos III de Madrid) for their valuable suggestions and comments to several versions of this paper. We are also thankful to the participants at the OECD Economics seminar (2011) and the participants at the VIII Harvard Course in Law and Economics (Harvard University) (2011) for their comments. We would also like to thank Pierre Beynet, Mauro Pisu, Dan Andrews, Artur Radziwill, Leonor Rossi (Universidade Nova de Lisboa), Rocío Sánchez-Mangas (Universidad Autónoma de Madrid). Finally, we are grateful to Desney Erb for valuable statistical assistance and to Sylvie Ricordeau for editorial support. The opinions expressed are those of the authors and do not necessarily reflect the official views of the Banco de España, the Eurosystem or the OECD.

Overall, Spain has failed to converge towards the productivity levels in the Unites States and leading European economies over the period as a whole. Figure 2 plots the productivity gap of Spain *vis-à-vis* the U.S., France, Germany and the OECD area using constant prices and constant PPPs. The differences in productivity levels were significant with respect to France, Germany or the US throughout the period and widened until 2006. While some convergence was achieved between 2006 and 2009, the gaps remained larger than in 1996. As argued below, temporary and cyclical factors explain convergence in these recent years to a significant extent. The productivity gap widens less strongly over time when assessed at current PPPs (Figure 3) and productivity rises above the OECD average in recent years. While assessing productivity gaps at current prices and PPPs allows relative price changes to be taken into account, for statistical reasons it is preferable to make comparisons using constant prices and PPPs (see Box 1 for a discussion of methodological issues). The aim of this paper is to identify what factors can explain relatively weak productivity performance of the Spanish economy.

Figure 2. Labour productivity[1] gaps of Spain with respect to selected countries,

At constant prices and PPPs

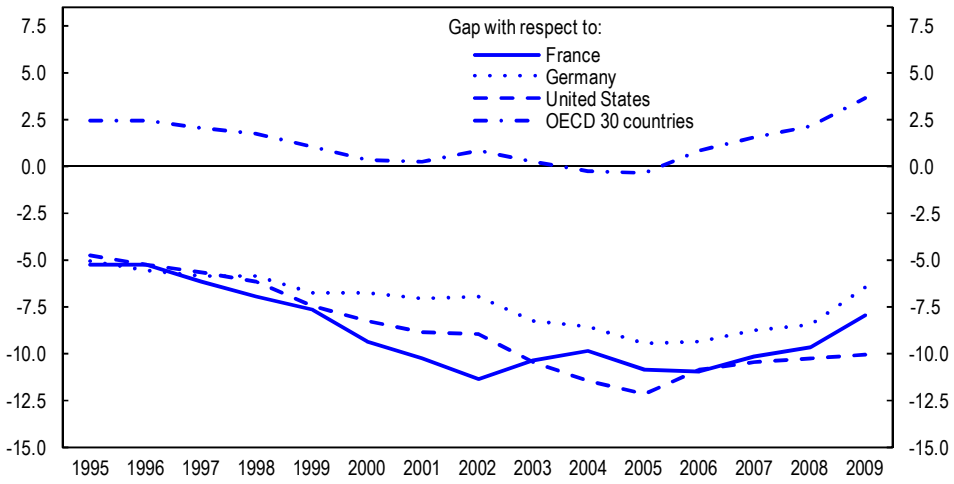


1. GDP per hour worked in US dollars of 2000 at constant prices and PPPs

Source: OECD (2011), OECD Productivity database.

Figure 3. Labour productivity[1] gaps of Spain with respect to selected countries

At current prices and PPPs



1. GDP per hour worked in US dollars at current prices and PPPs.

Source: OECD (2011), OECD Productivity database.

Box 1. Labour productivity measures and comparisons across countries. Some methodological issues

Productivity measures for the market economy, see below, exclude goods and services for which no market prices are available, including government-supplied services (such as education) or the implicit rents of owner-occupied housing. In most data provided below, labour input is defined as average hours worked by persons engaged, multiplied by employment. The hours worked per person used in the OECD Productivity Database follow National Accounts concepts for Austria, Denmark, Finland, France, Germany, Italy and Spain. The OECD uses estimates based on the European Labour Force Survey for Belgium, Ireland, the Netherlands and Portugal. Hours worked per person are therefore not measured in an identical fashion across countries. However, the relative productivity performance of Spain does not change if productivity is measured as output per worker (see also Table 4 below). To measure productivity *growth*, output is measured at constant prices to eliminate the effect of inflation over time. Cross-country gaps in productivity *levels* across countries, at any point in time, may be measured at current prices, which can be converted into a common set of prices using current purchasing power parities (PPPs). Under "current PPPs", comparisons between countries within a specific year are, in principle, straightforward as volumes are measured with the same price structure (Schreyer and Koechlin, 2002, OECD, 2005), although determining such a price structure is complex in practice. Comparisons over time incorporate economic effects such as different changes in relative prices across countries. For example, the impact of productivity growth in ICT producing industries (see OECD, 2001 and Scarpetta *et al.*, 2002) on value added at current prices is to some extent offset by falling prices of ICT goods and services, which may contribute to differences in the evolution of productivity gaps measured in current and constant prices, respectively, across countries with different degrees of specialization on ICT industries. They incorporate statistical effects as well, such as changes in definitions and methodologies. Constant PPPs of a base year may be used instead. Value added is then deflated with sectoral national accounts deflators. The main disadvantage of using constant PPPs is that they assume that relative prices do not change over time. If relative prices change, the longer the term analyzed, the greater the error when comparing countries. The levels of the gaps vary with the base year chosen. The OECD recommends using constant PPPs to compare economies over time and current PPPs to compare countries in a specific year (Schreyer and Koechlin, 2002).

Explaining the contributions to weak labour productivity growth

The rate of growth of labour productivity may be decomposed in the contribution of the rate of growth of capital per hour worked (capital deepening), changes in the composition of labour and the rate of growth of total factor productivity (TFP), using growth accounting methodology (Box 2). Total capital may be decomposed in different types of capital, notably to distinguish ICT capital (Box 2). The purpose of this section is to provide a discussion about which of these factors have been crucial to explaining the relatively poor growth of labour productivity in Spain.

Table 1 below shows a decomposition of real value added growth for several European economies and the U.S. over the period 1996-2007. Panel A is calculated for all sectors of the economy, Panel B includes market sectors only. It excludes public administration, education, health and real estate services activities. Imputed rents of owner occupiers make up the bulk of real estate services. In all of these sectors market prices are often not available to value output. Table 1 confirms that productivity performance in Spain over this period was considerably weaker than in most other countries shown. Moreover, this difference is more marked when only market sectors are included.

Box 2. Decomposition of labour productivity growth

The aggregate production function is represented by a Cobb-Douglas function assuming constant returns to scale:

$$Y_t = A_t K_{ICT,t}^{\alpha} K_{Non-ICT,t}^{\beta} (H_t L_t)^{\gamma} \quad (1)$$

A_t represents the level of total factor productivity (TFP as a measure of technological progress). Capital services (K) may be decomposed into ICT-capital (information and communication technologies) (K_{ICT}) and non-ICT capital ($K_{non-ICT}$). L represents the labour input and H a measure of its composition (notably with respect to the level of education). Relatively strong productivity growth can be observed among the services industries that make intensive use of ICT (Scarpetta *et al.* 2002, van Ark *et al.*, 2003a). The greater use of ICT may contribute to network effects, such as lower transaction costs and more rapid innovation, which may also raise TFP performance (Pilat, 2004).

Taking logarithms and differentiating the above expression, output growth over time (Δy) can be attributed to increases in both types of capital (Δk_{ICT} and $\Delta k_{Non-ICT}$) and labour (Δl), weighted by α, β and γ = 1- α – β (equation 2) which are the ICT-capital, Non-ICT capital and labour shares in total income, as well as improvements in the TFP (Δa). EU KLEMS distinguishes the following capital types (Timmer *et al.* 2007): residential construction structures, non-residential construction structures, infrastructure, transport and equipment, computing equipment, communications equipment, other machinery and equipment, products of agriculture and forestry, other products and intangibles (including software and other intangibles). Residential buildings are excluded from the capital stock in the decomposition of market economy output (Timmer *et al.*, 2010, Corry *et al.* 2011).Three types of ICT assets are distinguished (computing equipment, communications equipment and software).

Equation 3 shows the same decomposition for labour productivity growth.

$$\Delta y = \Delta a + \alpha \Delta k_{ICT} + \beta \Delta k_{Non-ICT} + \gamma(\Delta h + \Delta l) \quad (2)$$

$$\Delta y - \Delta l = \Delta a + \alpha \Delta(k_{ICT} - l) + \beta \Delta(k_{Non-ICT} - l) + \gamma \Delta h \quad (3)$$

In Table 1, labour composition is determined according to worker characteristics. Specifically EU KLEMS categorizes the labour input into 18 categories: 3 age groups, 3 levels of educational attainment and the 2 genders (Timmer *et al.* 2007, O'Mahony and Timmer, 2009). The employment shares of these categories are weighted with the respective wage income shares to construct the measure of labour quality.

Most of the growth of real value added of the Spanish economy was driven by the growth of hours worked. Several interrelated factors contributed to this effect, such as the sharp increase in immigration, the increase in participation in the labour market, especially among women, and the reduction in unemployment in the years up to 2007 (OECD 2008 and 2010).

Table 1. Value added growth, productivity growth, and growth contributions

per cent, yearly average, 1996-2007

	Growth rates			Contributions to labour productivity growth (percentage points)		
	Gross value added at constant prices	Hours worked	Labour productivity	Labour composition	Capital deepening	Total Factor Productivity
A. TOTAL ECONOMY						
Austria	2.4	0.8	1.6	0.2	0.5	0.9
Belgium*	2.0	1.1	1.2	0.2	1.2	-0.2
Denmark	1.9	1.3	0.6	0.1	0.8	-0.3
Finland	3.6	1.3	2.3	0.2	0.5	1.5
France	2.1	0.5	1.6	0.3	0.7	0.6
Germany	1.6	-0.1	1.7	0.0	1.0	0.7
Ireland	7.0	3.5	3.5	0.5	2.3	0.6
Italy	1.4	1.0	0.4	0.1	0.6	-0.3
Netherlands	2.7	1.2	1.5	0.3	0.6	0.6
Spain	**3.5**	**3.0**	**0.5**	**0.4**	**0.7**	**-0.7**
Sweden	3.0	0.6	2.3	0.3	1.3	0.8
United Kingdom	2.7	0.9	1.9	0.4	1.0	0.4
(simple) Average (EU12)	2.8	1.3	1.6	0.3	0.9	0.4
United States (NAICS based)	3.1	1.1	1.9	0.2	1.1	0.6
B. MARKET ECONOMY						
Austria	2.8	0.6	2.2	0.1	0.5	1.5
Belgium*	2.5	0.9	1.7	0.2	1.3	0.2
Denmark	2.3	1.3	1.0	0.1	1.1	-0.2
Finland	4.6	1.3	3.3	0.1	0.5	2.7
France	2.5	0.5	2.0	0.3	0.8	0.8
Germany	1.4	-0.3	1.7	0.0	1.0	0.7
Ireland	7.4	3.2	4.2	0.3	2.7	1.2
Italy	1.5	1.1	0.4	0.1	0.7	-0.4
Netherlands	3.1	1.1	2.0	0.4	0.5	1.1
Spain	**3.6**	**3.1**	**0.5**	**0.4**	**0.9**	**-0.7**
Sweden	4.0	0.7	3.3	0.3	1.6	1.4
United Kingdom	3.2	0.6	2.6	0.4	1.1	1.1
(simple) Average (EU12)	3.2	1.2	2.1	0.2	1.1	0.8
United States (NAICS based)**	3.6	0.7	2.9	0.3	1.3	1.3

1. For Belgium the latest available year is 2006. **For the US ("market economy") the latest available year is 2005.

Source: European Commission, Growth Accounting to 2007.

The role of capital accumulation on labour productivity growth in Spain

The contribution of the ratio of total capital per hour worked to productivity growth was modestly weaker than in 12 EU countries on average or the US, although the increase in hours worked was much stronger. This is also true when the analysis is confined to the market economy, which excludes real estate services activities from the output measure and the residential housing stock from the capital stock measure. In either case, trends in capital deepening do not explain the bulk of the relative weakness in trend productivity period in Spain over this period, despite the steep growth of labour input. Capital accumulation in market and non-market sectors was also very fast. If a distinction is made between ICT capital and non-ICT capital, for which data are available for the period 1996-2005 (not shown here, see O'Mahony and Timmer, 2009), it turns out that the contribution of ICT capital per hour to output growth is considerably lower than in the US and the rest of European economies, whereas the contribution of non-ICT-capital is relatively large.

The effect of changes in labour composition on productivity growth in Spain

Table 1 shows that the contribution of changes in labour composition to productivity growth was larger than in the other economies with the exception of Ireland. The key contributing factor is the improvement in educational attainment. Tertiary attainment, in particular, rose more quickly than in high-income European countries (see *e.g.*, OECD, 2008).

The improvements observed in the composition of labour are also documented in numerous other studies which provide a more detailed breakdown, taking into account, for example, age and immigration status. Lacuesta *et al.* (2009) and Lacuesta *et al.* (2011) conclude that labour quality has improved continuously from 1993 until 2006. While there is still much room for further convergence in the educational attainment of the workforce of Spain compared to that of other European countries (see *e.g.* OECD, 2008), the observed relative weakness in labour productivity growth cannot be attributed to lower accumulation of human capital of the workforce. Box 3 provides a discussion on the effects of immigration on productivity.

Box 3. The effect of immigration on the productivity of the Spanish economy

The proportion of foreigners in the population has increased sharply over the last decade, from 1.6% in 1998 to 12.2% in 2010. A relevant question to consider is whether immigration has had some impact on the performance of productivity in the Spanish economy. The aggregate effects of immigration on the country of destination depend on several factors: the level of education of immigrants with respect to natives (i.e. human capital) and their impact on the relative size of their less-skilled populations (Friedberg and Hunt, 1995, Card, 2001) or the similarity of their skills to those of the native population (Ottaviano and Peri, 2006). If immigrants' skills are different and complementary to those of natives, even low-skill immigration may not lower aggregate productivity performance.

In Spain, while on the one hand there is a smaller proportion of immigrant workers who have attained tertiary education, immigrant workers have higher levels of secondary education than Spanish workers (see Table2). Work experience of immigrant workers (compared to natives) and the sectors of their activity may also play a role. Amuedo-Dorantes and De La Rica (2007) and Sanromá *et al.* (2008), note that workers' whose native language is not Spanish contribute less to productivity. The difference in the level of development between the countries of origin and destination also play a role. This is reflected in wages and employability. To complement the above, Fernández and Ortega (2008) suggest that immigrants initially face higher incidence of over qualification and higher incidence of temporary contracts. These two factors are, rather persistent, producing bad-job matches (overqualification) with an adverse impact on productivity.

Table 2. Educational attainment of immigrants and native workers in Spain

	Nationals		Foreigners	
	2011 QI	2005 QI	2011 QI	2005 QI
Illiterate	0.2	0.2	1.8	1.2
Primary education	12.1	18.2	19.9	22.4
Secondary education (*primera etapa y formación e inserción laboral correspondiente*)	29.7	28.5	21.8	18.5
Secondary education (*segunda etapa y formación e inserción laboral correspondiente*)	21.7	21.4	34.8	33.4
Formación e inserción laboral con título de secundaria (2ª etapa)	0.0	0.1	0.0	0.1
Tertiary education (except Ph.D)	35.4	31.0	21.3	23.9
Ph.D.	0.8	0.6	0.4	0.4

Source: INE. Labour Force Survey (2011).

When all those factors are taken into account, immigration has a slight negative composition effect on labour productivity in Spain when computing the results for the period 1987-2006 according to Lacuesta *et al.* (2011). In order to compute their measure of labour quality, Lacuesta *et al.* (2011) incorporate microdata from the Labor Force Survey, including data on job tenure, age, educational attainment and gender. Furthermore, Izquierdo *et al.* (2010) proposed the use of a general equilibrium overlapping generations model calibrated to the Spanish economy in order to measure the aggregate effects of immigration on productivity in Spain. They concluded that immigration has a negative impact on productivity. This could be explained by the fact that immigrants are usually employed in labour intensive sectors, with below than average productivity.

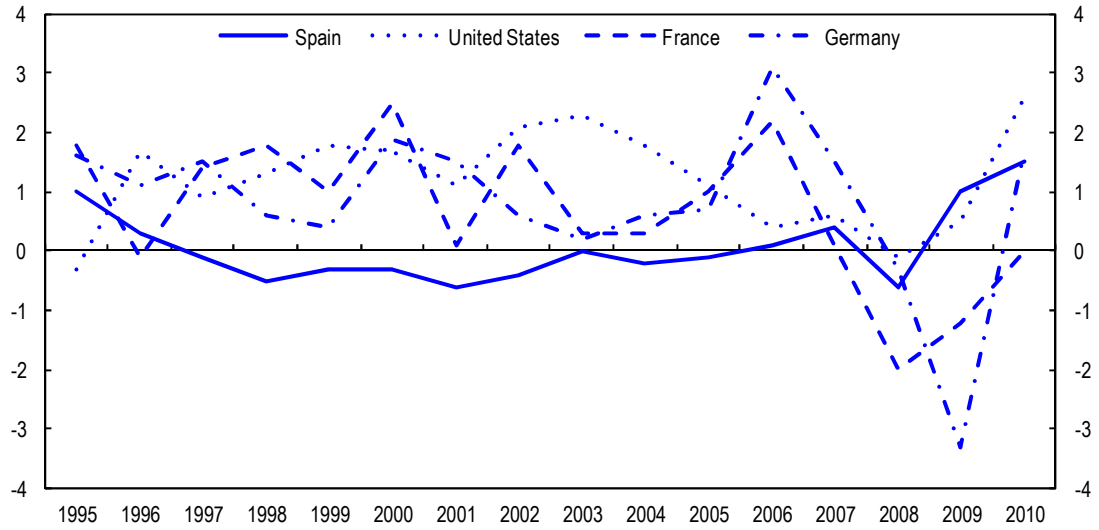
The role of TFP growth

The key factor that explains the poor performance in Spain is poor growth in total factor productivity (TFP). The contribution is negative and lower than in any other economy in Table 1.

Since TFP is a residual in decompositions of output growth, it is sensitive to the way inputs, such as capital services, or the shares of the factor incomes in total income are measured. The OECD Productivity dataset provides an alternative to the EU KLEMS measure of TFP used above. For example, in contrast to the data from EU KLEMS, this measure does not control for labour composition effects. According to this measure, too, TFP growth was considerably weaker in Spain than in key high-income OECD economies until 2006 (Figure 4). In 2009 TFP responds markedly differently to the onset of the economic and financial crisis than in other European continental economies. There is a remarkable improvement in total factor productivity growth, which, as argued below, may largely be explained with temporary factors.

Figure 4. Total factor productivity growth

Total economy, according to the OECD productivity database

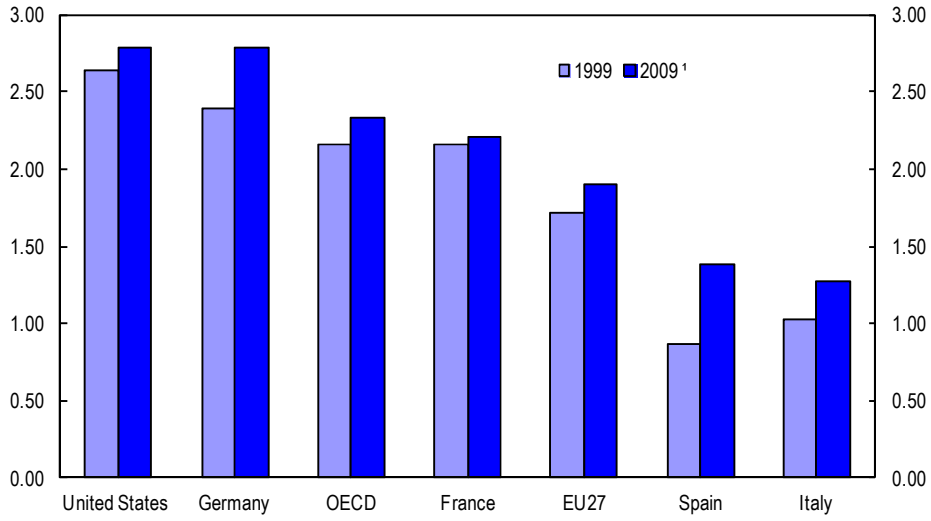


Source: OECD (2011), OECD Productivity database.

TFP growth is often defined as "technological progress". It captures the effects of a set of heterogeneous factors, including the capacity of the economy to innovate and the impact of the quality of the institutional and business environment, such as the regulation of labour and product markets, on the productive use of capital, labour and other inputs. Innovation is a source of technological progress (Scarpetta *et al.* 2002). Expenditure for research and development (R & D) provides one measure of innovation effort. Despite some advances between 1999 and 2009, the expenditure for R & D in Spain continues to be well below that of the OECD or other European countries (see Figure 5).

Figure 5. Gross expenditure on research and development

As a percentage of GDP



1. 2008 for the United States and OECD.

Source: OECD (2011). Main Science and Technology Indicators Database, June 2011.

Reallocation of resources between sectors with different productivity performance can also boost economy-wide total factor productivity growth. Such reallocation effects have made a relatively small contribution to productivity growth in high-income countries (Box 4). The contribution of sectoral reallocation effects to productivity growth in Spain is broadly in line with this observation, except in the last few years. Hence, the shift of resources towards the construction sector in the boom years does not explain the bulk of the difference between aggregate productivity growth in Spain and other high-income OECD economies before 2007. Specialisation effects do not play a determining role in explaining weak productivity growth in Spain. That is to say, weaker productivity performance in Spain is not, for the most part, explained by specialisation on industries where productivity growth is weak in all countries. Instead, productivity growth in Spain was relatively weak in a wide range of sectors regardless of whether these sectors are intensive ICT users, ICT producers or other sectors. For example, productivity is weak even in ICT sectors in Spain compared to other countries.

Box 4. Shift-share analysis of productivity growth

Shift-share analysis decomposes aggregate productivity growth into the sum of the productivity growth contributions within each industry (*within-industry effect*), the contribution of the reallocation of labour between sectors with different productivity levels (*shift effect*) and the effect of labour reallocation between industries with different productivity growth rates (*interaction effect*; see e.g. EU, 2003, for details). As Table 3, panel A, shows, the within-industry productivity growth contributions account for most of the difference in aggregate labour productivity growth between Spain and other main European economies or the US, from 1996 to 2010. This result also applies if only the period before the onset of the financial and economic crisis in 2008 is considered (panel B). By contrast, the contributions from the reallocation of resources (*shift effect* and *interaction effect*) in Spain are broadly in line with what is observed in other countries. This finding suggests that the shift of resources to construction-related sectors can only explain a small part of the aggregate productivity growth gap vis-à-vis other high income countries. In 2008 and 2009, both within-industry productivity growth contributions and the contribution of reallocation effects increase in Spain (panel C). The increase in reallocation effects in these 2 years can in part be related to the downsizing of the construction industry. Because of the sharp pace of downsizing, construction effects on productivity were stronger in the bust phase than in the boom phase. Overall, however, these shifts do not explain the bulk of weak trend productivity growth performance in Spain.

The relatively weak within-industry productivity growth contribution can reflect two different effects: *First*, specialisation of the economy on industries which exhibit relatively weak productivity growth in all countries, or, *second*, weaker productivity growth within individual industries than observed in other countries. Table 4 shows that productivity growth in Spain was relatively weak in a wide range of sectors regardless of whether these sectors are intensive ICT users, ICT producers or other sectors. This suggests that specialisation effects are perhaps not the main cause of weak overall performance. Financial Intermediation stands out for its strong productivity growth performance, in international comparison, which is likely to be related to the lending boom in these years.

Table 3. Shift share analysis of labour productivity of market sectors in selected OECD countries[1]

	Labour productivity growth	Within effect	Shift effect	Interaction effect
		A. 1996-last year[2]		
AUT	1.8	1.7	0.1	0.0
BEL	1.6	1.7	-0.2	0.0
CZE	3.6	3.6	0.1	0.0
DNK	1.3	1.6	-0.1	-0.1
FIN	2.2	2.6	-0.4	0.0
FRA	1.6	1.6	0.0	0.0
DEU	1.4	1.3	0.2	-0.1
GRC	3.2	3.0	0.3	-0.1
HUN	3.0	1.9	0.9	-0.3
ITA	-0.2	-0.7	0.6	-0.1
NLD	1.5	1.8	-0.3	0.0
SVK	4.2	4.3	0.1	-0.2
ESP	**0.6**	**0.6**	**0.1**	**-0.1**
SWE	3.2	3.4	-0.1	-0.1
CHE	1.4	1.3	0.1	-0.1
GBR	2.5	2.7	-0.3	0.0
USA	2.6	3.0	-0.2	0.0
		B. 1996-2007		
AUT	2.4	2.2	0.1	0.0
BEL	1.8	1.9	-0.2	0.0
CZE	4.2	4.2	0.2	0.0
DNK	1.8	2.1	-0.1	-0.1
FIN	3.4	3.8	-0.3	-0.1
FRA	1.6	1.6	0.0	0.0
DEU	1.6	1.5	0.2	-0.1
GRC	3.8	3.6	0.3	-0.1
HUN	3.6	2.5	0.9	-0.2
ITA	0.3	-0.2	0.6	-0.1
NLD	1.9	2.3	-0.4	0.0
SVK	5.0	5.1	0.2	-0.3
ESP	0.2	**0.3**	**-0.1**	**0.0**
SWE	3.7	4.0	-0.1	-0.1
CHE	1.5	1.5	0.1	-0.1
GBR	2.7	2.9	-0.3	0.0
USA	2.8	3.1	-0.2	-0.1
		C. 2007-last year[2]		
AUT	-0.1	-0.2	0.1	0.0
BEL	0.5	0.7	-0.3	0.0
CZE	1.4	1.7	-0.2	0.1
DNK	-3.1	-2.9	0.4	0.0
FIN	-1.2	-0.7	-0.9	0.0
FRA	1.5	1.7	-0.2	0.0
DEU	0.4	0.5	0.0	-0.1
GRC	0.7	0.6	0.0	0.0
HUN	-0.3	-1.0	1.0	-0.3
ITA	-1.9	-2.2	0.2	0.0
NLD	0.0	0.2	-0.2	0.0
SVK	2.5	3.2	-0.2	0.1
ESP	2.2	**1.9**	**0.6**	**-0.2**
SWE	-1.3	-0.9	-0.4	0.0
CHE	0.9	1.0	-0.1	0.0
GBR	1.7	1.6	0.0	0.0
USA	1.5	2.0	-0.1	0.0

1. Growth of real value added per employed person in all sectors except education, health, public administration and real estate services.
2. 2007 for France, 2008 or 2009 for the other countries.

Source: OECD productivity database.

Table 4. Labour productivity growth, TFP contribution and share in total economy value added, by sector)
Per cent, average 1996-2007

Sector	Labour productivity growth			Contribution of TFP growth to labour productivity growth			Average share in total economy value added (%)		
	Spain	EU	USA	Spain	EU	USA	Spain	EU	USA
Total industries	**0.5**	**1.4**	**2.0**	**-0.7**	**0.4**	**0.6**	**100**	**100**	**100**
ICT producing industries									
ICT producing manufacturing									
Electrical and optical equipment	1.8	5.6	17.2	-0.2	4.0	13.6	1.1	2.3	2.3
ICT producing services									
Post and telecommunications	3.5	7.6	5.3	-0.7	4.7	2.1	2.4	2.6	3.1
ICT using industries									
ICT using manufacturing									
Machinery, nec	1.1	2.1	3.8	0.3	1.4	1.1	1.2	2.2	1.1
Manufacturing nec; recycling	1.6	1.3	3.4	0.5	0.5	1.9	0.9	0.9	0.6
Transport equipment	1.7	3.1	5.2	0.5	2.1	3.4	1.9	2.1	1.8
ICT using services									
Wholesale and retail trade	1.0	1.8	4.4	-0.8	0.7	3.0	10.9	9.9	12.0
Wholesale trade	-0.2	2.3	5.6	-1.7	1.2	3.5	4.3	4.3	4.6
Retail trade	1.5	1.2	3.4	0.0	0.4	2.4	4.9	4.0	5.2
Renting of machinery and equipment	0.3	0.0	2.0	-1.4	-1.3	-0.4	7.1	11.2	10.9
Financial intermediation	5.5	3.2	3.1	4.4	1.6	0.7	4.7	5.6	8.4
Non-ICT industries									
Non-ICT manufacturing									
Food , beverages and tobacco	-0.6	0.8	0.9	-2.1	0.0	0.1	2.3	2.0	1.6
Textiles, textile , leather and footwear	1.0	2.3	3.9	-0.8	0.9	1.6	1.1	1.0	0.5
Wood and of wood and cork	0.9	2.7	1.8	-1.0	1.7	0.9	0.4	0.4	0.3
Chemical, rubber, plastics and fuel	0.2	3.0	4.2	-1.0	1.7	1.6	2.7	3.1	3.0
Coke, refined petroleum and nuclear fuel	-1.5	0.1	5.1	-3.7	-3.0	-0.1	0.4	0.3	0.4
Chemicals and chemical products	0.6	3.6	5.2	-0.7	2.0	2.5	1.6	1.9	1.9
Rubber and plastics	0.9	3.4	3.4	-0.5	2.2	1.4	0.7	1.0	0.7
Other non-metallic mineral	1.6	2.4	1.7	0.6	1.1	0.3	1.3	0.8	0.5
Basic metals and fabricated metal	0.2	1.6	1.8	0.1	0.9	1.2	2.8	2.6	1.7
Non-ICT services									
Sale, repair of motor vehicles	0.8	1.5	4.6	-0.5	0.3	3.2	1.7	1.6	2.3
Transport and storage	0.5	1.9	2.2	-1.7	0.9	1.0	4.8	4.9	2.8
Hotels and restaurants	-1.3	-0.1	0.8	-2.4	-0.9	0.3	7.4	2.4	2.5
Real estate activities	-5.8	-0.6	0.8	-1.4	-0.3	-0.2	8.6	11.2	11.8
Public admin	1.6	1.3	0.6	0.2	0.5	-0.6	6.1	6.6	8.1
Education	1.0	-0.7	-0.6	0.4	-1.2	-1.4	4.9	4.9	4.7
Health and social work	-0.3	0.8	0.0	-1.0	0.1	-0.9	5.3	6.6	7.6
Community social and personal services	0.5	0.2	0.3	-0.6	-0.3	-0.5	20.8	22.3	24.1
Other services	-0.1	-0.4	2.1	-2.7	-1.0	1.5	3.6	3.7	3.6
Non-ICT other									
Agriculture, hunting, forestry and fishing	2.6	2.8	4.9	1.0	1.8	3.6	4.0	1.7	1.1
Electricity, gas and water supply	4.6	3.8	2.9	1.3	1.5	0.2	2.0	2.2	2.0
Mining and quarrying	1.7	1.6	-1.4	0.0	-1.8	-2.5	0.3	0.7	1.5
Construction	-1.8	0.0	-3.0	-2.2	-0.7	-3.7	9.9	6.3	4.7
Mixed									
Pulp, paper, paper , printing and publishing	1.4	2.0	1.9	-0.4	0.6	0.4	1.5	1.6	1.7
Pro-memoria									
Total manufacturing	0.9	2.6	5.1	-0.4	1.5	3.2	17.2	19.1	15.0

Source: EU KLEMS (2011). EU includes the following countries: Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Spain and the UK. The results for the EU aggregate here differ from those presented for the EU12 in the Table 1 above as the countries included are different and in Table 1 refer to an unweighted average. The classification follows van Ark *et al.* (2003b).

To determine specialisation effects on productivity growth exactly, hypothetical within-industry productivity growth contributions can be calculated assuming each sector of the Spanish economy had the weight the sector has in the French or US economy, for example. These calculations (results not shown here) indicate that the contribution of within-industry productivity growth to aggregate productivity growth would be broadly similar as the actual within-industry growth contribution observed in the Spanish economy if the weight of the sectors had been the same as in the US or France. This result confirms that specialisation effects do not play a determining role in explaining weak productivity growth performance in Spain.

The recovery in productivity after 2008

The strong productivity growth in recent years contrasts with developments in other continental European economies, while the US also recorded some increase (see Figure 1). It occurred in the context of large employment losses after 2007, triggered by the global economic crisis and the bust of the domestic housing boom. Hours worked shrank by 4% annually between 2007 and 2009. This contrasts with the variations observed in the U.S. (-3%) and especially in the EU15[2] (-1.41%) (see *e.g.* Mas-Ivars and Robledo Dominguez, 2010). Differences in the ease with which businesses can make workers redundant when activity slows play a role in explaining the cyclical behavior of employment and productivity across countries.

In Spain, the cost of dismissing workers on permanent contract is high, whereas it is low for temporary workers. The share of temporary workers in the total workforce is unusually large. It fell from around 30% in 2007 to 25% in 2011, as most job losses affected workers on temporary contracts. Moreover, workers on temporary contracts are concentrated in low-productivity activities (OECD, 2010). Low dismissal costs and high employment losses hence contributed to large productivity gains during the crisis. In other continental European countries, such as Germany or France, temporary contracts are less widespread and labour is hoarded during an economic downturn. Hence total factor productivity is procyclical in Germany and France, as in most OECD economies, but countercyclical in Spain (Timmer *et al.*, 2007, Boldrin *et al.* 2009). The rapid downsizing of the construction sector, where the level of labour productivity is lower than in the economy on average (OECD, 2008), also played some role. This downsizing will have a permanent effect on the level of productivity but the effects of the downsizing of the construction industry on productivity growth are likely to be mostly temporary, as the results of shift-share analysis suggest (see Box 4).

The role of business dynamics and firms' size on productivity performance in Spain

Business dynamics and firm size affect productivity

The substitution of the most obsolete firms by new firms can foster productivity growth (Scarpetta *et al.*, 2002).[3] Following Foster *et al.* (1998), around 25% of productivity growth in the U.S. manufacturing sector could be explained by the "net entry effect", that is, the exit of less productive plants which are displaced by more productive entering firms. In addition, as shown by Brandt (2004) and López-García and Puente (2006) new firms put competitive pressure, strengthening performance in all businesses, including through innovation.

These effects have been confirmed by Martín-Marcos and Jaumandreu (2004) in the case of Spanish manufacturing firms over the period 1981-1990. Huergo and Jaumandreu (2004) observed that new firms in Spain are more likely to innovate compared to the incumbents in the manufacturing sector over a more

2. Germany, Austria, Belgium, Denmark, Spain, Finland, France, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, United Kingdom and Sweden.

3. However, this effect would only be quantitatively important in certain circumstances (Jaumandreu and Martín-Marcos, 2004).

recent period (1991-1998). Fariñas and Ruano (2004) confirmed that the replacement of exiting firms by entering firms has a significant positive effect on TFP in manufacturing firms over the period 1990-1997.

The literature has also found a positive relationship between firm size and TFP. This may occur because larger companies invest more in R & D (Kumar *et al.*, 1999, Pagano and Schivardi, 2003). This may be especially true in sectors in which scale effects are more important, such as manufacturing (Brandt, 2004). Large firms may benefit more from ICT investments (Pilat, 2004). López-García and Sánchez (2010) observed that European micro-enterprises are 20% less productive than larger companies.

For the specific case of Spain, López-García *et al.* (2007) found that the contribution of large firms to productivity growth is more important than the contribution of small businesses if only incumbent firms are taken into account. López-García and Sánchez (2010) show, moreover, that Spanish micro-enterprises are less productive than European micro-enterprises in all sectors. Small businesses are less likely to innovate or spend on R & D (Huerta and Jaumandreu, 2004[4], López-García and Montero, 2010) and are less exposed to international competitive pressures (López-García and Sánchez, 2010).

Brandt (2004) found that, generally, the entry rate of new enterprises is stronger in ICT related industries, R & D related industries and in some specific business services such as advertising, consulting and labour recruitment firms, which are characterized by strong productivity growth. The major differences in entry rates between countries in her study are explained by entry rates in ICT industries among countries.

As shown in the following section, these findings, are relevant to Spain where both the size of the companies and business turnover are lower than in other countries.

Firm size and turnover are substantially lower than in other countries

Núñez (2004), using data provided by Eurostat for the years 1998-2001, shows that the average size of firms in Spain was below the average size of firms in other EU countries (Denmark, Finland, France, Germany, Italy, Netherlands and Portugal) or the US. Tables 5 and 6 show how Spanish companies are smaller than in most countries in all the sectors investigated. López-García and Sánchez (2010)[5] showed that Spanish companies were on average half as large as the companies in other European economies in 2007. They also note that the weight of the micro-enterprises (companies with less than 10 employees) is larger in all sectors compared to other European economies with the exception of the construction sector.

4. These authors performed an analysis of manufacturing firms in Spain over the period 1991-1998.

5. Study for 2007 using a Eurostat database (Structural Business Indicators). The following countries were included: Austria, Belgium, Denmark, Spain, Greece, Finland, France, Italy, Ireland, Netherlands, Sweden, Portugal and the UK.

Table 5. Share of employment in firms with fewer than 20 employees (per cent)

Average 1998-2001

	EU	Spain	Germany	France	Italy	UK	Belgium	Portugal	Finland
All	37	50	30	30	54	30	36	47	30
Manufacturing	19	31	14	17	30	16	14	26	13
Energy	3.7	7.2	4.0	0.9	2.5	0.5	0.7	2.6	12.3
Construction	50	52	48	53	68	43	48	53	46
Services	44	57	41	34	68	34	44	61	38
Distribution	50	67	38	45	81	35	58	71	43
Hotels and restaurants	59	65	64	63	78	40	72	77	49
Transports	26	45	42	14	30	19	17	30	30
Real estate and related services	41	45	48	26	67	38	35	44	38

Source: Núñez (2004).

Table 6. Average firm size (number of employees)

Average 1998-2001

	All enterprises								
	EU	Spain	Germany	France	Italy	UK	Belgium	Portugal	Finland
Total	7	5	12	7	3	12	10	5	6
Manufacturing	16	11	32	16	7	24	17	12	16
Energy	54	30	89	100	67	498	226	94	12
Construction	4	5	7	4	2	6	3	4	4
Services	6	4	8	6	3	11	10	4	5
Distribution	5	3	9	5	2	12	4	3	5
Hotels and restaurants	5	4	6	3	3	15	4	4	5
Transports	10	4	10	16	7	20	18	9	7
Real estate and related services	5	4	6	6	2	8	5	5	4
	Enterprises with more than 20 employees								
Total	109	81	107	114	81	148	137	80	121
Manufacturing	115	76	169	122	73	126	118	78	146
Energy	344	318	236	1 096	417	956	804	331	85
Construction	60	56	53	60	44	103	44	60	74
Services	114	92	79	117	99	163	196	87	115
Distribution	102	68	98	82	65	197	72	62	98
Hotels and restaurants	86	70	58	72	74	142	57	72	90
Transports	157	134	52	203	190	242	152	167	198
Real estate and related services	112	122	61	133	96	128	160	146	105

Source: Núñez (2004).

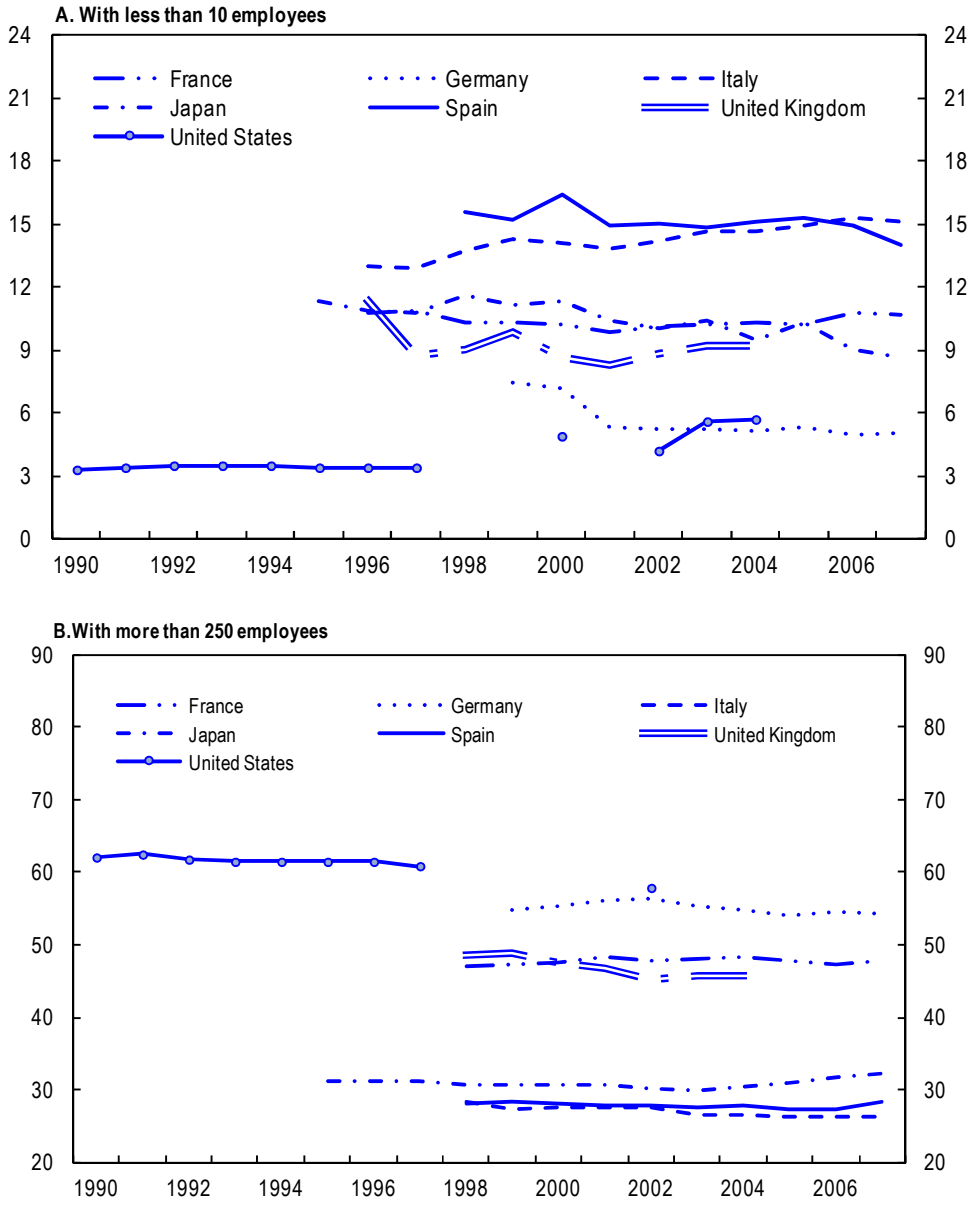
Box 5 analyzes the size and productivity of firms by class (groups of employees) in the manufacturing sector in more detail.

Box 5. Size and productivity of enterprises in the manufacturing sector

Small businesses account for most of manufacturing employment in Spain (OECD, 2010). Their share has changed little over time (Figure 5).

Figure 5. Employees in manufacturing enterprises by firm size

Per cent of total number of employees



Source: OECD (2011).

Small manufacturing businesses appear to be considerably less productive than the biggest enterprises (Table 7).

Table 7. Firm productivity[1] by size class (2006)

	1-9 employees	10-19 employees	20-49 employees	50-249 employees	250+ employees
Spain	0.167	0.186	0.156	0.190	0.302

1. Average gross production value (in millions of euros) divided by total hours worked .

Source: Own elaboration from OECD SDBS - Structural Business Statistics (2011).

Núñez (2004) shows that the turnover of firms in Spain was 16% lower than in the other countries analyzed[6] except Germany over the period 1995-2002. Lopez-Garcia and Puente (2006), using an alternative database[7], found that the business turnover in Spain was lower than in all other countries surveyed[8], including Germany. This is largely due to a low exit rate. Only Brandt (2004) finds that both the entry and exit rates in Spain (excluding single person firms) appear to be near the average of a group of European countries (Belgium, Denmark, the Netherlands, Spain, Italy, Portugal, Finland, Sweden and the United Kingdom). She compares Eurostat data on business demographics for the period 1997-2000 in manufacturing and services industries.

Several institutional factors may hold back firm creation and growth, as discussed in the following sections.

The design of some institutions hampers productivity growth

This section aims to identify some characteristics of the institutional environment of the Spanish economy that may have contributed to low TFP growth. As discussed in the literature, institutions may play an important role in productivity growth (Scarpetta *et al.* 2002). Institutions include not only regulations, but also the enforcement systems for those regulations, such as the judicial system.

This paper identifies at least two areas in which the Spanish labour market institutions have a negative impact on productivity. First, *de facto* high dismissal costs increase the recourse to temporary workers, which lower investment in training. Second, the rigid system of collective bargaining prevents the adoption of innovative and more flexible working arrangements. The impact of the labour market reform introduced in February 2012 is not taken into account in the discussion below.

In terms of product market regulations (PMR), Spain has made significant progress over the past 15 years, making the economy more open to competitive pressures in comparison to other OECD countries. As a result, in 2008 regulation in Spain was less restrictive than in the OECD on average, as reflected in the OECD PMR indicators (see Wölfl *et al.* 2009 and OECD, 2010). However, a number of regulations remain more restrictive than in other OECD countries. The costs and time needed for starting a business that are high in comparative terms. Also some retail trade regulations which are not fully captured by the

6. Denmark, Finland, France, Germany, Italy, Netherlands, Portugal and the United States.

7. Bank of Spain Firm Demography Database. Núñez (2004) uses data for Spain taken from the DIRCE (INE) and data for other countries from the OECD firm level data Project. The study was performed for all sectors.

8. Spain, Finland, Italy, Germany, USA, Netherlands, France, Portugal, Denmark, Canada and UK.

PMR indicators, are very restrictive. Both aspects are argued to have some negative effects over productivity in this section.

Moreover, inefficiencies in Spain's judicial system and the business bankruptcy system involve additional costs for businesses. These factors have, *inter alia,* effects on productivity through their impacts both on entry and growth of firms.

The effects of the dual labour market on productivity

De facto severance payments for workers on permanent contracts are high compared to other OECD economies. In contrast, temporary contracts are widely used, covering about 25% of dependent employment, and carry low severance payments. This dual labour market results in high worker turnover rates as very high *de facto* dismissal costs of permanent contracts makes firms reluctant to convert temporary contracts into permanent ones (OECD, 2010).

Dolado and Stucchi (2008) find that Spanish manufacturing firms with a large proportion of temporary workers are significantly less productive than firms with lower proportions of temporary workers.[9] Causality may go in both directions, but even if low-productivity activities encourage the use of temporary contracts the implication is that labour market regulation that encourages widespread use of temporary contracts may discourage high-productivity activity. Alonso-Borrego (2010) found the same effect for both manufacturing firms and service sector companies, but found a stronger effect in the latter case. This result has also been found in the case of other economies, like Italy (Boeri and Garibaldi, 2007).

Temporary employment can have a negative effect on productivity in several ways. First, temporary contracts may imply low rates of utilization of human capital in the economy (OECD, 2008 and Mas Ivars and Robledo Domínguez, 2010). As a result of dual labour markets, young qualified workers have difficulties finding jobs that match their skills, in part because high employment protection discourages job mobility among incumbent workers with permanent contracts, who lose dismissal pay entitlements if they move to another firm. This reduces openings of such jobs, which are more likely to require significant qualifications (OECD, 2008) As a result, the economy cannot fully take advantage of the new human capital. Indeed, the share of qualified young workers whose skills are not fully utilized is much larger for workers on temporary contracts than for those on permanent contracts (OECD, 2008).

Second, firms invest less in training of workers with temporary contracts. Dolado *et al.* (1999) estimate that the probability of receiving on-the-job training in Spain in 1994 was 22% lower for workers under fixed-term contracts than for workers under permanent contracts. Comparing EU countries, Damiani and Pompei (2010) argue that fixed-term arrangements tend to discourage training and the acquisition of firm-specific skills. Following Dolado and Stucchi (2008), increased use of temporary contracts results in lower investment in training in the manufacturing sector, which in turn reduces the productivity of the companies.

Third, the prospect of temporary employment may harm workers' incentives to invest in their own education (OECD, 2008). The proportion of workers with a temporary contract following training in Spain is below that in other European countries (see Table 8). Bentolila *et al.* (2009) highlight that 24.5% of workers in Spain follow any type of training, compared to 42% in the European Union. This result prevails for all business sizes.

9. Dolado and Stucchi (2008) study the TFP of manufacturing firms over the period 1991 to 2005.

Finally, Dolado and Stucchi (2008) also point out that if the conversion rate (from temporary to permanent contracts) decreases, the effort exerted by employees on temporary contracts is also lower reducing the company's productivity.

Table 8. Share of employed workers receiving training paid by their employers by type of contract

Country	Temporary contracts	Permanent contracts	Self-employed
France	15.3	28.5	19.9
Germany	22.7	40.7	33.5
Italy	28.4	29.1	19.2
United Kingdom	33.1	53.2	19
Spain	19.9	40.3	16.7
EU15	25.5	40.6	22.9
EU27	26	39.4	22.1

Source: European Working Conditions Survey (2010).

Collective bargaining arrangements hamper productivity improvements

The Spanish system of collective bargaining is characterised by an intermediate degree of centralisation in which collective bargaining takes place predominantly at the sectoral or the regional level (OECD, 2010). Moreover, collective bargaining determines work conditions for almost all workers in the private sector as a result of legal extension. Only about 10% of workers are covered by agreements at company level (CCOO, 2010). Finally, it used to be difficult for firms to opt out from collective agreements so as to mitigate some of the problems linked to rigid collective agreements. Such rigidities impact on productivity for the following reasons. Labour market reforms in 2011 and 2012, which are not discussed in this paper, have made it easier for firms to opt-out from sectoral agreements and have facilitated company-level collective agreements. In contrast to a fully decentralised system, an intermediate degree does not tailor wage agreements to the circumstances of individual companies, tending to diminish skill wage differentials and preventing the adoption of new forms of production and working arrangements (Banco de España, 2010). Small and medium-sized enterprises rarely have an enterprise-level agreement, so they depend on a higher level collective agreement. There is evidence that a number of organizational reforms increase higher productivity in part because they ease the adoption of ICT capital at the enterprise level (Pilat, 2004, Sánchez-Mangas, 2007). Indeed, Sánchez-Mangas (2005) finds for Spain that, within ICT-producing industries, those firms with the most significant organizational reforms are also those with greater improvements in productivity. Examples for productivity-enhancing organizational reforms are teleworking, incentive-based pay systems or the ability to provide autonomy to the various working groups inside the company (Sánchez Mangas, 2007).[10] For the case of Switzerland, Arvanitis (2004) found that labour productivity was positively correlated with "team-work", higher mobility of workers within a firm and higher decentralization of decision making.

Onerous regulation of dependent employment relationships can also raise the cost of dependent employment relative to self-employment and should, therefore, be expected to diminish average firm size. Such regulation is hence likely to create barriers for successful firms to grow. Growing firms which expand

10. A comprehensive survey of these practices can be found in Ramsay *et al*. (2000). The following thematic areas are studied: information and communication, reward systems, organization of teams, systems of representation of employees, training systems, quality systems and recruitment systems.

in their market shares are also likely to be the most productive. Moreover, lack of flexibility of the collective agreements prevents companies to lower wages instead of firing workers, as could be observed during the most recent crisis (OECD, 2010). This implies that firm-specific human capital accumulated by the dismissed workers may be lost (Banco de España, 2010).[11]

Barriers to entry are still high, notably in retail trade

Improvements in regulation of retail trade since 1998 are reflected in a declining score of the respective OECD PMR indicator from 3.64 in 1998 to 3.44 in 2003 and 2.66 in 2008 (Table 9).

Table 9. OECD indicator on regulation of retail trade

Year	1998	2003	2008
Luxembourg			4.28
Belgium	3.71	3.87	3.74
Austria	4.13	4.53	3.56
Greece	4.07	4.11	3.49
Finland	3.43	3.12	3.12
France	4.79	3.11	3.11
Portugal	3.12	2.82	3.00
Denmark	2.80	2.60	2.92
Italy	2.96	2.45	2.61
Germany	2.28	2.64	2.44
Netherlands	1.95	1.63	2.13
United Kingdom	3.49	2.03	2.03
Ireland	1.31	1.09	1.01
Sweden	1.33	0.50	0.50
Spain	**3.64**	**3.44**	**2.66**
United States		2.63	2.59
OECD average	2.71	2.33	2.33

Source: OECD PMR indicators. The indicator ranges from 0 to 6 (from least to most restrictive).

However, the indicator suggests that regulation of retail trade in Spain still restricts competition more strongly than in the OECD area on average. Furthermore, these indicators do not fully capture legislation at the regional level. In Spain most of the powers in the regulation of retail trade are transferred to the regions and regional regulation of retail trade in Spain became significantly stricter in the period 1997-2007 (Matea and Mora-Sanguinetti, 2012). This can be observed in several areas, such as opening hours, price setting (*e.g.* seasonal sales) as well as barriers to entry, as reflected in restrictions on large outlets, the introduction of specific licenses for hard discount stores, specific taxes on retail trade or moratoria to open new large retail trade outlets.[12] As to the latter, for instance, many Spanish regional governments have banned large

11. The Banco de España (2010) finds that the long-term unemployment in Spain is linked to a deterioration of skills acquired by workers during their work experience. That is, long-term unemployment affects negatively human capital accumulation. In fact, it is observed that the wage loss for an individual coming back to work after more than a year in unemployment is significant (compared to other individuals who were less time unemployed). The Banco de España (2010) uses the Muestra Continua de Vidas Laborales database and compares earnings of pairs of individuals with similar characteristics but one of them lost his job during the economic crisis of 1993.

12. A moratorium is a period in which a regional government prohibits the opening of new commercial establishments. There are cases of moratoria affecting the entire region (Andalusia, the Balearic Islands,

retail openings in their regions since 1997 and all regions required big retail trade establishments to obtain a regional license in order to be allowed to open (at least until 2009), in addition to the municipal license (Matea and Mora-Sanguinetti, 2012).

As a result, regulation in Spain has increased the protection of the small commercial formats versus large surface outlets, thus reducing competition and pressure from new big entrants (Table 10). The restrictiveness of retail trade regulation is found to have negative bearings on productivity (*e.g.* Burda and Weil, 2005). The restrictiveness of retail trade regulation may deter the adoption of technologies (see *e.g.* Scarpetta *et al.*, 2002, OECD, 2003, Nicoletti and Scarpetta, 2003, Gordon, 2004, Schivardi and Viviano, 2008).

Table 10. Distribution of enterprises by their number of employees in retail trade (2007)

	1-9 employees	10-19 employees	20-49 employees	50-249 employees	250+ employees
Spain	97.22	1.86	0.72	0.16	0.04
Germany	87.43	8.29	3.13	0.92	0.23
France	96.09	2.30	1.14	0.39	0.09
Italy	97.85	1.50	0.45	0.16	0.04
UK	91.49	5.88	1.71	0.67	0.25

Source: Own elaboration from OECD SDBS - Structural Business Statistics (2011).

Following the OECD PMR indicators, also the regulation of entry of new enterprises is more restrictive than in other OECD or EU economies. Despite some improvement between 1998 and 2008, the administrative burdens for start-ups have remained above those in the average OECD country or in the EU15 in 2008, as regard general and sector specific entry barriers (Table 11). A similar picture is provided by the World Bank Doing Business Indicators. In particular, the *Starting a business* indicator suggests that Spanish regulation is relatively restrictive (Table 12).[13] The steps needed for starting a company includes procedures at all levels of the Spanish administration.[14]

Cantabria, Castile and Leon, Catalonia, Navarre, the Basque Country, Asturias), while in other cases it applies to a more specific zone, like Zaragoza (following the Aragon regulation) (2001-2005). There are also cases of suspensions and moratoria that extend to smaller stores, such as that on supermarket openings introduced in Catalonia in 2001, and of partial suspensions, as for example in the Canary Islands where the moratorium applies to a specific area that is considered to be "saturated" in terms of retail space (see Matea and Mora-Sanguinetti, 2012).

13. Estimates by the Agencia Estatal de Evaluación de las Políticas Públicas y la Calidad de los Servicios (2007) using a similar methodology did not show better results: following the Agency's estimation the registration procedure lasts 75.49 days on average. However, the cost would be somewhat lower than the one observed by the World Bank.

14. The Agencia Estatal de Evaluación de las Políticas Públicas y la Calidad de los Servicios (2007) accounted for 9 procedures at the central level and between 4 and 6 at the regional level. At a central level it is needed to register the company in the Registro Mercantil and to obtain a tax ID number in the Tax Administration. At the regional level, companies need a start-up permit and a registration in the region's register. Finally, at the local level, municipalities must issue a further license which allows for the effective beginning of operations. Between 70% and 87% of the time required and between 51% and 80% of the cost required for starting a business are originated at the regional or local levels.

Table 11. OECD PMR indicators. Barriers to entrepreneurship: low-level indicators

	Administrative burdens for corporations			Administrative burdens for sole proprietor firms			Sector-specific administrative burdens		
	1998	2003	2008	1998	2003	2008	1998	2003	2008
Austria	3	3	2.25	2.5	2.5	2	2.54	3.38	2.13
Belgium	1.75	1.75	1.75	1	1.5	1.25	1.45	1.71	1.42
Denmark	0.5	1	0.75	0.25	0	0.75	0.19	0.26	0.37
Finland	1.5	1.25	1	2.75	1.75	2.25	1.83	1.06	1.10
France	3.25	2	1.5	3.75	2	1.25	3.59	1.64	1.13
Germany	2.25	2.25	0.75	3.25	1.25	0.25	2.08	1.26	0.41
Greece	3.25	3.25	3	3.25	3.25	2.5	3.33	3.38	2.40
Ireland	1.5	0.75	0.75	0.75	0.25	0.25	0.46	0.28	0.33
Italy	5.5	2.75	1.75	4.25	2.75	1.75	4.69	2.33	1.48
Luxembourg	0.75	2.5	1.75	0.25	3	3	0.12	0.25	2.25
Netherlands	2.25	2	1.75	1.75	1.25	1	1.74	1.33	0.97
Portugal	3.25	1.5	1	1.75	1.75	2.75	2.05	1.83	1.43
Sweden	1.25	1	1	1	1.75	1	0.75	0.92	0.59
United Kingdom	0.75	0.75	0.75	1.25	0.5	0.5	0.82	0.58	0.51
Spain	**3.5**	**2.75**	**2.5**	**4**	**4**	**2.25**	**3.46**	**2.42**	**2.25**
United States	0.5	0.75	0.75	1.5	1.25	1.25	0.82	1.03	0.97
OECD average	2.28	1.97	1.73	2.25	1.87	1.73	1.91	1.61	1.41
UE 15 average	2.28	1.90	1.48	2.12	1.83	1.52	1.94	1.51	1.25

Source: OECD PMR indicators. The indicator ranges from 0 to 6 (from least to most restrictive).

Table 12. World Bank Doing Business indicators: "Starting a Business"

Economy	Year	Starting a Business				
		Rank	Procedures (number)	Time (days)	Cost (% of income per capita)	Paid-in Min. Capital (% of income per capita)
France	2010	21	5	7	0.9	0
	2011	21	5	7	0.9	0
Germany	2010	84	9	18	4.7	0
	2011	88	9	15	4.8	0
Italy	2010	74	6	10	17.9	9.7
	2011	68	6	6	18.5	10.1
Spain	**2010**	**144**	**10**	**47**	**15**	**12.8**
	2011	**147**	**10**	**47**	**15.1**	**13.5**
United Kingdom	2010	16	6	13	0.7	0
	2011	17	6	13	0.7	0
United States	2010	9	6	6	0.7	0
	2011	9	6	6	1.4	0

Source: World Bank. Doing Business indicators.

The government has introduced some recent policy action directed to facilitate entry of firms, with the aim to improve Spain's performance with respect to other OECD economies (Box 6). Some of these measures appear to have potentially significant positive impacts for productivity. For instance, Cuerpo *et al.* (2011) estimate the potential impact of the provisions of the Services Directive in Spain on productivity through reduction in mark-ups in the services sector, using a general equilibrium model simulation. They find that, in the long term, the impact on TFP would be about 1%.

Box 6. Recent efforts to reduce entry barriers in service sectors

The "Umbrella" Law (2009) established that all barriers to entry in the services' market must be eliminated with the exception of those based on "overriding reasons relating to the public interest". Many barriers in the regional regulations, such as the economic tests to issue new licenses, for example, based on the number of employees or geographical criteria in the retail trade sector, were banned. Furthermore, in order to reduce the number of procedures required to establish a new company, the Law introduced the so-called "Points of single contact" (*ventanillas únicas*) and the use of electronic means.

The "Omnibus" Law (2009) also extends the use of the "*silence is consent*" principle. It eliminates and simplifies authorization procedures in several sectors (see below) or substitutes them by less restrictive entry requirements. Examples of specific sectors for which licenses have been removed (or substituted by a less restrictive entry requirement) are industrial activities, quality control of construction, postal services (excluding the universal postal service), installation and maintenance of telecommunications equipments or systems, fabrication of tobacco or import or distribution of tobacco.

In the retail trade sector, a retail trade law (2010) eliminates the national compulsory license to open a large retail outlet. All autonomous communities (with the exception of Madrid) decided to maintain the licenses afterwards, although these licenses are less restrictive than those passed before so as to meet the "Umbrella Law" (see Matea, 2011). Finally, the Law on Economic Sustainability (2011) (in force since March 2011) contains a mandate according to which the government, within twelve months, must prepare an analysis on the simplification of the procedures needed for starting a business, including recommendations for legislative changes and organizational measures to introduce ICT technologies in the process.

Bankruptcy institutions in Spain are inefficient

This section argues that Spanish companies use the bankruptcy system relatively rarely because of its low efficiency and relatively low creditor protection. This institutional framework may discourage business risk-taking and innovation, with repercussions on productivity growth. As found in García-Posada and Mora-Sanguinetti (2012) this is partly related to the use of the mortgage system to secure loans, which may encourage firms to overinvest in tangible fixed assets (real estate, land, plant and machinery) with potentially negative impacts on productivity.

An efficient bankruptcy system aims at two diverging objectives, the protection of creditors' rights and the protection of the enterprise from liquidation, if the latter is beneficial for the economy. The protection of creditors' rights allows credit to flow at reasonable interest rates, hence achieving *ex-ante* efficiency.[15] However, creditors of businesses in financial difficulties are inherently biased towards liquidation (Hart, 2000, Ayotte and Yun, 2007). In "creditor-friendly" bankruptcy systems some firms that are worth more if they continue operating risk being liquidated because creditors may not have incentives to coordinate or they are not obliged to so by the law. *Ex-post* efficiency is achieved when the procedure delivers a decision to either liquidate or restructure the bankrupt firm liquidation or reorganization depending on which solution maximizes its total value (Hart and Moore, 1995). Achieving *ex-ante*

15. According to Hart and Moore (1995), ex-ante efficiency is attained when debtors have sufficient incentives to repay liabilities, hence limiting moral hazard.

efficiency creates tensions with *ex-post* efficiency. Furthermore, bankruptcy systems need to be quick in order to avoid the depreciation and obsolescence of the company's assets, reductions in the firm's value as a going concern and the loss in the net present value of the creditors' claims. Finally, bankruptcy systems should entail limited costs of filing so as not to deter their use.

The Spanish bankruptcy code (*Ley Concursal*) grants relatively low protection to creditors (Celentani *et al*, 2010). The index elaborated by La Porta *et al*. (1998) and updated by Djankov *et al*, (2007) provides a measure of creditor protection. According to this index, protection of secured creditors is very high in UK, low-medium in France (see also Ayotte and Yun, 2007), and medium in Spain. In Spain it is lower than a majority of OECD countries. Consistent results are found by Davydenko and Franks (2008) when considering all creditors. Similar conclusions can be reached when analyzing hard data: credit recovery rates were around 50% in the period 2006-2010 in Spain (van Hemmen, 2007, 2008, 2009, 2010 and 2011). They appear significantly lower than those in the UK and Germany, while those in France are somewhat lower (Davydenko and Franks, 2008). However, these data are difficult to compare (García-Posada and Mora-Sanguinetti, 2012). Lengthy procedures lower credit recovery rates. According to van Hemmen (2008) the median length of a bankruptcy procedure in Spain in 2007 amounted to at least 20 months. The economic crisis increased the number of bankruptcy filings since 2008 further, leading to a median length of the bankruptcy process of around 30 months in 2010 (Van Hemmen, 2009, 2010, 2011).

Weak *ex-ante* efficiency appears not to be offset by substantial ex-post efficiency gains in Spain, as there is some evidence to suggest that bankruptcy arrangements do not generally lead to efficient decisions concerning the continuation or liquidation of the insolvent firm. According to Ayotte and Yun (2007), one of the main tasks of judges and insolvency administrators is to determine whether the value of the firm as a going concern is higher or lower than its liquidation value. This implies that the *ex-post* efficiency gains are increasing in the judges' and administrators' ability to discern between viable and non-viable firms. According to Celentani *et al.* (2010), in Spain judicial ability is low so that ex-post efficiency gains are low as well. Until very recently, Spain did not have specialized "bankruptcy" courts. Also the system of appointments of the administrators for the firms filing for bankruptcy show several weaknesses according to Celentani *et al*. 2012. The courts appear not to select administrators according to their expertise for a particular case. There is no performance-related component in the compensation scheme. Reorganization plans were approved for 5% of bankruptcy filings. In France, 12% of filings ended in reorganization. In the UK, reflecting high creditor protection, only 2% of filings did not end in liquidation.

The Spanish bankruptcy code implies higher expected costs of bankruptcy for managers than in most OECD countries (Celentani *et al*, 2010). The Spanish bankruptcy code sets severe sanctions for a company manager for having caused or aggravated the firm's insolvency, over and above any criminal procedures. By contrast, in other OECD countries such as France, Germany and U.K. the codes establish sanctions mainly on the basis of criminal behavior only.

The Spanish bankruptcy law is severe towards entrepreneurs due to the absence of debt discharges, which is likely to hamper entrepreneurship.[16] For instance, Armour and Cumming (2008) measure the severity of personal bankruptcy laws across several dimensions, one of them being the number of years after bankruptcy until an automatic discharge is available.[17] In France, the discharge is immediate while it

16. A discharge eliminates the debtor's personal liability for all debts not excepted from discharge. While the absence of discharge minimizes the scope for moral hazard of the entrepreneur and may therefore reduce the risk premia on interest rates entrepreneurs pay for debt financing, debt discharge provides risk-averse agents with stronger incentives to undertake entrepreneurial activities (see e.g. Meh and Terajima, 2008).

17. Both Armour and Cumming (2008) and Armour (2004) focus on *personal* bankruptcy laws. Personal bankruptcy laws are used by entrepreneurs, since they are the owners/managers of unlimited liability businesses. In Spain the bankruptcy procedure (Ley Concursal) serves both firms and individuals.

is permitted after one year in the U.K. By contrast, in Spain there is no discharge: all the present and future income of the debtor -except for some exemptions defined in the law- must be used to pay back pre-bankruptcy debts. Armour (2004) finds that bankruptcy laws granting low protection to bankrupt entrepreneurs are associated with lower levels of venture capital. Since venture capital is mainly used to finance small start-up companies with new business ideas and high growth potential, it is thought to have a major effect in stimulating innovation. In another study, Armour and Cumming (2008) find a negative relationship between the severity of bankruptcy laws and entrepreneurial activity, as measured by self-employment rates. Entrepreneurs may be key drivers of long-run productivity and economic growth because of their capacity for innovation and risk-taking. Since the Spanish bankruptcy code is severe towards entrepreneurs, it deters innovation and value-enhancing risk-taking.

The low efficiency of the bankruptcy system is reflected in its low use, as measured by the business bankruptcy rate (number of business bankruptcy filings divided by the total number of firms in the economy) in international comparison (see Claessens and Klapper, 2005; García-Posada and Mora-Sanguinetti, 2012 and Table 13).

Table 13. Business bankruptcies per 10 000 firms

(2006)

Country	Bankrupty rate	Country	Bankruptcy rate
Poland	1.79	Ireland	53.39
Spain	**2.56**	Sweden	67.13
Czech Republic	5.43	Denmark	67.61
Singapore	5.95	Netherlands	79.6
Brazil	5.95	Japan	86.59
Greece	6.81	Norway	95.51
South Korea	7.78	Germany	96.31
Hong Kong	8.1	Finland	96.64
Chinese Taipei	10.02	Belgium	107.24
China	11.17	UK	114.69
Portugal	15.01	Hungary	134.96
Italy	25.48	Switzerland	151.58
Canada	29.83	France	178.59
Slovak Republic	32.66	Luxembourg	231.62
USA	33.46	Austria	239.81

Source: García-Posada and Mora-Sanguinetti (2012).

Firms and their lenders in Spain may avoid the bankruptcy system and prefer to use an alternative insolvency institution, the mortgage system, when dealing with insolvency. The mortgage system is a speedier process and also grants higher protection to secured creditors. However, this may come at the cost of two main forms of inefficiencies that could have a negative impact on productivity performance.

- Since uncoordinated creditors may be biased towards liquidation, some firms which are worth more as a going concern may be liquidated piecemeal as lenders seize firm assets serving as collateral, leading to ex-*post* inefficiency (Hart, 2000, Ayotte and Yun, 2007). This type of *ex-post* inefficiency is especially costly in industries with a high weight of intangible assets, such as firm-specific human capital and know-how, which may raise their value as a going concern well above its liquidation value. Indeed, Acharya and Subramanian (2009), find that the protection of

creditor rights, i.e. liquidation, at the expense of the survival of the firm creates an incentive for leveraged firms to avoid risks, and hence innovation. Hence, the use of the mortgage system as a substitute of bankruptcy proceeding may discourage some of the riskier drivers of productivity growth such as innovation.

- Furthermore, Spanish firms may have an incentive to over-invest in tangible fixed assets (land, buildings, plant and machinery) because those are the assets that can be pledged as mortgage collateral (Mora-Sanguinetti and García-Posada, 2012). Such incentives may also generate productive inefficiency. Indeed, tangible fixed assets contribute a larger share of total business fixed assets in Spain than in France, Germany and Italy, for example, in most industries. More specifically tangible fixed assets in Spanish small firms represent a 38% of total assets, while it is around 19% in France or 31% in Italy (Celentani, García-Posada and Gómez, 2010).

The performance of the judicial system in Spain shows some weaknesses

A well functioning judicial system provides protection of property rights and a greater prevalence of the rule of Law, which has a positive impact on economic efficiency (North, 1990, Acemoglu *et al.*, 2001, Rodrik *et al.*, 2004). Some indicators suggest that the Spanish judicial system is more "formal" than in other countries in that a company using the Spanish judicial system needs to undergo a greater number of transactions and to present a greater number of documents (Box 7). This may possibly imply higher costs for the companies and reduce efficiency as a result of longer resolution periods (Djankov *et al.*, 2003). Moreover the conflict resolution capacity of the Spanish judicial system has worsened in recent years when solving some specific procedures. Since 2001 and for the specific case of the executions of civil judgments, the average resolution rate, *i.e.*, ratio between the cases resolved and the cases that entered the system for a specific year, of the judicial system has diminished by over 25%.[18]

Box 7. International studies comparing the performance of judicial systems

Several surveys have been completed in recent years in order to compare the performance of the judicial system across countries. Between 1999 and 2000, the World Bank conducted the "World Business Environment Survey" in which businesses assessed the judicial system of the country and its effectiveness in enforcing property rights. Spain obtains worse results than OECD countries on average. Some results are included in the table below.

Table 14. Results of the World Business Environment Survey)

(1999)

	Judiciary is a major obstacle to business	Justice is never affordable	Never able to enforce decisions	Justice is never quick
United Kingdom	2.0%	18.2%	1.0%	17.3%
United States	2.2%	25.3%	7.1%	23.2%
France	4.1%	16.3%	2.1%	47.0%
Germany	8.0%	18.6%	4.2%	20.6%
Spain	**12.2%**	**13.5%**	**4.2%**	**41.2%**
Italy	16.3%	43.8%	8.9%	62.4%

Source: World Business Environment Survey (1999). The survey was administered to private firms. The table represents the share of responses indicating that the statements apply to the firm.

18. As measured based on the caseload in the courts for first instance (juzgados de primera instancia e instrucción).

Since 2004, the World Bank has published an indicator "*Enforcing Contracts"* which includes three indicators of the efficiency of contract enforcement.[19] This study publishes indicators on the number of interactions needed between the parties and the court, the estimated cost incurred and the estimated time to resolve the dispute (see Table below). Spain appears to be in a worse position[20] than other economies with similar levels of development such as the other big European economies (with the exception of Italy).

Table 15. World Bank Doing Business indicators: "enforcing contracts"

Economy	Year	Enforcing Contracts			
		Rank	Procedures (number)	Time (days)	Cost (% of claim)
France	2010	6	29	331	17.4
	2011	7	29	331	17.4
Germany	2010	7	30	394	14.4
	2011	6	30	394	14.4
Italy	2010	157	41	1 210	29.9
	2011	157	41	1 210	29.9
Spain	**2010**	**52**	**39**	**515**	**17.2**
	2011	**52**	**39**	**515**	**17.2**
United Kingdom	2010	23	30	399	23.4
	2011	23	28	399	23.4
United States	2010	8	32	300	14.4
	2011	8	32	300	14.4

Source: World Bank. Doing Business indicators (2011).

International comparisons of this type must be analyzed with caution as they compare complex legal systems with simple indicators. This is especially the case when comparing legal systems based on "Civil Law" (such as France, Spain or Italy) and those based in "Common Law" (essentially the UK) (see, among others, Ménard and Du Marais, 2006, Arruñada, 2007, Mora-Sanguinetti, 2010 or Xu, 2011).

A survey among Spanish companies (members of the organization) on the situation of Spanish justice suggests that the Spanish courts are too slow and that the predictability of judgments from the point of view of business managers is low (Círculo de Empresarios, 2003). The surveyed companies expressed the need for simplified procedures for the Spanish courts.

The lack of efficiency of the judicial system when enforcing contracts has negative effects on productivity, for example by discouraging entrepreneurship (Ardagna and Lusardi, 2008). Desai *et al.* (2005) found that greater formalism of the judicial procedures, after controlling for other relevant variables, is associated with lower entry of new firms.

Numerous studies for different countries (including Spain) found that inefficient judicial systems[21] may reduce the availability of funding through capital markets (e.g. Padilla and Requejo, 2000, Fabbri *et*

19. Specifically, it traces the evolution step by a step of a payment dispute between two companies that use a "local" court to resolve the dispute. This "local" court is located in the largest city in the country (in the case of Spain, the court is a juzgado de Primera Instancia of Madrid). The amount of debt in dispute is supposed to be fixed and equal to 200% of income per capita in the country.

20. This result appears to be robust to modification in the methodology of the indicators proposed in Mora-Sanguinetti, 2010.

21. Measured in different ways depending on the study, including the backlog of trials waiting for resolution or the duration of the procedures

al., 2004, Jappelli *et al.*, 2005, Desai *et al.*, 2005, or Padilla *et al.*, 2007). For example, using data from Spanish provinces, Padilla *et al.* (2007) show that an increase in the duration of the civil procedures of one month is associated with a decline of credit to GDP ratio of 4 percentage points and a marginal increase in the ratio of defaults to GDP of 01 percentage points. This may have effects on firm growth. In fact, average firm size appears to be correlated with indicators of the efficiency of judicial systems through different channels (see Kumar *et al.*, 1999, for an early survey of this literature). On the one hand, an efficient legal system may ease the ability of the managers of the enterprise to use resources more effectively to expand their firm, improving control rights (Rajan and Zingales, 1998). A more efficient judicial system provides better protection to intellectual property rights, firm-client relationships or management techniques. On the other hand, an efficient judicial system protects outside investors and thereby improves firms access to external funding and the development of risk capital markets (La Porta *et al.*, 1997, 1998).

Following Djankov *et al.* (2003), access to courts could be facilitated if procedures were reduced or simplified. However, such measures should be taken with care because they may increase litigation and congestion in the judicial system as a result, as observed after 2001 in Spain (Mora-Sanguinetti, 2010).

Conclusions

The Spanish economy experienced significantly weaker labour productivity growth compared with other OECD economies, failing to reduce the gap with the most advanced economies in the period 1996-2007. In recent years labour productivity growth has accelerated, but this recovery is likely to be mostly due to cyclical and other temporary factors.

The relatively weak performance of trend labour productivity reflects the low growth of total factor productivity within a wide range of sectors. By contrast the contribution of capital accumulation to labour productivity growth was relatively large and the educational attainment of the workforce grew relatively strongly. We also found that the shift of resources to construction related sectors can only explain a small part of the aggregate productivity growth gap with respect to other high income countries.

TFP growth captures the effects of heterogeneous factors, such as the capacity of the economy to innovate or the quality of the regulatory environment. Despite significant improvements in many areas of product market regulation, some regulatory settings continue to damp productivity performance, in part by hindering firm creation and firm growth. Easing retail trade regulation, lowering the costs of firm creation, reforms to make the labour market more flexible, reforms of bankruptcy legislation and improvements in judicial procedures would all help raise performance.

Bibliography

Acemoglu, D., S. Johnson and J. A. Robinson (2001). The colonial origins of comparative development: an empirical investigation. *The American Economic Review*, 91, pp. 1369-1401.

Acharya, V. V. and K. Subramanian (2009): "Bankruptcy Codes and Innovation"; Review of Financial Studies, 22 (12), 4949-4988.

Agencia Estatal de Evaluación de las Políticas Públicas y la Calidad de los Servicios (2007). *Trámites administrativos para la creación de empresas en España*. Ministerio de Administraciones Públicas - Agencia Estatal de Evaluación de las Políticas Públicas y la Calidad de los Servicios. Madrid.

Alonso-Borrego, C. (2010). *Firm behavior, market deregulation and productivity in Spain*. Documentos de trabajo n.º 1035. Banco de España-Eurosystem.

Amuedo-Dorantes, C. and S. De La Rica (2007). Labour Market Assimilation of Recent Immigrants in Spain. *British Journal of Industrial Relations* 45(2), 257–84.

Ardagna, S. and A. Lusardi (2008). *Explaining International Differences in Entrepreneurship: The Role of Individual Characteristics and Regulatory Constraints*. NBER Working Paper No. 14012.

Armour, J. (2004): "Personal Insolvency Law and the Demand for Venture Capital," European Business Organization Law Review 5, pp. 87-118.

Armour, J. and D. Cumming (2008): "Bankruptcy Law and Entrepreneurship," American Law and Economics Review, V10 N2, pp. 303–350.

Arruñada, B. (2007). Pitfalls to avoid when measuring the institutional environment: Is 'Doing Business' damaging business? *Journal of Comparative Economics* 35, pp. 729-47.

Arvanitis, S. (2004). "Information Technology, Workplace Organisation, Human Capital and Firm Productivity: Evidence for the Swiss Economy", in OECD (2004): *The Economic Impact of ICT – Measurement, Evidence and Implications*. OECD, Paris.

Ayotte, K., and H. Yun (2007). Matching Bankruptcy Laws to Legal Environments. *The Journal of Law, Economics & Organization* 25 (1).

Banco de España (2010). *Informe anual 2009*. Madrid.

Bentolila, S., J.J. Dolado and J.F. Jimeno (2009). *The Spanish productivity puzzle: immigration and other factors*. Presentation prepared for the LSE-CIEES Workshop on "The Spanish Economy after the Crisis: Towards a New Growth Model", Madrid, 24-26 June 2009.

Brandt, N. (2004). *Business Dynamics in Europe*. OECD Science, Technology and Industry. Working Papers, 2004/1, OECD Publishing.

Boeri, T., and P. Garibaldi (2007). Two Tier Reforms of Employment Protection: A Honeymoon Effect? *The Economic Journal* 117, 357–385.

Boldrin, M. Conde-Ruiz, J. I and J. Díaz-Giménez (2009). Eppur si Muove! Spain: growing without a model. In: *Fedea: The Crisis of the Spanish Economy*. FEDEA, Madrid.

Burda, M., and P. Weil (2005). *Blue Laws*, October. Mimeo.

Card, D. (2001). Immigrants Inflows, Native Outflows, and the Local Labour Market Impacts of Higher Immigration. *Journal of Labour Economics* 19 (2), pp. 22-64

CCOO (Confederación Sindical de Comisiones Obreras) (2010). *Boletín del Observatorio de la Negociación Colectiva*. Colección Biblioteca Ciencias Sociales, No. 12, Ediciones Cinca, Madrid.

Celentani, M., García-Posada, M. and F. Gómez (2010). *The Spanish Business Bankruptcy Puzzle and the Crisis*. FEDEA Working Paper 2010-11.

Celentani, M., García-Posada, M. and F. Gómez (2012). *The Spanish Businnes Bankruptcy Puzzle*. Mimeo.

Chemin, M. (2009). The impact of the judiciary on entrepreneurship: Evaluation of Pakistan's "Access to Justice Programme". *Journal of Public Economics* 93, 114-125.

Claessens, S. and L. Klapper (2005). Bankruptcy around the World: Explanations of Its Relative Use. *American Law and Economics Review* 7 (1).

Corry, D. Valero, A. and J. Van Reenen (2011). *UK Economic Performance Since 1997: Growth, Productivity and Jobs*. CEP Special Report. Paper No' CEPSP24. The London School of Economics.

Cuerpo, C., López, A., Pastor, I. and M. Vidales (2011). *Directiva de Servicios: Simulación de resultados para España*. Documento de Trabajo 2011/1. Ministerio de Economía y Hacienda.

Damiani, M. and F. Pompei (2010). Labour protection and productivity in EU economies: 1995-2005. *The European Journal of Comparative Economics* 7 (2). 373-411

Davydenko, S. A., and J. R. Franks (2008): "Do Bankruptcy Codes Matter? A Study of Default in France, Germany, and the U.K". *The Journal of Finance* LXIII (2).

Desai, M., P. Gompers and J. Lerner (2005). *Institutions, capital constraints and entrepreneurial firm dynamics: evidence from Europe*, Harvard NOM Working Paper No. 03-59.

Djankov, S., R. La Porta, F. López de Silanes and A. Shleifer (2003). "Courts". *The Quarterly Journal of Economics*, 118. 453-517.

Djankov, S., McLiesh, C. and A. Shleifer (2007). Private Credit in 129 Countries. *Journal of Financial Economics*, 84, pp. 299-329.

Dolado, J. J., Felgueroso, F. and Jimeno, J. F. (1999). Los problemas del mercado de trabajo juvenil en España: empleo, formación y salarios mínimos. *Ekonomiaz* 43. 136–57.

Dolado, J.J. and R. M. Stucchi (2008). *Do Temporary Contracts Affect TFP? Evidence from Spanish Manufacturing Firms*. IZA Discussion Papers 3832, Institute for the Study of Labour (IZA).

Euler Hermes (2007). Insolvency Outlook 2007, no. 2., *Business Insolvency Worlwide*. Euler Hermes, Evreux.

EU (2003), *The EU economy: 2003 review*, European Economy, No. 6.

Fabbri, D. and M. Padula (2004). "Does poor legal enforcement make households credit-constrained?", *Journal of Banking & Finance*, 28, pp. 2369-2397.

Fariñas, J. C. and S. Ruano (2004). The dynamics of productivity: a decomposition approach using distribution functions. *Small Business Economics* 22. 237-251

Febrer, C., and J. Mora (2005). *Wage distribution in Spain 1994-1999: An application of a flexible estimator of conditional distributions*. Working Paper IVIE

Fernández, C. and O. Ortega (2008). Labour Market Assimilation of Immigrants in Spain: Employment at the Expense of Bad Job-Matches? *Spanish Economic Review* 10, 83–107.

Foster, L., Haltiwanger, J. and C. J. Krizan (1998). *Aggregate productivity growth: Lessons from microeconomic evidence*. NBER WP 6803.

Friedberg, R. and J. Hunt (1995). The impact of immigration on host country wages, employment and growth", *Journal of Economic Perspectives*, 9(2), pp. 23-44.

García-Posada, M. (2011). *Insolvency institutions and inefficiencies: the Spanish case*. Mimeo, Universidad Carlos III de Madrid.

García-Posada, M. and J. S. Mora-Sanguinetti (2012). Why Spanish firms rarely use the bankruptcy system? The role of the mortgage institution. Documentos de trabajo. Banco de España-Eurosystem (forthcoming).

Gordon, R. J. (2004). *Why was Europe Left at the Station When America's Productivity Locomotive Departed?* NBER Working Paper No. W10661.

Hart, O. (2000). *Different Approaches to Bankruptcy*. National Bureau of Economic Research, NBER Working Paper No. 7921.

Hart. O. and J. Moore (1995): "A Theory of Debt Based on the Inalienability of Human Capital," NBER Working Papers 3906, National Bureau of Economic Research, Inc.

Huergo, E. and J. Jaumandreu (2004). How does probability of process innovation change with firm age? *Small Business Economics*, 22, 193-207.

Izquierdo M., Jimeno, J. and J. Rojas (2010). On the aggregate effects of immigration in Spain. *SERIEs, Journal of the Spanish Economic Association*, 1(4). 409-432.

Jappelli, T., M. Pagano and M. Bianco (2005). "Courts and banks: effects of judicial enforcement on credit markets", *Journal of Money Credit and Banking*, 37. 224-244.

Kumar, K., R. Rajan, and L. Zingales (1999). *What Determines Firm Size?* NBER Working Paper No. 7208.

Lacuesta, A., Puente, S. and P. Cuadrado (2009). Una aproximación a la medición de la calidad del factor trabajo en España. *Boletín Económico* 1. Banco de España.

Lacuesta, A., Puente, S. and P. Cuadrado (2011). Omitted variables in the measurement of a labour quality index: the case of Spain. *Review of Income and Wealth* 57 (1). March.

La Porta, R., F. López De Silanes, A. Schleifer and R. W. Vishny (1997). Legal determinants of external finance. *Journal of Finance*, 52, 1131-1150.

La Porta, R., F. López De Silanes, A. Schleifer and R. W. Vishny (1998). Law and finance. *Journal of Political Economy*, 106, 1113-1155

López-García, P. and P. Sánchez (2010). *El tejido empresarial español en perspectiva*. Nota interna. Departamento de Coyuntura y Previsión Económica. Banco de España.

López-García, P. and J. M. Montero (2010). *Understanding the Spanish Business Innovation gap: The role of Spillovers and firms' absorptive capacity*. Documento de trabajo. Banco de España No. 1015.

López-García, P. and S. Puente (2006). *Business demography in Spain: Determinants of firm survival*. Documento de trabajo. Banco de España No. 0608.

López-García, P., Puente, S. and A. L. Gómez (2007). *Firm productivity dynamics in Spain*. Documento de trabajo. Banco de España No. 0739.

Martin-Marcos, A. and J. Jaumandreu (2004). Entry, exit and productivity growth in Spanish manufacturing during the eighties. *Spanish Economic Review*, 6 (3) 211-226.

Mas-Ivars, M. and J. C. Robledo Domínguez (2010). *Productividad. Una perspectiva internacional y sectorial*. Fundación BBVA. Madrid.

Matea, M. L. (2011). La transposición de la directiva de servicios a la normativa española del comercio minorista. *Boletín Económico*. Octubre. Banco de España.

Matea, M. L. and J. S. Mora-Sanguinetti (2012). El comercio minorista después de una década de regulación autonómica: efectos en la densidad comercial, el empleo y la inflación. *Revista de Economía Aplicada* (Forthcoming).

Meh, C. and Y. Terajima (2008): "Unsecured Debt, Consumer Bankruptcy, and Small Business," Bank of Canada Working Paper 2008-5.

Ménard C. and B. Du Marais (2006). Can we rank legal systems according to their efficiency? In: *New Frontiers of Law and Economics*. Saint Gallen Schulthess.

Mora-Sanguinetti, J. S. (2010). A Characterization of the Judicial System in Spain: Analysis with Formalism Indices. *Economic Analysis of Law Review* 1 (2). 210-240.

Nicoletti, G. and S. Scarpetta (2003). Regulation, Productivity and Growth. *Economic Policy* 36, 11-72.

North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge University Press, Cambridge.

Núñez, S. (2004). "Salida, entrada y tamaño de las empresas españolas". *Boletín Económico*. Marzo. Banco de España.

OECD (2001). *Productivity growth in ICT-producing and ICT-using industries -- a source of growth differentials in the OECD?* Working Party on Statistics (Paris, OECD, 27-28 February and 1 March 2001)

OECD (2003). *ICT and economic growth. Evidence from OECD countries, industries and firms*. OECD Publishing. Paris.

OECD (2005). *Going for growth*, OECD Publishing, Paris.

OECD (2008), *OECD Economic Surveys: Spain 2008*, OECD Publishing, Paris.

OECD (2010), *OECD Economic Surveys: Spain 2010*, OECD Publishing, Paris.

O'Mahony, M. and M.P. Timmer (2009). Output, Input and Productivity Measures at the Industry Level: the EU KLEMS Database. *The Economic Journal* 119 (June), F374–F403.

Ottaviano, G., and G. Peri (2006). *Rethinking the gains from immigration: Theory and evidence from the US*, NBER Working Paper 11672.

Padilla, A. P., and A. Requejo (2000). *The costs and benefits of the strict protection of creditor rights: theory and evidence*. Working Paper R-384, Inter-American Development Bank Research.

Padilla, J., V. Llorens, S. Pereiras and N. Watson (2007). "Eficiencia judicial y eficiencia económica: el mercado crediticio español", in *La Administración Pública que España necesita*, Libro Marrón, Círculo de Empresarios, Madrid.

Pagano, P. and F. Schivardi (2003). Firm Size Distribution and Growth. *The Scandinavian Journal of Economics*, 105 (2), 255-274.

Pilat, D. (2004). *The ICT productivity paradox: insights from micro data*. OECD Economic Studies No. 38. 2004/1.

Rajan, R. and L. Zingales (1998). Power in a theory of the firm. *The Quarterly Journal of Economics* 113(2). 387-432.

Ramsay, H., Scholarios, D., y Harley, B. (2000), Employees and High Performance Work Systems: Testing Inside the Black Box, *British Journal of Industrial Relations*, Vol. 38, no.4, pp 501-31.

Rodrik, D., A. Subramanian and F. Trebbi (2004). Institutions rule: the primacy of institutions over geography and integration in economic development. *Journal of Economic Growth*, 9, pp. 131-165.

Sánchez-Mangas, R. (2005). *Productividad y nuevas formas de organización del trabajo en la sociedad de la información*. Laboratorio de la Fundación Alternativas, Documento de Trabajo 81/2005.

Sánchez-Mangas, R. (2007). La productividad en la sociedad de la información: impacto de las nuevas formas de organización del trabajo. *Moneda y Crédito*, 225, 75-96.

Sanromá, E., Ramos, R. and H. Simón (2008). *The Portability of Human Capital and Immigrant Assimilation: Evidence for Spain*. IZA Discussion Paper 3649.

Scarpetta, S., P. Hemmings, T. Tressel and J. Woo (2002). *The Role of Policy and Institutions for Productivity and Firm Dynamics: Evidence from Micro and Industry Data*, Economic Department Working Papers, n.º 329, OCDE.

Schreyer, P. and F. Koechlin (2002). Purchasing power parities - measurement and uses. *OECD Statistics Brief,* 3, March 2002. OECD Publishing.

Schivardi, F., and E. Viviano (2008). *Entry barriers in retail trade*. CEPR Discussion Papers No. 6637, January.

Segura, J. (Coord.) (2006). *La productividad en la economía española*. Fundación Ramón Areces, Madrid. The International Bank for Reconstruction and Development and the World Bank (2010). *Doing Business 2011*. World Bank Publications. Herndon Virginia, USA.

Timmer, M. P., van Moergastel, T., Stuivenwold, E. G, Ypma, G., O'Mahony, M. and M. Kangasniemi (2007). *EU KLEMS Growth and Productivity Accounts Version 1.0 PART I Methodology*. EU KLEMS.

Timmer, M. P., O'Mahony, M, and B. van Ark (2007). EU KLEMS Growth and Productivity Accounts: An Overview. *International Productivity Monitor* 14, spring. 71-85.

Timmer, M. P., Inklaar, R., O'mahony, M. and B. Van Ark (2010). *Economic Growth in Europe: A Comparative Industry Perspective*, United Kingdom, Cambridge University Press.

van Ark, B., Inklaar, R. and R. H. McGuckin (2003a). ICT and Productivity in Europe and the United States Where Do the Differences Come From? *CESifo Economic Studies* 49(3). 295-318

van Ark, B., Inklaar, R. and R. H. McGuckin (2003b). The Contribution of ICT-Producing and ICT-Using Industries to Productivity Growth: A Comparison of Canada, Europe and the United States. *International Productivity Monitor* 6, spring. 56-63.

van Hemmen, E. (2008). *Estadística concursal. Anuario 2007*. Colegio de Registradores de la Propiedad y Mercantiles de España, Madrid.

van Hemmen, E. (2009). *Estadística concursal. Anuario 2008*. Colegio de Registradores de la Propiedad y Mercantiles de España, Madrid.

van Hemmen, E. (2010). *Estadística concursal. Anuario 2009*. Colegio de Registradores de la Propiedad y Mercantiles de España, Madrid.

Wölfl, A., Wanner, I., Kozluk, T. and G. Nicoletti (2009). *Ten Years of Product Market Reform in OECD Countries 1998-2008: Insights from a Revised PMR Indicator*. OECD Economics Department Working Papers, No. 695, OECD, Paris.

Xu, G. (2011). The Role of Law in Economic Growth: A Literature Review. *Journal of Economic Surveys* 25 (5), pp. 833–871.

WORKING PAPERS

The full series of Economics Department Working Papers can be consulted at www.oecd.org/eco/workingpapers/

972. *Europe's new fiscal rules*
(June 2012) by Sebastian Barnes, David Davidsson and Łukasz Rawdanowicz

971. *Credit Crises and the Shortcomings of Traditional Policy Responses*
(June 2012) by William R. White

970. I*nternational Capital Mobility and Financial Fragility*
Part 7. Enhancing Financial Stability: Country-specific Evidence on Financial Account and Structural Policy Positions
(June 2012) by Rudiger Ahrend and Carla Valdivia

969. *International Capital Mobility and Financial Fragility*
Part 6. Are all Forms of Financial Integration Equally Risky in Times of Financial Turmoil? Asset Price Contagion during the Global Financial Crisis
(June 2012) by Rudiger Ahrend and Antoine Goujard

968. *International Capital Mobility and Financial Fragility*
Part 5. Do Investors Disproportionately Shed Assets of Distant Countries under Increased Uncertainty? Evidence from the Global Financial Crisis
(June 2012) by Rudiger Ahrend and Cyrille Schwellnus

967. *International Capital Mobility and Financial Fragility*
Part 4. Which Structural Policies Stabilise Capital Flows when Investors Suddenly Change their Mind? Evidence from Bilateral Bank Data
(June 2012) by Rudiger Ahrend and Cyrille Schwellnus

966. *International Capital Mobility and Financial Fragility*
Part 3. How do Structural Policies affect Financial Crisis Risk? Evidence from Past Crises across OECD and Emerging Economies
(June 2012) by Rudiger Ahrend and Antoine Goujard

965. *Sustaining Korea's convergence to the highest-income countries*
(June 2012) by Randall S. Jones and Satoshi Urasawa

964. *Achieving the "low carbon, green growth" vision in Korea*
(June 2012) by Randall S. Jones and Byungseo Yoo

963. *Promoting social cohesion in Korea*
(June 2012) by Randall S. Jones and Satoshi Urasawa

962. *Housing price and investment dynamics in Finland*
(May 2012) by Christophe André and Clara Garcia

961. *Improving health outcomes and system in Hungary*
(May 2012) by Mehmet Eris

960. *Towards a more inclusive labour market in Hungary*
(May 2012) by Rafał Kierzenkowski

959. *Ensuring stability and efficiency of the Hungarian financial sector*
(May 2012) by Olena Havrylchyk

958. *Ensuring debt sustainability amid strong economic uncertainty in Hungary*
(June 2012) by Pierre Beynet and Rafał Kierzenkowski

957. *Improving the health-care system in Poland*
(April 2012) by Hervé Boulhol, Agnieszka Sowa and Stanislawa Golinowska

956. *Options for benchmarking infrastructure performance*
(April 2012) by Mauro Pisu, Peter Hoeller and Isabelle Joumard

955. *Greenhouse gas emissions and price elasticities of transport fuel demand in Belgium*
(April 2012) by Tom Schmitz

954. *Bringing Belgian public finances to a sustainable path*
(April 2012) by Tomasz Koźluk, Alain Jousten and Jens Høj

953. *Climate change policies in Poland – minimising abatement costs*
(April 2012) by Balázs Égert

952. *Income inequality in the European Union*
(April 2012) by Kaja Bonesmo Fredriksen

951. *Reducing poverty in Chile: cash transfers and better jobs*
(April 2012) by Nicola Brandt

950. *Tax reform in Norway: A focus on capital taxation*
(April 2012) by Oliver Denk

949. *The short-term effects of structural reforms: an empirical analysis*
(March 2012) by Romain Bouis, Orsetta Causa, Lilas Demmou, Romain Duval and Aleksandra Zdzienicka

948. *Short-term gain or pain? A DSGE model-based analysis of the short-term effects of structural reforms in labour and product markets*
(March 2012) by Matteo Cacciatore, Romain Duval and Giuseppe Fiori

947. *Do house prices impact consumption and interest rate?: Evidence from OECD countries using an agnostic identification procedure*
(March 2012) by Christophe André, Rangan Gupta and Patrick T. Kanda

946. *Assessing the sensitivity of Hungarian debt sustainability to macroeconomic shocks under two fiscal policy reactions*
(March 2012) by Pierre Beynet and Edouard Paviot