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ECONOMIC AND POLICY DEVELOPMENTS

ECONOMIC AND POLICY DEVELOPMENTS

SPECIAL ISSUE: PORTUGUESE FIRMS IN EXPORT MARKETS

PROJECTIONS FOR THE PORTUGUESE ECONOMY: 2013-20151

1. Introduction

A moderate recovery of activity in 2014-2015 is projected for the Portuguese economy, after a cumulative contraction of around 6 per cent in the 2011-2013 period, amid the process of correction of the economic imbalances built up over the last decades (Table 1.1). This process should take place with ongoing regular financing conditions for the economy throughout the projection horizon.

Domestic demand is projected to show a progressive recovery. This aggregate's evolution over the projection horizon, with particular regard to public consumption and private consumption, will however continue to be conditioned by the fiscal consolidation process and the private sector deleveraging process, as well as by the ongoing unfavourable conditions in the labour market. Exports are expected to maintain strong growth, supported by the recovery of external demand, although with lower growth rates than in the period before the financial crisis. Exports have held a critical role in the adjustment of the Portuguese economy, despite the relatively limited growth in the world economy in 2011-2013 (see "Special Issue: *Portuguese firms in export markets*", of this Bulletin). Over the projection horizon current and capital account surpluses are expected to increase, one of the most striking aspects of the Portuguese economy's adjustment process.

The risks surrounding the projections for economic growth and inflation are deemed to be balanced for 2013. Over the rest of the projection horizon there are risks of a weaker resumption of activity, due to the possibility of more unfavourable external developments, affecting exports, as well as due to a weaker

PROJECTIONS OF BANCO DE PORTUGAL: 2013-2015 RATE OF CHANGE, PER CENT										
	Welghts 2012		EB Winter 2013		EB Autumn 2013	EB Summer 2013				
		2013 ^(p)	2014 ^(p)	2015 ^(p)	2013 ^(p)	2013 ^(p)	2014 ^(p)			
Gross Domestic Product	100.0	-1.5	0.8	1.3	-1.6	-2.0	0.3			
Private Consumption	65.7	-2.0	0.3	0.7	-2.2	-3.4	-1.4			
Public Consumption	18.2	-1.5	-2.3	-0.5	-2.0	-2.1	-3.2			
Gross Fixed Capital Formation	16.0	-8.4	1.0	3.7	-8.4	-8.9	1.1			
Domestic Demand	100.6	-2.7	0.1	0.9	-3.0	-4.4	-1.2			
Exports	38.7	5.9	5.5	5.4	5.8	4.7	5.5			
Imports	39.3	2.7	3.9	4.5	2.0	-1.7	2.1			
Contribution to GDP growth (in p.p.):										
Net exports		1.1	0.7	0.4	1.4	2.4	1.4			
Domestic Demand		-2.7	0.1	0.9	-3.1	-4.4	-1.1			
of which: change in inventories		0.2	0.2	0.0	0.1	-0.3	0.2			
Current plus Capital Account (% of GDP)		2.5	3.8	4.7	3.1	4.5	6.4			
Trade Balance (% of GDP)		1.7	2.7	3.5	2.1	3.0	4.9			
Harmonized Index of Consumer Prices		0.5	0.8	1.2	0.6	0.4	0.8			

Table1.1

Source: Banco de Portugal.

Notes: (p) - projected. For each aggregate, this table shows the projection corresponding to the most likely value, conditional on the set of assumptions considered.

 The projections for developments in the Portuguese economy use available information up to the middle of November 2013. recovery of domestic demand. In particular, private consumption may recover more moderately in 2014, given that a reduction in the saving rate is projected, in contrast with that observed in 2012. A downside risk also persists into 2015 for domestic demand, as no fiscal consolidation measures were factored in beyond those in the State Budget for 2014. Despite the possibility of less favourable developments in demand, the risks for inflation in 2014 and 2015 are considered to be balanced overall.

Compared to previous editions of the Economic Bulletin, these projections imply an upward revision of GDP growth and a change to its composition, which now reflects a higher contribution from domestic demand and a lower contribution from net exports.² This development largely reflects the impact of the inclusion of the most recent information, which suggests higher growth than previously projected for private consumption and imports in the second half of 2013. The upward revision of the GDP growth projection in 2014 reflects the dynamic effects of the revision in the second half of 2013, as well as the impact of the updated public finance assumptions, which have smaller quantitative implications than previously assumed for disposable income and public consumption developments. The growth projections for the Harmonised Index of Consumer Prices (HICP) remain virtually unchanged from those published previously.

2. Background assumptions

Gradual recovery of external demand over the projection horizon

Regarding developments in external demand for Portuguese goods and services, a growth rate of around 1 per cent is estimated for the year 2013, followed by acceleration in 2014 and 2015, both in the euro area and in non-euro area markets (Table 2.1 and Chart 2.1). External demand from non-euro area markets should remain more dynamic than that of the euro area, although with lower growth *vis-à-vis* the one recorded before the financial crisis, in a context of less dynamic economic activity in some emerging economies, which may take on a partly structural nature. Projections for the euro area suggest a 1.1 per cent recovery of activity in 2014, and an 1.5 per cent resumption in 2015, after a fall of 0.4 per cent in 2013. Fiscal consolidation, as well as the correction of other domestic imbalances in certain economies, should continue to condition demand and activity growth among advanced economies, namely the euro area.

Table 2.1

PROJECTION ASSUMPTIONS									
		E	B Winter 201	3	EB Summer 2013				
		2013	2014	2015	2013	2014			
External demand	yoy	1.2	3.9	5.0	-0.4	3.8			
Interest rate									
Short-term (3-month EURIBOR)	%	0.2	0.3	0.5	0.2	0.4			
State financing cost	%	2.4	3.9	5.0	2.3	3.8			
Euro exchange rate									
Effective	yoy	3.7	0.8	0.0	3.0	0.1			
Euro-dollar	aav	1.33	1.34	1.34	1.30	1.30			
Oil price									
in dollars	aav	108.2	103.9	99.2	105.0	99.0			
in euros	aav	81.6	77.3	73.8	80.4	76.2			

Sources: Bloomberg, ECB, Thomson Reuters and Banco de Portugal calculations.

Notes: yoy - year-on-year rate of change, aav - annual average value. An increase in the exchange rate corresponds to an appreciation.

2 At the end of the projection horizon, domestic demand's contribution to GDP growth is greater than that of net exports. However, if the expenditure items were corrected for the impact of the corresponding imported content, the contribution made by exports would remain greater than that of domestic demand throughout the projection horizon. The technical assumption for exchange rates, which implies that they remain throughout the projection horizon at the average values recorded in the two weeks prior to the information cut-off date, means a further appreciation of the euro in nominal effective terms and against the US dollar in 2014, albeit lower than that estimated for 2013.

According to information from futures markets, the price of oil is assumed to fall throughout the projection horizon, going from levels around 108 dollars (82 euros) per barrel in 2013 to 99 dollars (74 euros) per barrel at the end of the projection horizon.

Regarding the economy's financing conditions, the assumed evolution of the short-term interest rate (three-month EURIBOR) is based on expectations implicit in futures contracts (see "Box 1.1 *The relationship between excess liquidity and very short-term interest rates*", of this Bulletin). The technical assumption implies that this interest rate increases slightly in 2014 and 2015, after the historic lows of 2013. The assumptions for long-term interest rates are based on an estimated average rate of the cost of external financing under the Economic and Financial Assistance Programme, as well as on an assumption for the underlying interest rates for government sovereign debt. The increasing recourse to market financing should lead to an increase in the cost of financing the Portuguese State in 2014 and 2015.

Continuation of the fiscal adjustment in 2014, based on reducing public expenditure

The public finance variables reflect the measures included in the State Budget for 2014, in accordance with the procedure used for Eurosystem projection exercises. The main fiscal consolidation measures relate to the public expenditure review programme, mainly affecting staff costs (both through reduction in the number of government employees and in average wages), pension costs, social benefits in kind and expenditure on intermediate consumption.³ On the revenue side, the measures will have a less significant impact, focusing on corporate income tax and taxes on production and imports. As a result, there should be a further decline in the volume of public consumption in 2014, mitigated, however, by the significant increase in the costs of public-private partnerships (see "Box 1.2 *Fiscal Outlook for 2014*", of this Bulletin). Regarding 2015, the current projection does not consider additional fiscal consolidation measures beyond those resulting from the State Budget for 2014.

3. Supply, Demand and External Accounts

Moderate recovery of activity and improvement in the labour market in 2014-2015

Economic activity is expected to decline 1.5 per cent in 2013, which means a cumulative fall of around 6 per cent in 2011-2013. Underlying this behaviour is a recovery profile of year-on-year GDP growth over 2013. *INE* (Statistics Portugal) flash estimate for year-on-year GDP growth in the third quarter was -1.0 per cent, with a positive year-on-year change projected for the fourth quarter of this year (Table 3.1 and Chart 3.1). A moderate resumption of economic activity is projected for 2014 and 2015, leading to GDP growth of 0.8 per cent in 2014 and 1.3 per cent in 2015. This rising trend reflects projected developments for the private sector, as activity in the public sector is expected to continue to decline, albeit progressively less.

This projection is consistent with a reduction in gross value added (GVA) across the main activity sectors in 2013, although not as significant as in 2012, followed by positive rates of change in 2014-2015. After a year-on-year reduction in the first half of 2013 identical to that of 2012, GVA in the manufacturing and services sectors is expected to show some recovery in the second half of the year, continuing to

³ The current breakdown of nominal public consumption between volume effect and the deflator does not take into account the possible impact of an increase in the normal working hours of public sector workers from 35 to 40 weekly hours (included in Law No 68/2013 of 29 August, which entered into force on 28 September).



accelerate in 2014 and 2015. Activity in some subsectors of industry and services should continue to be supported by the dynamic behaviour of exports, reflecting a shift towards the tradable goods and services sectors. Activity in the construction sector should stabilise in 2014 and present slight growth in 2015, after the cumulative fall of around 50 per cent since 2002. Developments in the construction sector are conditioned by the fact that the housing stock is undergoing a structural adjustment process, influenced by demographic factors, as well as by high growth in housing investment during the 1990s, amid the financial liberalisation process of the time.

In 2013, employment should continue to decrease, although at a slower pace than the year before (-2.9 per cent, compared to -4.2 per cent in 2012), but should grow 0.5 per cent in 2014 and 2015. These projections imply a cumulative fall in employment of around 8 per cent for 2011-2015, with a significant decline in public employment, but also in the private sector, in particular given the fall observed to-date in employment in industry and construction. Employment in the private sector is expected to fall in 2013, followed by a slight recovery, broadly in line with projected activity developments. The decline in employment recorded since 2011 reflects some difficulty in sectoral reallocation of unemployed workers, contributing to the limiting of employment gains. It is worth mentioning in particular the large falls in employment in sectors such as construction, labour-intensive and with a less skilled workforce. The increase in long-term unemployment has gone hand-in-hand with growth in the number of discouraged workers and a reduction in the labour force. The sharp decline in the labour force also reflects migration flows. The projections incorporate a significant decline in the labour force in 2013 (of around -2 per cent), in line with developments observed in the first guarters of the year, and a marginal reduction in 2014-2015. The developments of the labour force are linked to the negative contribution of labour to GDP growth in 2013, which should reach -1.8 percentage points, becoming marginally positive on average in 2014-2015 (Chart 3.2). The contribution of total factor productivity to GDP growth will increase slightly over the projection horizon, from 0.6 p.p. in 2013 to 1.3 p.p. in 2015. The growth of total factor productivity reflects, among other factors, an increase in capacity utilisation, as well as the restructuring of the economy currently under way, which implies the permanence in the market of the most productive companies .4

⁴ According to the European Commission survey on capacity utilisation levels in the manufacturing sector, this indicator reached 73 per cent in the fourth quarter of 2013, compared to an average of 80 per cent over 1987-2007.

Table 3.1

GDP, MAIN COMPONENTS AND HICP RATE OF CHANGE, PER CENT										
		Weights		2012			2013			
		2012	2012	Q1	Q2	Q3	Q4	Q1	Q2	
Gross Domestic Product	yoy	100.0	-3.2	-2.4	-3.2	-3.6	-3.8	-4.1	-2.1	
	qoq			-0.1	-1.0	-0.8	-1.9	-0.4	1.1	
Private Consumption	yoy	65.7	-5.4	-5.2	-5.6	-5.8	-5.1	-4.0	-2.6	
Public Consumption	yoy	18.2	-4.8	-4.1	-5.8	-5.1	-4.1	-3.7	-2.8	
Gross Fixed Capital Formation	yoy	16.0	-14.3	-13.4	-17.2	-14.3	-12.3	-16.4	-6.8	
Exports	yoy	38.7	3.2	8.0	3.2	1.5	0.2	0.7	7.3	
Imports	yoy	39.3	-6.6	-5.6	-11.0	-8.0	-1.6	-4.2	6.3	
Contribution to GDP growth (in p.p.):										
Net exports	(cont. yoy)		3.7	4.9	5.5	3.7	0.7	1.9	0.4	
Domestic Demand	(cont. yoy)		-6.9	-7.2	-8.7	-7.3	-4.5	-6.1	-2.6	
of which: change in inventories	(cont. yoy)		0.2	-0.4	-0.7	0.1	1.8	0.1	0.7	
Harmonized Index of Consumer Prices	yoy		2.8	3.3	2.8	3.0	2.0	0.4	0.8	

Sources: INE and Banco de Portugal.

Notes: yoy - year-on-year rate of change; qoq - quarter-on-quarter rate of change; cont. yoy - contribution to the year-on-year rate of change.

The contribution made to GDP growth by the capital factor should remain marginally negative over the projection horizon (-0.3 p.p. on average for 2013-2015), as the recovery projected for business investment should not be enough to restore the depreciated capital stock. Furthermore, the low level of productive investment tends to involve a postponement of the incorporation of technological innovation into the capital stock, and may limit potential output growth. Indeed, available estimates for potential output suggest a relative stabilisation in 2014 and marginal growth in 2015 (Chart 3.3). The limitations of the methodologies for calculating potential output in periods of economic structural change must be factored into the analysis, as well as the fact that these estimates do not reflect the impact of structural reforms under way, given the natural uncertainty surrounding the assessment of their magnitude.





Sources: *INE* and Banco de Portugal. **Note:** (p) – projected.





Sources: INE and Banco de Portugal.

Notes: (p) – projected. UCM – unobserved component methodology. CD – methodology based on a Cobb-Douglas production function.

Reduction of the weight of domestic demand in GDP along with robust export growth

Over the projection horizon, the trend of GDP recomposition of the last few years should continue, typified by an increasing relative share of exports at the expense of a reduction in the weight of domestic demand. By the end of the projection horizon, exports' share of GDP should reach 44 per cent (36 per cent in 2011) and 41 per cent in 2013). Domestic demand's contribution to GDP growth should stabilise in 2014 (0.1 p.p.), having been at -2.7 p.p. in 2013, recovering slightly in 2015 (0.9 p.p.). Exports' contribution to GDP growth should remain relatively stable at 2.2 p.p., reflecting this component's ongoing dynamism. Exports are projected to grow 5.5 per cent a year in 2014-2015 (Chart 3.4). These developments contrast with those underlying the euro area projections released by the ECB in early December, typified by a sharper recovery of domestic demand, while with lower export growth. The GDP growth projection for the euro area in 2015 is close to that for Portugal (Chart 3.5).

The information available for 2013 suggests a lower decline in private consumption in year-on-year terms over 2013, with a 2 per cent decline in annual average terms for 2013 after a 5.4 per cent decrease in 2012. Private consumption is projected to grow moderately, by 0.3 per cent and 0.7 per cent in 2014 and 2015 respectively. The cumulative decline in private consumption for 2011-2015 should as a result reach around 9 per cent (Chart 3.6).

The private consumption projections are negatively affected by the behaviour of real disposable income, which after falling sharply in 2013 is expected to be relatively stable in 2014 and grow slightly in 2015. The developments in disposable income over the projection horizon reflect the impact of the fiscal consolidation measures, in particular the changes to direct taxation that took place in 2013, as well as the measures that will affect public sector wages in 2014. The ongoing relatively unfavourable conditions in the labour market, which contribute to a wage moderation framework, should also affect the behaviour of compensation of employees in the private sector. A slight recovery in real disposable income is projected for 2015, in line with some improvement in labour market conditions and with the technical assumption of no additional fiscal consolidation measures.

The behaviour projected for private consumption and real disposable income implies a stabilisation of the saving rate in 2013, followed by a very gradual decline in 2014 after the sharp increase of 2012. In a context of significant recovery of household confidence levels, these developments partly reflect a reduction in precautionary saving. This new equilibrium saving rate level is consistent with the favou-



Chart 3.5



Sources: INE and Banco de Portugal. Note: (p) – projected. Sources: ECB and Thomson Reuters.

Note: (p) – projected. Projections correspond to those of the Eurosystem released in december 2013.

rable developments observed in the external accounts. In this context, the saving rate should remain at above the average levels observed since the beginning of the euro area. For 2015, the saving rate is projected to virtually stabilise, given some recovery in real disposable income and the persistence of high unemployment rates, which are expected to contribute to ongoing uncertainty, affecting precautionary savings. The projections for private consumption are consistent with the ongoing decline in households' indebtedness over the projection horizon. This decrease corresponds to around 20 p.p. of disposable income in cumulative terms over 2009-2015 (Chart 3.7).

Regarding the composition of private consumption, in 2013 both the durable and non-durable components are expected to decline more moderately. The consumption of durable goods, which usually shows a strongly cyclical pattern, should decline more moderately in 2013 than the real disposable income, after the sharp fall of 2011-2012 (36 per cent in cumulative terms). The relative stability of private consumption projected for 2014 is extensive both to the durable and the non-durable components. The progressive normalisation of credit conditions, reflected in a progressive narrowing of credit interest rate spreads *vis-à-vis* money market reference rates should also benefit consumption growth, in particular of durable consumer goods, with a sharper recovery in 2015.

Gross fixed capital formation (GFCF) is projected to recover over the projection horizon. Most recent data point to progressively less marked declines in this component in year-on-year terms over 2013. In annual average terms, a growth rate of 1 per cent is projected for 2014 and of 3.7 per cent for 2015, after an 8.4 per cent decline in 2013. These developments however result from relatively disparate developments among the major institutional sectors (Chart 3.8).

Current projections imply a recovery in business GFCF from an annual average rate of change of -7.8 per cent in 2013 to growth of 1.6 per cent in 2014 and 4.4 per cent in 2015. The moderate growth projected for 2014-2015 follows a roughly 20 per cent fall in 2011-2013, implying a declining trend in productive capital stock, which is expected to be maintained throughout the projection horizon. The developments projected for this aggregate, despite the relatively low aggregate productive capacity utilisation levels, reflect the need for capital stock renewal after a long period of investment postponement. This postponement essentially resulted from weak demand prospects, in a context of high uncertainty. The behaviour

Chart 3.6



Sources: INE and Banco de Portugal.

Note: (p) – projected. The saving rate is expressed as a percentage of disposable income.

Chart 3.7

DEBT OF THE NON-FINANCIAL PRIVATE SECTOR | END OF PERIOD FIGURES



Sources: INE and Banco de Portugal.

Notes:(p) - projected. (a) It includes loans granted to non--financial corporations by other institutional sectors; commercial paper and bonds issued by non-financial corporations held by other sectors and trade credits received from other sectors. (b) The financial debt corresponds to loans and debt securities issued by the sector. of investment should be supported by some improvement in financing conditions over the projection horizon, although it will also be hampered by the need to reduce the indebtedness level in non-financial corporations. In fact, the indebtedness of non-financial corporations as a percentage of GDP – in contrast to households' indebtedness – increased in recent years, remaining very high compared with other euro area countries. The current projection assumes the continuation of a gradual and orderly deleveraging process, which should mean a reduction in the indebtedness level of non-financial corporations over the projection horizon, in a context of growing activity (Chart 3.7). With high indebtedness levels forming an active restriction on investment decisions, strengthening non-financial companies' equity is key to ensuring an orderly deleveraging process that promotes the economy's growth potential.

Residential investment should also recover over the projection horizon, although at a slower rate than that projected for the business component. After a sharp fall in 2013 (-15.9 per cent), residential investment is projected to virtually stabilise in 2014 and grow 1.7 per cent in 2015. This component's behaviour is conditioned by the real disposable income outlook and the ongoing unfavourable conditions in the labour market, in a context of structural adjustment which has led to a cumulative reduction of around 33 per cent for 2011-2013 (around 65 per cent since the start of the 2000 decade).

Public investment is expected to show limited variation over the projection horizon, in line with the ongoing fiscal consolidation process, stabilising in real terms over the 2013-2015 period.

The recent developments in exports have meant a markedly more favourable performance than that observed in most euro area economies (Chart 3.9). Current projections point to growth in exports of goods and services of 5.9 per cent in 2013, 5.5 per cent in 2014 and 5.4 per cent in 2015. This reflects acceleration in external demand, compensating lower market share gains over the projection horizon (Chart 3.10). The strength of exports in recent years has implied significant market share gains, partly due to a diversification of destination markets, which led in 2013 to a higher market share for Portuguese exports than at the start of the monetary union. In 2013, the market share gain should be particularly significant, as it has been supported by some specific factors. Key among them was the increase in refining installed capacity, which had a very considerable impact on energy goods exports, which are expected to grow around 40 per cent in 2013, implying a 1.4 p.p. contribution to export growth (0.5 p.p. in 2012) (Chart 3.11). This increase in refining's capacity has a permanent impact on the level of production and export of energy goods from 2013 onwards, with no additional capacity increases expected over the projection horizon. Given the high import content of this export component, its net impact on GDP

Chart 3.8 BREAKDOWN OF GFCF BY INSTITUTIONAL SECTORS | INDEX 1999=100

70 60 50 Total GECE Business GFCF 40 Housing GFCF Public GFCF 30 2005 2011 2013 (p)2015 (p) 2001 2003 2007 2009 1999



Chart 3.9



Sources: ECB, Thomson Reuters and INE.



growth in 2013 is expected to be limited. In 2014-2015, exports are projected to maintain relatively stable growth, reflecting a slight reduction in the contribution of services to exports and a sharp fall in the contribution of energy goods. In contrast, non-energy goods are projected to accelerate in line with the acceleration of external demand, and with the assumption of continued market share gains over this period, although progressively lower. Exports' contribution to GDP growth excluding the effect of its import content should remain constant over the projection horizon, slightly over 1 p.p..

After a cumulative fall of around 12 per cent in 2011-2012, imports of goods and services are expected to grow 2.7 per cent in 2013. This behaviour is driven by sharp growth in demand components with high import content, like energy goods or transport equipment, which should lead to growth in imports that outstrips overall demand. In 2014 and 2015, imports are projected to grow 3.9 and 4.5 per cent respectively, reflecting the historical elasticity of this component *vis-à-vis* import content weighted overall demand. These developments indicate an increase in import penetration over the projection horizon, a fact not observed since 2010, reflecting the gradual recovery of domestic private demand over the projection horizon.

Progressive increase in the economy's financing capacity

In the 2013-2015 period, a new increase in the economy's financing capacity is expected, with a surplus of the current and capital account of 4.7 per cent of GDP in 2015 (Table 1.1 and Chart 3.12). The correction of the external imbalances and in particular the sustained maintenance of financing capacity is one of the most important aspects of the Portuguese economy's adjustment process. This largely results from the trade balance, which after having been virtually balanced in 2012 is expected to present surpluses throughout the projection horizon (Table 1.1 and Chart 3.13). The increased trade balance largely reflects the strong growth of exports over the projection horizon, in addition to terms of trade gains that result essentially from the assumptions of falling oil prices in euros (Chart 3.14).

After a slight reduction in 2013 to 3.7 per cent of GDP, the income balance deficit should remain relatively stable over the projection horizon, as the increase assumed for the interest rates should be offset by an improvement in the international investment position, arising from the surpluses projected for the current and capital account. The projection suggests a virtual stabilisation of the current plus capital transfers accounts at 4.5 per cent of GDP in 2013, followed by a slight increase in 2014 and a stabilisation in



2015, reflecting the behaviour of the public component, in line with the assumptions for developments in transfers with the European Union.

4. Prices and wages

Slight rise in inflation in 2014-2015, after a significant decline in 2013

The HICP is expected to grow moderately over the projection horizon, with the annual average rate of change increasing from 0.5 per cent in 2013 to 0.8 per cent in 2014 and 1.2 per cent in 2015 (2.8 per cent in 2012) (Chart 4.1). The fall in inflation in 2013 resulted largely from the reversal of the impact of fiscal consolidation measures implemented in 2012, in particular the increase of indirect taxation and of prices of some goods and services subject to regulation.





More recently, the HICP has decelerated in year-on-year terms across most of its main components (Chart 4.2). In particular, energy goods have contributed negatively for inflation, in line with oil price developments in euros. Furthermore, the behaviour of non-energy industrial goods and services prices in 2013 is partly affected by methodology changes introduced this year, which tend to amplify the HICP seasonal pattern.⁵

The decrease in inflation in the second half of 2013 is expected to be temporary. The projections for the non-energy component of the HICP imply an acceleration from 0.7 per cent in 2013 to 1.1 per cent and 1.4 per cent in 2014 and 2015 respectively. This moderate growth reflects a context in which external and domestic inflationary pressures should remain contained, in a context of moderate recovery of the world economy and continuation of the Portuguese economy's adjustment process. The weak domestic demand developments and the maintenance of unfavourable labour market conditions are expected to contribute to ongoing wage moderation. However, the current projection includes a moderate increase in private sector wages over the projection horizon, which will contribute to positive, albeit small, unit labour cost growth in the private sector in 2014 and 2015. Regarding import prices excluding energy goods, 0.4 per cent growth is projected for 2014 and 1.1 per cent for 2015, after a 1.7 per cent decline in 2013. The projection also incorporates falling prices in the energy component in 2014 and 2015, reflecting the behaviour of the oil price in euro terms.

Profit margins are expected to show limited changes over the projection horizon after significant growth in 2013. Indeed, the moderate increase in prices in 2013, along with the decline of unit labour costs in the private sector and of the deflator of imports excluding energy goods, implies an increase in firms' profit margins per unit, measured by the gross operating surplus per unit produced. This behaviour of profit margins reflects the adjustment process of the companies' balance sheets in the context of the deleveraging process, as well as the impact of the recomposition of the corporate sector resulting from the companies with lower profitability exiting the market.



Chart 4.2



Sources: Eurostat and Banco de Portugal. Note: (p) – projected.

5 For more information on the new consumer price index series, published since January 2013, see the INE press release: http://www.ine.pt/ngt_server/attachfileu.jsp?look_parentBoui=153438747&att_display=n&att_download=y

Sources: Eurostat and Banco de Portugal.

5. Uncertainty and Risks

The projections in this section represent the scenario deemed most likely, based on the assumptions set out in Section 2. The possibility that these assumptions not materialize, or that factors occur that due to their idiosyncratic nature were not factored into the projections, give rise to a set of risks and uncertainties. The quantified analysis of the risks and uncertainty surrounding the projections is presented in this section.⁶

Downside risk factors resulting from external and domestic conditions

Over the projection horizon a number of risk and uncertainty factors stemming from the external environment, along with domestic factors, assume particular importance.

At the external level, there is a risk factor from a more modest recovery of economic activity and trade flows at global level. In the euro area, there are also risks of a slower resumption of economic activity, given the need for fiscal consolidation, considering the persistence of high levels of public debt and of deleveraging of the private sector in certain economies. As a result of this risk factor, the possibility of lower growth in external demand for Portuguese goods and services in 2014-2015 was considered (Chart 5.1). The behaviour of exports over the projection horizon involves some uncertainty, given the behaviour of market shares. Furthermore, a risk factor from a sharper increase in long-term interest rates in the euro area in 2014 and 2015 was also considered, taking into account a possible intensification of the sovereign debt crisis, as well as the uncertainty over the possible tapering of the US Federal Reserve's asset purchase programme.

Regarding domestic demand, a risk factor persists over the behaviour of consumption. In a context in which the decline in disposable income is perceived as more permanent and the proportion of consumers with liquidity restrictions increases, private consumption smoothing may be more moderate than assumed. Furthermore, it is important to note that this projection, in accordance with Eurosystem rules, does not include fiscal policy measures for 2015 beyond those stemming from the 2014 State Budget. So if further fiscal adjustment measures are announced to fulfil the fiscal target for 2015, they may have a negative impact on public consumption and disposable income and hence on private consumption. As a result of these risk factors, the possibility of a more unfavourable behaviour of private consumption was considered in 2014 and 2015, and of public consumption in 2015.

Risk of more unfavourable developments in economic activity in 2014 and 2015 and of slightly lower inflation than projected

This quantification defines risks of less favourable developments in economic activity in 2014 and 2015, resulting from the impact of the risk factors considered, with particular regard to private consumption and exports (Table 5.2 and Chart 5.1). Although the more unfavourable behaviour of activity leads to lower inflationary pressures, the risks to inflation in the same period are considered to be broadly balanced (Chart 5.2).

⁶ The methodology used in this section is based on the article published in Pinheiro, M. and P. Esteves (2010), "On the uncertainty and risks of macroeconomic forecasts: Combining judgements with sample and model information", *Empirical Economics*, pp. 1-27.

Table 5.1

RISK FACTOR PROBABILITIES PER CENT								
	2014	2015						
Conditioning variables								
External demand	55	55						
Public consumption	50	55						
Long term interest rate	45	45						
Endogenous variables								
Private consumption	55	55						

Table 5.2

PROBABILITY OF AN OUTCOME BELOW THE PROJECTIONS PER CENT									
	Weights In 2012 (%)	2014	2015						
Gross Domestic Product	100	54	57						
Private consumption	66	56	55						
GFCF	16	52	53						
Exports	39	55	55						
Imports	39	55	55						
НІСР		51	51						

Source: Banco de Portugal.

Source: Banco de Portugal.

6. Conclusions

These projections confirm the prospect of a gradual recovery of the Portuguese economy. From the end of 2013 and throughout the projection horizon, the economy is expected to record positive year-on-year rates of change of GDP. In 2014 and 2015, the Portuguese economy's growth will tend to approach the current projections for the euro area as a whole. These positive developments should be based on strong goods and services exports and the acceleration of domestic demand, in particular business investment. Exports' recent behaviour has shown Portuguese companies' ability to find new markets, with an important contribution from companies formed over the last decade. However, a number of structural obstacles to economic growth will continue to limit the growth potential of the Portuguese economy in the near future. Key among them are the high indebtedness of several institutional sectors, the still relatively low level of qualifications in the labour force and the strong labour market segmentation, which causes long unemployment duration and a high rotation of certain worker groups.

The correction of the accumulated imbalances of the last few decades is expected to continue throughout the projection horizon and the years following. Firstly, the reallocation of resources in favour of companies that produce tradable goods and services will continue to be reflected in the structure of the



Source: Banco de Portugal.

Source: Banco de Portugal.

transitions in the labour market, in the orientation of the investment decisions and in the evolution of the new credit flows provided by the financial system. Secondly, these projections emphasise the predominantly structural nature of the imbalance correction in the external accounts. Indeed the current and capital account surpluses should be reinforced over the projection horizon, reflecting a slight increase in domestic investment with the upward trend in the aggregated saving by domestic agents continuing. Thirdly, after a significant adjustment of wage costs in the private sector over the last few years, wage developments are expected to be consistent with projected productivity growth. Finally, the fiscal consolidation process is expected to continue over the projection horizon, along the lines of the commitments made at European level. According to this projection, the measures laid down in the State Budget for 2014 are consistent with the objectives established by the authorities for that year.

The adjustment process should become permanent in nature, not only in regard to the mediumterm fiscal consolidation path but also to the set of structural reforms under way. In this aspect, it is important to note the commitment made by the authorities under the Stability and Growth Pact, of reaching a structural fiscal balance of -0.5 per cent of GDP in the medium term. Achieving this goal is key to ensuring a sustained downward trend in public debt. Naturally, this trend will be enhanced in an institutional framework that sets fiscal rules and procedures that promote prudent management of the public finances, which encourages investment, innovation and the incorporation of technological progress among companies, and that facilitates ongoing investment into education and human capital among households. These are key factors for ensuring greater and more balanced economic growth in the long term.

Portugal's return to stable market financing in the near future is a demanding process that requires strict adherence to the commitments made by the country. This is an indispensable condition for building credibility into the economic adjustment in the medium and long term. This adjustment is strengthened by the current deepening of European integration, especially in view of the process of creating a true banking union and applying new fiscal rules in the European Union. At the domestic level, it is key that credible commitments are made over an extended period, in order to deepen social cohesion and institutional consensus around these national goals.

BOX 1.1 | THE RELATIONSHIP BETWEEN EXCESS LIQUIDITY AND VERY SHORT-TERM INTEREST RATES

There is a negative relationship between the amount of aggregate liquidity available in the banking system and very short-term interbank interest rates. This box assesses this relationship focusing on the euro area against the background of the current financial crisis.

Before the onset of the financial crisis in August 2007, liquidity supply by the European Central Bank (ECB) virtually corresponded to the demand for liquidity by the banking system. There was therefore no excess liquidity and, consequently, the spread between the EONIA and the rate on the main refinancing operations (MRO) of the ECB fluctuated around zero. This relationship changed during the crisis. The euro area interbank money market was subject to considerable strain, which evolved throughout the different stages of the crisis. In the first stage of the crisis, high credit and counterparty risk had led to a strong appetite for liquidity on the part of banks. With the euro area sovereign crisis, the preference for liquidity was associated with market fragmentation between euro area countries. Increased demand for liquidity exerted upward pressure on very short-term interest rates. In response, the Eurosystem increased the liquidity provision and started to fully accommodate demand in refinancing operations. As a result, the euro area banking system began functioning with permanent excess liquidity (Chart 1).¹ At the end of 2011, money market pressures associated with the sovereign crisis reached a new high, prompting the Eurosystem to begin providing longer-term liquidity of up to three years. Demand for these operations was substantial, resulting in excess liquidity of around €800 billion and bringing the EONIA to a level very close to the deposit facility rate (Chart 2). From the end of January 2013, banks had the option of early repayment of the funds raised through the three-year operations. As these repayments were made, excess liquidity decreased from €600 billion at the start of the year to €200 billion in October.

A decrease in excess liquidity resulted in an increase in the level and volatility of short-term money market interest rates. When transitioning to a neutral liquidity situation, interest rates go from being anchored to the deposit facility rate to being anchored to the MRO rate. So far, the EONIA remains fairly close to



Chart 1

Source: ECB and Banco de Portugal calculations.

1 Excess liquidity is the difference between the liquidity provided by the Eurosystem in monetary policy operations and the aggregate liquidity needs of the banking system. As regards the items on the Eurosystem's balance sheet, excess liquidity corresponds to the sum of excess reserves and net recourse to the deposit facility.



Source: ECB and Thomson Reuters.

the deposit facility rate and money market volatility remains low. What is then the level of excess liquidity below which an upward reaction of the EONIA might be expected?

Chart 3 shows the relationship between excess liquidity and the spread between the EONIA and the deposit facility rate. The spread becomes much more sensitive to excess liquidity below €89 billion (95 percent confidence interval from €71 billion to €111 billion). Above this level, a decrease of more than €100 billion in excess liquidity is needed in order for the spread between the EONIA and the deposit facility rate to increase by 1 basis point (b.p.). In contrast, below this threshold, a decrease of €10 billion in excess liquidity results in an increase of 5.4 b.p. in the spread.

This analysis is subject to a number of caveats. In fact, the level above which the EONIA is expected to become sensitive to changes in liquidity is dependent on other factors. Firstly, if the degree of money market pressure and fragmentation is higher, both a stronger preference for liquidity and banks' demand for higher excess liquidity in aggregate terms are to be expected before upward pressure is exerted on the EONIA. Secondly, the reactions of the EONIA are limited by the interest rate corridor. As mentioned above, a change in the anchor for money market interest rates – from the deposit facility rate to the MRO rate – would imply an increase in the EONIA in proportion to the corridor between the two rates. The thiner the corridor, the lower the expected impact on the EONIA spread.² The decision by the Governing Council of the ECB to reduce the amplitude of the corridor to 25 b.p. with effect from 13 November is therefore expected to have limited a possible impact from the decrease in excess liquidity on the level and volatility of the EONIA.

² In the period estimated in Chart 3, the spread between these two rates was 75 b.p. up to 7 May 2013, having decreased since then to 50 b.p. However, the results are similar when estimating a segmented regression for the period when the spread was wider (with a threshold of €82 billion and a 95 percent confidence interval from €75 billion to €95 billion).



Sources: ECB, Thomson Reuters and Banco de Portugal calculations.

Note: Daily data for the 5-day moving average of the excess liquidity (excess reserves plus net deposit facility) against the spread between the one-week EONIA swap index and the deposit facility rate. Regression lines (black lines) and threshold estimated by conditional least squares with s.e. corrected for heteroskedasticity and based on Gauss program from Hansen, B. (2000), "Sample splitting and threshold estimation", *Econometrica*, vol. 68, n.º 3, 575-603. Sample period: 5 June 2009 to 31 October 2013. The threshold is estimated endogenously. The shaded area represents the 95 per cent confidence interval around the estimated threshold.

BOX 1.2 | FISCAL OUTLOOK FOR 2014

The State Budget for 2014 (SB2014), which has recently been approved by the Parliament, envisages the compliance with the official target for the general government deficit on a national accounts basis agreed under the Economic and Financial Assistance Programme to Portugal, *i.e.*, 4.0 per cent of GDP (5.9 per cent of GDP in 2013, according to the latest estimate).¹ The materialisation of the deficit forecast for 2014 will imply a primary surplus for the first time since 1997, which is a very important outcome as regards the sustainability of public finances.

The SB2014 includes a set of consolidation measures with a net impact² on the fiscal balance of 2.3 per cent of GDP. This figure takes into account a positive impact on the budget balance stemming from the macroeconomic scenario, as well as adverse effects associated with a strong growth in expenditure related to public-private partnerships and the structural upward trend of pension expenditure.

The SB2014 report identifies measures amounting to 0.2 per cent of GDP which are classified as temporary according to the Eurosystem definition. These include expected proceeds from the concessions in the ports sector and the transfer of the *CTT* – *Correios de Portugal, SA*, health fund, in the context of its privatisation process. Taking into account all the above-mentioned factors, the estimated change of the structural primary balance, adjusted for cyclical effects and temporary measures, will stand considerably below the net impact of consolidation measures presented in the SB2014 report, at around 1 per cent of GDP.

Estimates presented in the SB2014 report point to a very significant decline in total general government expenditure on a national accounts basis in 2014 (3.1 per cent), to 46.8 per cent of GDP (Table 1). The budgetary measure with the most significant impact on expenditure is an additional reduction in public sector wages. This change applies to monthly wages from EUR 675, leading to a progressive

	2013	2014	Rate of change 2014-2013
Total revenue	43.2	42.8	0.7
of which:			
Taxes on income and wealth	11.2	11.1	1.0
Taxes on production and imports	13.3	13.4	2.9
Social contributions	12.0	11.6	-1.5
Capital revenue	1.2	1.1	-4.9
Total expenditure	49.1	46.8	-3.1
of which:			
Social benefits	23.2	22.8	-0.2
Compensation of employees	10.6	9.4	-10.1
Intermediate consumption	4.8	4.6	-1.4
Interest	4.3	4.4	1.9
Investment	1.9	1.8	-2.6
Overall balance	-5.9	-4.0	-
Primary balance	-1.6	0.3	-
Public debt	127.8	126.7	-

Table 1

Source: Ministry of Finance.

1 The deficit estimated for 2013 adjusted for temporary measures and special factors also stands at 5.9 per cent of GDP. In fact, in 2013 the reclassification of the *Banif* capital injection as a non-financial operation (amounting to 0.4 per cent of GDP) is excluded from the relevant definition for Programme purposes. Conversely, the budgetary outcome for 2013 depends on the revenue raised by the exceptional and temporary scheme for the settlement of tax and social security arrears with an estimated impact of 0.4 per cent of GDP.

2 In the case of measures affecting wages and pensions, the impact is net of the taxes and social contributions loss.

cut in wages of between 2.5 per cent and 12 per cent (from EUR 2,000), and replaces the cuts decided in 2011, widening their scope and magnitude. The other measures affecting the compensation of employees are expected to have a less important impact, namely the implementation of the 40-hour working week in the public sector, the mutual agreement scheme for leaving the general government and the re-qualification of public workers. Conversely, a considerable amount of expenditure is set for the severance payments in the wake of the mutual agreement scheme. Similarly to compensation of employees, pensions are subject to consolidation measures with a considerable expected impact. The main measures relate to the partial convergence of civil servants' pension scheme pensions towards those that would have resulted from the implementation of the private sector rules, the change of the sustainability factor applied to new pensioners (including an increase in the normal age for retirement) and the reduction in survivor's pensions if the total value received as pensions exceeds EUR 2,000 per month. In addition, the SB2014 also envisages fairly large savings in line ministries.

Total revenue is expected to rise by 0.7 per cent in the next year, implying a decline in the ratio of this item to GDP to 42.8 per cent. As regards taxes on production and imports, the measures presented have a small impact, although having a significant effect on revenue if considered as a whole. These include mainly changes in taxes on tobacco and on online gambling, as well as an increase in the tax on vehicles' ownership for diesel vehicles. As regards direct taxation, the main measures presented are an increase in the banking sector contribution and in autonomous taxation of costs regarding company-owned cars. The impact of the changes in corporate income taxation, particularly the reduction of the corporate income tax rate from 25 to 23 per cent, will most likely materialise with some lag. Regarding social contributions the SB2014 increases the contributions of beneficiaries to the health sub-systems of civil servants (*ADSE, SAD* and *ADM*) from 2.25 to 2.5 per cent. Finally, an extraordinary contribution on the energy sector was introduced.

Taking into account the projections included in the SB2014 report, the general government debt ratio is expected to stand at 126.7 per cent at the end of 2014, which is slightly below the figure estimated for the end of 2013 (127.8 per cent). This evolution results namely from expected negative deficit-debt adjustments (-3.1 per cent of GDP), which essentially include a reduction in the amount of deposits held by general government and the net purchase of Portuguese public debt securities by the Social Security Financial Stabilisation Fund.

Fiscal policy implementation as set down in the SB2014 faces several risks. In fact, the large amount of consolidation ascribed to savings in line ministries implies non-negligible implementation risks. In addition, the estimated impact of some measures, both from the expenditure and the revenue sides, is based on assumptions regarding economic agents' reactions which are quite difficult to anticipate. Finally, there might be the need to adjust legislation in the course of the year, in case some of the Budget measures are to be declared unconstitutional.

If the estimates of the Ministry of Finance for 2014 materialise, the cumulative consolidation since 2011, measured by the change in the primary balance adjusted for cyclical effects, temporary measures and special factors, will reach a very high level (around 9 p.p. of GDP). Still, the structural fiscal balance in 2014 is expected to fall significantly short of the medium-term objective (MTO) mentioned in the 2013-2017 Fiscal Strategy Document (-0.5 per cent of GDP).³ Hence, it is crucial to maintain the fiscal consolidation effort in the coming years, particularly as regards compliance with the commitments taken under the Stability and Growth Pact, in order to place the general government debt ratio on a sustainable downward path.

³ Countries which, as Portugal, signed the Treaty on Stability, Coordination and Governance in the Economic and Monetary Union have committed to set a MTO of no less than -0.5 per cent of GDP, except if the general government debt ratio stands considerably below 60 per cent.

PORTUGUESE FIRMS IN EXPORT MARKETS

1. Introduction

Firms' participation in export activity is crucial for the short and long-term growth dynamics of economies. The recent buoyancy of exports, with gains of share in various markets, reflects the Portuguese firms' capacity to sell their products and services abroad, even under challenging market conditions. Economic literature shows that foreign markets are highly competitive and firms within those markets are larger, more productive, have a higher capital per worker ratio and pay higher wages. This Special Issue assesses these stylised facts with evidence for the Portuguese economy. Furthermore, it looks into other aspects that may help gauge the sustainability of export growth in the Portuguese economy.

Accordingly, nominal growth of Portuguese exports of goods and services in the 2006-12 period is broken down according to the dynamics of permanence, entry into and exit from foreign markets. The contributions made by the firm's age and developments in domestic market sales are also reviewed. By analysing the age of exporters, it is possible to assess the intensity of the ongoing restructuring of the Portuguese productive sector. It should be noted that changes to an economy's productive sector are typically slow. In the case of Portugal, this process seems to have started following substantial disruptions in the pattern of comparative advantage in the 1990s, which resulted from the entry of new economies in international trade, *i.e.*, considerably before the onset of the economic and financial crisis. Furthermore, it is acknowledged that firms only exist if there is a market (demand) for their products, thus they devote their best resources to the diversification and widening of markets. The breakdown of exports according to developments in domestic market sales helps to gauge competitiveness in this dimension.

The classification of firms according to their participation in export activity, together with age and developments in domestic market sales, warrants a comprehensive database. The database used in this analysis is the IES (Simplified Corporate Information) for the 2006-12 period. Taking into account only firms with non-zero sales and excluding a number of sectors with negligible external activity, around 270,000 firms, on average, remain each year.¹ Although the levels and growth rates of exports of goods and services calculated on the basis of IES data diverge from those incorporated in the national accounts, differences are limited and should not jeopardise the results of the analysis (Chart 1).²

2. Recent developments in Portuguese exports and some stylised facts

Portuguese exports have performed remarkably well over the past few years, resulting in large market share gains. In nominal terms, growth rates of exports of goods and services have been high, except for 2009, which corresponds to the collapse of international trade, following the international economic and financial crisis (Table 1). Furthermore, this growth is associated with an increase in the proportions of firms exporting. This share rose from 14.5 per cent in 2007 to 17.9 per cent in 2012, albeit partly associated with a fall in the number of active firms. Such developments reflect the fact that firms are increasingly turning to the export market, which is crucial for the adjustment of macroeconomic imbalances in the Portuguese economy.

¹ In addition to the financial and insurance sectors, this analysis does not include public administration and defence, education, human health and social work activities, arts, entertainment and recreation, sports activities and recreation activities and other service activities. Firms with their head office in the Madeira offshore were also excluded from this analysis.

² This minor divergence is due, *inter alia*, to differences in the registration of operations, accounting criteria, response thresholds of exporters and non-response imputation criteria.



Sources: Informação Empresarial Simplificada and INE.

Another way to measure the extent to which firms are geared towards the export market is their export intensity, as measured by the exports to sales ratio. Firms' export intensity is relatively low, averaging 6 per cent in 2012 in the total set of firms and 33.7 per cent in the sub-set of exporters (Table 2). Export intensity has increased over the past few years, to which a drop in domestic market sales has contributed mechanically.

The exporting sector's buoyancy also points to firms' remarkable ability to rejuvenate and restructure, which is particularly important in an international environment marked by substantial changes in patterns of comparative advantage. Breaking down the weight of nominal exports by the firm's year of birth shows that, in 2012, around a quarter of exports were from firms that had started their business after 2000 (Chart 2).

The participation of Portuguese firms in exports presents characteristics that are also visible in other countries.³ One of the most documented stylised facts in economic literature is the strong concentration of exports in a very small number of firms.⁴ In 2012 the 1,000 largest exporters in Portugal accounted for

Table	1				Table 2				
EXPOR YEAR	RT-MARKET	PARTICIP	ATION AND	YEAR-ON- EXPORTS	EXPORT	S-TO-SALI	ES RATIO pe	R CENT	
Year-on- Nb. of Nb. of Partici-						All	firms	Export	ng firms
	of change (%)	IIIIIS	firms	(%)		Mean	90 th percentile	Mean	Median
2007	14.9	275 523	39 865	14.5	2007	4.6	2.7	31.7	12.0
2008	8.0	277 802	42 452	15.3	2008	4.9	3.8	32.0	12.2
2009	-18.8	268 269	40 530	15.1	2009	4.7	3.5	31.4	11.8
2010	15.8	271 041	43 641	16.1	2010	5.0	4.5	31.1	11.3
2011	13.8	273 055	46 667	17.1	2011	5.8	7.7	33.8	14.2
2012	4.4	261 273	46 882	17.9	2012	6.0	10.1	33.7	15.1
Source:	Informação F	moresarial s	Simplificada		Source: In	formação Fi	mpresarial Simp	lificada.	

3 For a summary of the literature on firm-level stylised facts in international trade, see Bernard et al. (2012).

4 This high concentration is partly influenced by the relative size of a number of exporters. As such, changes in exports by these firms, in specific years, may appreciably affect some of the results in this analysis. However, in structural terms, these fluctuations should not qualitatively affect findings on the participation of Portuguese firms in the export market.

Chart 2

EXPORT DECOMPOSITION BY FIRMS' BIRTH YEAR



Source: Informação Empresarial Simplificada.

Note: The firms for which there is no information on their birth year were included in "Not specified" (NS).

around 73 per cent of total nominal exports, while their weight in gross value added (GVA) and employment stood at 26.0 and 12.4 per cent respectively (Table 3). In turn, looking to the set of the 50 largest exporters, their weight in nominal exports was around 35 per cent in 2012, which also corresponds to a significant weight in GVA and employment.

Another stylised fact is the substantial weight in total exports of firms that maintain their export activity for two consecutive years. In any given year, approximately one third of exporters had not exported in the previous year, which means that they are considered to be new exporters (Table 4). In 2012 the weight of new exporters in total exporters was 29 per cent, accounting for only 3 per cent of total exports in the year. With regard to the number and weight of firms that stop exporting each year, the figures are similar. The number of firms that exited the export market at the end of 2011 accounted for 29 per cent of total exports in 2011, which corresponds to only 6 per cent of nominal exports during that year. Although the net effect of entries and exits is negligible, the gross effect is significant and points to substantial churning within export activity. Furthermore, the mortality rate of new exporters is very high (around 50 per cent).

Another amply documented fact in terms of firm-level databases is the high degree of heterogeneity, which is visible, for instance, from the divergence between rates of change in nominal exports in the group of continuing exporters. In the period under review, a little over half of these firms posted positive

SHARE	SHARE OF THE LARGEST EXPORTERS IN TOTAL EXPORTS, GVA AND EMPLOYMENT PER CENT											
	E	xports share	e		GVA share		Employment share					
	50 th largest	100 th largest	100 th largest	50 th largest	100 th largest	100 th largest	50 th largest	100 th largest	100 th largest			
2007	33.7	41.1	72.3	7.9	11.7	23.3	2.6	3.7	11.6			
2008	36.2	43.1	72.6	7.4	9.7	22.3	2.9	3.9	11.9			
2009	34.5	41.7	72.3	6.8	8.6	21.6	3.2	4.1	12.0			
2010	33.4	41.5	72.7	8.0	10.2	24.3	2.8	3.8	11.2			
2011	33.5	41.7	72.7	7.9	9.9	25.2	2.7	3.7	11.6			
2012	34.8	42.9	73.1	7.7	10.3	26.0	2.9	4.1	12.4			

Table 3

Source: Informação Empresarial Simplificada.

Note: GVA is output less the cost of goods sold and external supplies. Output includes sales of goods and services, work for the company, changes in production and supplementary income. The overall economy GVA includes firms reporting negative values for this variable.

Table 4

SHAR	SHARE IN EXPORTS AND NUMBER OF FIRMS: CONTINUING, ENTERING AND EXITING FIRMS PER CENT											
		Continui	ng firms			Enterin	g firms		Exiting firms			
		Share		Mortality		Share		Survival		Share		
	Nb. of firms	In exporting firms	In exports	rate in export market	Nb. of firms	In exporting firms	In exports	rate in export market	Nb. of firms	In exporting firms	In exports	
2007	26 739	67	92	22	13 126	33	8	56	10 665	27	4	
2008	29 200	69	97	29	13 252	31	3	49	13 279	31	10	
2009	29 173	72	97	29	11 357	28	3	51	12 148	30	6	
2010	28 382	65	90	21	15 259	35	10	55	11 791	27	4	
2011	31 850	68	94	25	14 817	32	6	52	13 388	29	6	
2012	33 279	71	97		13 603	29	3					

Source: Informação Empresarial Simplificada.

Note: Continuing firms are the ones exporting in two consecutive years. Entering firms export a given year, but did not export in the previous year. Exiting firms export in a given year, but did not export in the following year.

export growth rates and the median growth rate was almost always below average, which points to a right-hand bias to the distribution (Table 5). However, the interquartile range is very high, exceeding 100 percentage points.

A further stylised fact relates to the distinctive characteristics of exporters, namely in terms of size, apparent labour productivity, capital per worker ratio and average wage.⁵ Continuing exporters tend to be larger than new exporters, which is in line with empirical literature (Chart 3a). Another relevant result is that (new and continuing) exporters are larger than firms that operate only in the domestic market. This is consistent with theoretical models, which indicate that exporters bear a fixed entry cost that tends to be borne only by larger firms. Moreover, a clear pattern also emerges over apparent labour productivity levels (Chart 3b). In accordance with literature findings (e.g. in Bernard and Jensen (2004)), continuing exporters are typically more productive than new exporters, while the latter are more productive than firms that do not sell to foreign markets. These differences are associated with the capital per worker ratio and wage levels. The distribution of the capital per worker ratio shows that it is typically higher for continuing exporters than for new exporters, while it is higher for the latter than for non-exporters (Chart 3c). The same applies to the wage per worker variable (Chart 3d).

The latter result has some impact in the interpretation of ongoing macroeconomic developments in the context of the adjustment process of the Portuguese economy. The marked fall in investment in the Portuguese economy results from firm-level decisions and is connected with the expected profitability rates for each project. However, low investment levels hinder the take-up of new technologies and limit increases in capital per worker ratios. Although lower employment levels result in a mechanical increase

	Year-on-year growth rate	Mean	1 st quartile	Median	3 rd quartile	Percentage of firms with positive growth				
2007	13.0	15.6	-32.4	10.8	63.9	58				
2008	8.6	4.8	-45.9	1.5	54.2	51				
2009	-13.0	-12.3	-65.0	-10.1	41.8	43				
2010	11.0	5.6	-44.6	6.5	57.6	55				
2011	11.6	10.5	-39.6	7.1	58.7	55				
2012	7.1	7.8	-43.7	4.1	58.6	53				

Table 5

Source: Informação Empresarial Simplificada.

Note: Continuing firms are the ones exporting in consecutive years.

5 The level of capital factored into the calculation corresponds to the value of fixed tangible and intangible assets at historical cost less depreciation. The wage bill includes compensation, other benefits and social costs. Employment includes only employees.



Source: Informação Empresarial Simplificada.

in the ratio, the enhancement of firm's competitiveness, particularly as regards those that operate in foreign markets, tends to be associated with higher capital levels as a way to incorporate new technologies and enter new markets. Moreover, the fact that exporters tend to offer higher wages than firms that sell exclusively to the domestic market helps put the importance of such costs into perspective in terms of competitiveness.

Note: Continuing firms are the ones that export in two consecutive years. Entering firms export in a given year, but did not export in the previous year. All the variables were truncated at 1st and 99th percentile. Around 11 per cent of the firms exhibit negative GVA in 2012. The large majority sell exclusively in the domestic market (about 92 percent). These firms were not included in panel B).

3. Contributions to the annual rate of change in exports

The various categories of firms have contributed differently to nominal export growth in Portugal. In this context, the first noteworthy aspect is the dominance of the intensive margin in terms of exports, *i.e.*, major contributions to nominal export growth typically come from continuing exporters (Chart 4). In the period under review, contributions were markedly negative in 2009, amid the collapse in international trade. In turn, the contribution from new exporters and exiting exporters is rather substantial in absolute terms and tends to exceed the intensive margin. Nevertheless, the extensive margin, *i.e.*, the net contribution from new and exiting exporters, declined after 2010, standing at -2.3 p.p. in 2012. Such results are in line with those advanced in Amador and Opromolla (2013) for the Portuguese economy in the 1995-2005 period. Furthermore, export growth of firms after their entry into foreign markets tends to be high, and is then incorporated into contributions from continuing exporters.

Another relevant aspect is the breakdown of the intensive and extensive margins by year of birth and developments in sales to the domestic market. The behaviour of exports is greatly influenced by firms that survive two years in the export market and that have been established for more than 20 years (Table 6). On average, in the 2007-12 period this group of firms contributed 2.5 p.p. to average growth of total nominal exports (amounting to 6.3 per cent). Continuing exporters, that have been established for 10 to 20 years also contribute significantly to the dynamics of exports, accounting for 0.8 p.p. of growth over that period. However, although older firms are important, a very significant contribution is made by exporters that have been established for less than ten years (2.7 p.p.). In the 2010-11 period, the contribution made by these firms was substantial (3.3 p.p.), exceeding that of firms that have been established for 10 to 20 years (2.8 p.p.).

Turning to firms that enter the export market, differences between age brackets are less remarkable. However, in the 2010-12 period younger firms (established for one to ten years) contributed, on average, 3.1 p.p. to export growth, *i.e.*, more than firms established for more than 20 years (2.0 p.p.). With regard to firms that start exporting within their first year of operation, their contribution to export growth is close to zero. As regards exiting exporters, the pattern is unclear, with firms established for more than ten years posting high exit rates. It should be noted that firms exiting export markets have not necessarily been wound up. However, exporter entry and exit patterns tend to reflect firm creation and destruction in the economy.



Chart 4

Source: Informação Empresarial Simplificada.

Note: Continuing firms are the ones exporting in two consecutive years. Entering firms export in a given year, but did not export in the previous year. Exiting firms export in a given year, but did not export in the following year.

Table 6

DECOMPOSITION OF THE YEAR-ON-YEAR GROWTH RATE OF NOMINAL EXPORTS ACCORDING TO FIRM'S AGE IN PERCENTAGE POINTS													
	Continuing firms						Net entry						
	Total	[1 to 5 years[[5 to 10 years[[10 to 20 years[>=20 years	NS	Total	New	[1 to 5 years[[5 to 10 years[[10 to 20 years[>=20 years	NS
2007	12.2	2.9	1.2	2.8	5.3	0.0	2.7	0.8	-2.4	0.2	3.6	0.5	0.0
2008	8.2	2.7	0.9	-0.8	5.5	0.0	-0.2	0.5	-0.2	-0.2	-0.1	-0.2	0.0
2009	-11.7	-0.4	0.4	-4.8	-7.0	0.0	-7.1	0.3	-2.4	-0.8	-2.9	-1.3	0.0
2010	10.4	2.2	2.0	3.2	3.0	0.0	5.4	0.0	1.5	0.6	0.6	2.0	0.7
2011	11.1	0.1	2.4	2.4	5.6	0.6	2.7	0.0	1.8	0.3	-0.4	0.1	0.8
2012	6.7	1.4	0.4	1.9	2.4	0.6	-2.3	0.0	-0.6	-0.3	-1.1	-1.1	0.8
Mean	6.2	1.5	1.2	0.8	2.5	0.2	0.2	0.3	-0.4	0.0	-0.1	0.0	0.4

Entering firms						Exiting firms								
	Total	New	[1 to 5 years[[5 to 10 years[[10 to 20 years[>=20 years	NS	Total	New	[1 to 5 years[[5 to 10 years[[10 to 20 years[>=20 years	NS
2007	9.4	0.8	2.0	0.7	4.4	1.4	0.0	6.7	0.1	4.4	0.5	0.8	0.9	0.0
2008	3.6	0.6	1.2	0.5	0.6	0.6	0.0	3.8	0.1	1.4	0.7	0.8	0.8	0.0
2009	2.8	0.4	1.0	0.4	0.4	0.6	0.0	9.9	0.1	3.4	1.2	3.3	2.0	0.0
2010	11.5	0.0	2.8	1.5	2.9	3.5	0.7	6.0	0.0	1.3	1.0	2.3	1.5	0.0
2011	7.0	0.0	2.8	0.9	0.8	1.6	0.9	4.3	0.0	1.0	0.6	1.2	1.5	0.1
2012	3.5	0.0	0.3	0.8	0.5	0.7	1.1	5.8	0.0	0.9	1.1	1.6	1.9	0.3
Mean	6.3	0.3	1.7	0.8	1.6	1.4	0.4	6.1	0.0	2.1	0.8	1.7	1.4	0.1

Source: Informação Empresarial Simplificada.

Note: The firms for which there is no information on their birth year were included in "Not specified" (NS). Continuing firms are the ones exporting in two consecutive years. Entering firms export in a given year, but did not export in the previous year. Exiting firms export in a given year, but did not export in the following year.

To sum up, looking at the 2010-12 period, on average, firms established for less than ten years (continuing exporters and new exporters) accounted for more than half of nominal average export growth over that period. This pattern shows that the recent performance of Portuguese firms in the export market has benefited from a gradual restructuring process that started a few years ago, associated to new firms that are better adapted to the current pattern of comparative advantage.

Developments in sales to the domestic market by exporters were also noteworthy. In the 2007-12 period, on average, and taking into account the group of continuing exporters, contributions to total export growth by firms with growing sales to the domestic market were similar to those of firms with declining or stabilised sales (3.2 and 2.9 p.p. respectively) (Table 7). However, in 2012 the contribution from firms with increasing sales to the domestic market was very low, which is associated with the widespread contraction in demand in this market. The lack of a clear pattern in this dimension indicates that firms with divergent standings in the domestic market are turning to foreign markets, over a long horizon that started before the onset of the international economic and financial crisis. Particularly noteworthy is the fact that these contributions are much higher than those from firms that do not sell to the domestic market (0.1 p.p.), *i.e.*, the group of exclusively-exporting firms accounts for a very small share of exports.

Looking to the group of new exporters, results are divergent. The greatest contribution to export growth comes from firms that do not sell to the domestic market. Furthermore, the contribution of new exporters with decreasing sales to the domestic market is greater than those whose domestic sales increased. This may reflect efforts to start an export activity by firms experiencing greater difficulties in the domestic market, albeit contributing little to total nominal export growth. As regards firms that exit the export market, the greatest contribution is associated with those with decreasing domestic sales.

Table 7

DECOMPOSITION OF THE YEAR-ON-YEAR GROWTH RATE OF NOMINAL EXPORTS ACCORDING TO THE EVOLUTION OF DOMESTIC SALES | IN PERCENTAGE POINTS **Continuing firms** Net entry Not selling in Not selling in Increase in Decrease in Increase in Decrease in the domestic the domestic Total domestic domestic Total domestic domestic market in t market in t sales sales sales sales and t-1 and t-1 2007 12.2 73 37 2.7 12 2008 8.2 3.9 4.4 0.0 -0.2 -0.6 -0.1 0.5 2009 -11.7 -2.5 -7.4 -1.8 -7.1 -2.9 -3.5 -0.8 2010 10.4 4.7 5.6 0.0 5.4 -1.0 -0.8 7.2 2011 5.7 5.0 0.5 2.7 -0.4 0.0 3.1 11.1 2012 6.7 0.4 6.0 0.3 -2.3 -1.4 -1.2 0.4 Mean 6.2 32 29 0.1 0.2 -1.3 -1.1 21

		Enterir	ng firms	Exiting firms						
	Total	Increase in domestic sales	Decrease in domestic sales	Not selling in the domestic market in t and t-1	Total	Increase in domestic sales	Decrease in domestic sales	Not selling in the domestic market in t and t-1		
2007	9.4	0.7	1.6	7.1	6.7					
2008	3.6	0.6	1.2	1.7	3.8	1.2	1.3	1.2		
2009	2.8	0.7	0.9	1.2	9.9	3.5	4.4	2.0		
2010	11.5	0.6	1.8	9.0	6.0	1.6	2.6	1.8		
2011	7.0	0.7	1.3	5.0	4.3	1.1	1.3	1.9		
2012	3.5	0.3	1.4	1.8	5.8	1.8	2.6	1.4		
Mean	6.3	0.6	1.4	4.3	6.1	1.8	2.5	1.7		

Source: Informação Empresarial Simplificada.

Note: Continuing firms are the ones exporting in two consecutive years. Entering firms export in a given year (t), but did not export in the previous year (t-1). Exiting firms export in a given year, but did not export in the following year.

5. Conclusion

Portuguese exports have seen a robust performance over the past few years, which was characterised by a greater share of firms with export activity and an increase in the average weight of exports in sales.

Portuguese exporters are distinct from those firms that sell exclusively to the domestic market, namely due to the fact that they are larger, more productive, offer higher average wages and have a higher capital per worker ratio. Furthermore, Portuguese exports are very concentrated in a very small number of firms and developments in the aggregate are dominated by the performance of continuing exporters. These stylised facts are similar to those found for other countries.

The behaviour of Portuguese exports is dominated by firms that remain in this activity and that are over 20 years old. However, there is a very relevant contribution by exporters that have started their activity more recently. Taking into account the average for the 2010-12 period, firms that have operated for less than ten years were responsible for approximately one third of nominal average growth of exports over that period. This mirrors the significant export dynamics among younger firms. Moreover, when assessing the weight of these firms in total exports, around one quarter of exports in 2012 came from firms that started their activity after 2000. These developments reflect the gradual reallocation of domestic factors of production to exports, which is crucial for the ongoing adjustment process.
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ARTICLES

CONFIDENCE AND ECONOMIC ACTIVITY: THE CASE OF PORTUGAL

SEGMENTING WAGES

LABOR UNIONS, UNION DENSITY AND THE UNION WAGE PREMIUM

THE PRICE ELASTICITY OF EXTERNAL DEMAND OF PORTUGUESE EXPORTS: A COMPARISON WITH OTHER EURO AREA COUNTRIES

CONFIDENCE AND ECONOMIC ACTIVITY: THE CASE OF PORTUGAL*

Caterina Mendicino** | Maria Teresa Punzi***

ABSTRACT

The idea that aggregate economic activity might be driven in part by confidence and changes in expectations is not new in economics. Earlier discussions date back to Pigou (1927) and Keynes (1936). Over the last few decades, boom and bust cycles in industrialized countries gave an impulse to explore further the importance of changes in expectations as sources of business cycle fluctuations. This article estimates a structural VAR to identify the effects of confidence shocks in Portugal. Shocks to economic confidence and economic sentiment account for a non-negligible fraction of variation in economic activity. The results are robust to the use of alternative measures of economic activity and various survey indicators.

1. Introduction

In this article we explore the role of confidence and optimism for business cycle fluctuations in Portugal. During the financial and economic crisis, business and consumer confidence indicators in Portugal have fallen dramatically. Since the beginning of the year, confidence indicators displayed an upward path. It is thus important to understand to which extent survey indicators reveal some useful information about future economic activity in Portugal.

Consumer confidence measures the degree of optimism about consumers' personal financial situation and the overall shape of the economy. Thus, changes in consumers' confidence through their impact on consumers' consumption and investment decisions, may have aggregate economic effects. Changes in agents' perception about future economic developments could reflect psychological factors or could be related to the release of information (news) regarding the economy's future state not captured by economic fundamentals and, thus, not summarized by contemporaneous macroeconomic variables. Changes in consumer and business confidence may therefore become an independent source of macroeconomic fluctuations.

The idea that aggregate economic activity might be driven in part by confidence and changes in expectations is not new. According to Pigou (1927) "The varying expectations of business men ... constitute the immediate cause and direct causes or antecedents of economic fluctuations (...) wave-like swings in the mind of business world between errors of optimism and errors of pessimism"; in brief, expectations determine business cycles. Keynes (1936) also argues that waves of optimism and pessimism may drive business cycles: "Most, probably, of our decisions to do something positive, the full consequences of which will be drawn out over many days to come, can only be taken as the result of animal spirits

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a spontaneous urge to action rather than inaction, and not as the outcome of a weighted average of quantitative benefits multiplied by quantitative probabilities".

Over the last few decades, boom and bust cycles in industrialized countries gave an impulse to explore further the importance of changes in expectations as sources of business cycle fluctuations. Since Beaudry and Portier (2006) showed that business cycles in the data are driven primarily by changes in agents' expectations about future technological growth, several authors have highlighted the importance of expectation-driven cycles as a source of business cycle fluctuations. Recent empirical work indicates that survey data provide evidence on the importance of economic confidence and expectations for business-cycle fluctuations. Our analysis follows Leduc and Sill (2012) and Barsky and Sims (2012) in introducing survey and expectation data into an otherwise standard VAR model.

Leduc and Sill (2012) estimate a structural vector auto-regression model (VAR) using survey data of unemployment rate expectations from alternative surveys for the US. By including the actual unemployment rate, inflation and the 3-month Treasury Bill rate, they show that innovations to unemployment rate expectations contribute significantly to current economic fluctuations. Similarly, Barsky and Sims (2012) estimate a three-variable VAR model, which includes GDP, real consumption and survey data from the Michigan Survey, to disentangle the causal effect of animal spirits on economic activity from fundamental information about future economic activity. They find that innovations to the confidence indicators have important real effects. Lambertini *et al.* (2013) show that unexpected changes in forward-looking variables from the University of Michigan Survey of Consumers influence housing market dynamics and aggregate fluctuations. Importantly, D'Agostino and Mendicino (2013) document the role of time variation in the transmission of expectation-driven cycles.

In line with the previous papers' findings, we show that shocks to forward-looking survey variables also account for a sizeable fraction of variation in economic activity in Portugal. In particular, unexpected changes in confidence generate a macroeconomic boom as in Leduc and Sill (2012). Shocks to economic confidence and economic sentiment account for a non-negligible fraction of variation in economic activity. The results are robust to the use of alternative measures of economic activity and various survey indicators.

2. Survey Indicators

This article uses data from the monthly business and consumer surveys of the European Commission. Business and consumer surveys provide judgements and anticipations concerning several dimensions of economic activity in the different sectors of the economy: industry, services, construction and retail trade, as well as consumers. The surveys are largely qualitative. See table 1 for a list of variables covered in the monthly business and consumer surveys. In this article we mainly focus on the industry and consumer surveys.

The consumer survey collects information on households' spending and savings intentions and also assesses their perception of the general economic and financial situation. The survey is designed around four topics: household's financial situation, general economic situation, savings and major purchases. About 2100 consumers are surveyed every month in Portugal. In turn, the industry survey refers to an assessment of recent trends in production, order books and stocks and expectations about production, selling prices and employment in different sectors. See table 2 (panel a) for the sample size for each sector.

Survey variables report the results aggregated in the form of "balances" of the difference between the percentage of respondents giving positive and negative replies. The balance series are seasonally adjusted and then used to calculate Confidence Indicators, *i.e.* composite indicators that reflect overall perceptions and expectations for each surveyed sector. Each confidence indicator is calculated as an average of selected answers. The consumer confidence indicator (CCI) is the arithmetic average of the balances (in percentage points) of the answers to the questions on the financial situation of households (Q2), general economic situation (Q4), unemployment expectations (Q7 with inverted sign) and savings

SURVEY VARIABLES	
Type of Survey	Monthly Questions
Industry	Q1: Production, past 3 months
	Q2: Production, next 3 months(*)
	Q3: Total order books
	Q4: Export order books(*)
	Q5: Stocks of finished products(*)
	Q6: Selling prices, next 3 months
	Q7: Firm's employment, next 3 months
Construction	O1: Business activity, past 3 months
	Ω^2 : Eactors limiting production
	03: Domestic order books(*)
	Q_3 . Defines the order books(γ) Q_4 : Firm's employment next 3 months(*)
	05: Selling prices next 3 months
Retail Trade	Q1: Business activity, past 3 months(*)
	Q2: Business activity, next 3 months(*)
	Q3: Stocks of goods
	Q4: Orders placed with suppliers, next 3 months(*)
	Q5: Firm's employment, next 3 months
Services	Q1: Business situation, past 3 months(*)
	Q2: Turnover, past 3 months(*)
	Q3: Turnover, next 3 months(*)
	Q4: Firm's employment, past 3 months
	Q5: Firm's employment, next 3 months
Consumers	Q1: Financial situation, past 12 months
	Q2: Financial situation, next 12 months(*)
	Q3: General economic situation, past 12 months
	Q4: General economic situation, next 12 months(*)
	Q5: Consumer prices, past 12 months
	Q6: Consumer prices, next 12 months
	Q7: Unemployment, next 12 months(*)
	Q8: Major purchases of durable consumption goods, current environment
	Q9: Major purchases intensions, next 12 months
	Q10: Savings, current environment
	Q11: Saving intentions, next 12 months(*)
	Q12: Capacity to save

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Source: European Commission Services. Note: (*) indicates the variables included in the sectorial confidence index.

SURVEY CHARACTERISTICS: PORTUGAL					
	Consumer	Industry	Services	Retail Trade	Construction
(a) Sample Sizes	2100	1200	960	560	320
(b) ESI Weight	20%	40%	30%	5%	5%

Source: European Commission.

(Q11), all over the next 12 months. The industrial confidence indicator (ICI) is the arithmetic average of the balances (in percentage points) of the answers to the questions on order books (Q2), stocks of finished products (Q4) and production expectations (Q5 with inverted sign).

The results for the five surveyed sectors are also aggregated into the economic sentiment indicator (ESI) summarizing developments in all sectors. The Economic Sentiment Indicator is built applying the weights reported in table 2 (panel b) to the individual component series of the composite indicators. The weights reflect the representativeness of the sectors and the performance with respect to GDP growth. The weights do not apply to the confidence indicators themselves but to the standardized individual component series as denoted by (*) in table 1.

Chart 1 displays the three standardized indicators. Values above 100 indicate above-average position whereas values below 100 indicate a below average position. Table 3 reports the results of a Granger causality test. Both confidence indicators and the economic sentiment indicator contain statistically

GRANGER CAUSALITY TEST		
Lags Null Hypothesis	F-statistic	Prob.
Industrial Production does not Granger Cause CCI	1.1342	[0.3320]
CCI does not Granger Cause Industrial Production	2.2112**	[0.0114]
Industrial Production does not Granger Cause ESI	1.3337	[0.1986]
ESI does not Granger Cause Industrial Production	0.5731***	[0.0030]
Industrial Production does not Granger Cause ICI	1.1361	[0.3305]
ICI does not Granger Cause Industrial Production	2.2259***	[0.0108]
Unemployment does not Granger Cause CCI	0.7678	0.6835]
CCI does not Granger Cause Unemployment	2.5803***	[0.0029]
Unemployment does not Granger Cause ESI	1.4289	[0.1519]
ESI does not Granger Cause Unemployment	3.6151***	[0.0000]
Unemployment does not Granger Cause ICI	1.01127	[0.4384]
ICI does not Granger Cause Unemployment	3.5959***	[0.0000]

Table 3

Sources: European commission and authors' calculations.

Notes: CCI=Consumer Confidence Indicator; ICI=Industrial Confidence Indicator; ESI=Economic Sentiment Indicator. Sample: 1987:1 to 2013:9. 12Lags; *** 1%, ** 5%, * 10% significance.



Source: European Commission.

significant information for economic activity measured by the index of industrial production or by the unemployment rate. In fact, the hypothesis that each survey variable does not Granger cause economic activity can be rejected at the one or five percent significance level. On the contrary, lags in economic activity do not contain significant information to explain either current consumer confidence or the economic sentiment indicators.

3. The Empirical Model

We estimate a standard VAR model

$$A_{0}Y_{t} = c + A(L)Y_{t-1}\varepsilon_{t}$$

where Y_t is the vector of endogenous variables, A_0 is the matrix of contemporaneous interaction, A(L) is a matrix polynomial in the lag operator L and ε_t is the vector of structural shocks with covariance matrix Σ . In addition to the survey variables, the baseline VAR model includes three endogenous variables: a measure of economic activity, the CPI inflation rate and the nominal interest rate. See the Data Appendix for a description of the macroeconomic variables. The model is estimated on quarterly data over the sample period January 1987 to September 2013. Relying on the Schwartz Information Criterion we include up to two lags of each of the endogenous variables.

Responses from the monthly surveys are collected in the first two-three weeks of each month and sent to the Commission by the end of the reference month. At the time in which the survey is filled in the respondents do not know the unemployment rate and industrial production of the same month. For instance, up to the first two weeks of February the respondents in Portugal know the unemployment rate and industrial production of December and the CPI of January. This timing is consistent with the use of a recursive (*i.e.* Cholesky) identification scheme that orders the survey variable first, as in Leduc and Sill (2012). Thus, we assume no contemporaneous response of the survey variable to shocks to the other variables in the system.¹ The ordering of economic activity, inflation, and the interest rate is standard from the monetary transmission literature; see for instance Christiano *et al.* (1997).

4. Economic Activity and Changes in Survey Data

Consumer confidence measures the degree of optimism about consumers' personal financial situation and the overall shape of the economy. Changes in consumers' confidence through their impact on consumers' consumption and investment decisions may have aggregate economic effects. Chart 2 (top panel) shows the impulse responses to a positive innovation to CCI in the VAR that includes industrial production as a measure of economic activity.

An increase in consumer confidence reflects an increase in the fraction of consumers with positive opinion about general economic conditions, unemployment or their own financial situation in the next 12 months, relative to the fraction of consumers with a negative opinion. Thus, we interpret positive surprise movements in CCI as an increased perception by consumers of future favorable changes in business conditions. On impact, a shock to CCI has a very small effect on all variables. The initial responses are not significantly different from zero at the ninety per-cent confidence level. However, the initial small impact is followed by a significant hump-shaped response in production that peaks after about one year. Inflation also rises, but its response is significant only after about six months, and it peaks a few months after the peak in industrial production.

¹ One implements this assumption by defining the matrix A_0^{-1} to be the lower Cholesky decomposition of Σ .

One standard deviation increase in each survey variable. Top Row: Consumer Confidence Indicator (CCI); Middle Row: Economic Sentiment Indicator (ESI); Bottom Row: Industry Confidence Indicator (ICI). Error bands correspond to 95%.

Due to feedback effects, the confidence indicator displays an upward path for about 6 months after the initial shock. Indeed, the expansionary macroeconomic effect of the initial shock generates a further increase in consumers' confidence. If the balance of positive and negative responses regarding future economic and financial conditions increases by 1 point, industrial production increases by around 5 pp after 6 months and 10 pp after 18 months.

We provide further evidence of the real effects of innovations to CCI by investigating the robustness of the results to the use of the unemployment rate. The top panel of chart 3 shows that the effect of a positive shock to CCI on the unemployment rate is not significant on impact but it becomes negative and significant after about two quarters. Further, the unemployment rate declines and remains below zero for several quarters. The use of the unemployment rate as a measure of economic activity has no effect on the qualitative responses of the other variables.



Chart 2

Notes: One standard deviation increase in each survey variable. Top Row: Consumer Confidence Indicator (CCI); Middle Row: Economic Sentiment Indicator (ESI); Bottom Row: Industry Confidence Indicator (ICI). Error bands correspond to 95%.

Sources: European Comission, OECD and authors' calculations.



Sources: European Comission, OECD and authors' calculations.

Notes: One standard deviation increase in each survey variable. Top Row: Consumer Confidence Indicator (CCI); Middle Row: Economic Sentiment Indicator (ESI); Bottom Row: Industry Confidence Indicator (ICI). Error bands correspond to 95%.

Shocks to the CCI are also quantitatively important for macroeconomic fluctuations. Table 4 reports the percentage of unconditional variance of the k-step-ahead forecast error in all endogenous variables due to this shock, for k = 1, 2, 3 and 4 years. Unexpected changes in Consumer Confidence account for above 20 per cent of the forecast error variance of industrial production over a longer horizon.

We also consider the effects of exogenous changes in the industrial confidence indicator and in the economic sentiment indicator. An increase in the ICI reflects an increase in the fraction of respondents with a positive opinion regarding production, the export order books and/or the stocks of finished products over the next 3 months. The ESI instead summarizes developments in all sectors. The responses to innovations to the ESI and the ICI are reported in the middle and bottom panel of Charts 2 and 3. Like a shock to CCI, a shock to ESI generates hump-shaped responses in production and inflation. The unemployment rate also displays a prolonged decline. After the first few months, the responses are all significant at the ninety percent confidence level.

Regarding the importance of shocks to survey indicators, we find that they account for a non-trivial fraction of forecast error variance of economic activity, especially over longer horizons. In particular, shocks

VARIANCE DECOMPOSITION							
Industrial Production				Ur	nemployment R	ate	
	CCI	ICI	ESI		CCI	ICI	ESI
12m	8.66	5.99	3.66	12m	11.30	17.23	15.33
24m	22.33	13.05	10.66	24m	31.28	36.37	33.79
36m	24.51	13.17	15.53	36m	34.57	36.52	41.35
48m	23.65	12.36	17.07	48m	34.48	36.09	42.40

Sources: European Commission, OECD and authors' calculations.

Notes: CCI=Confidence Indicator; ICI= Industrial Confidence Indicator; ESI=Economic Sentiment Indicator.

to CCI and ICI have about the same importance in accounting for variations in the unemployment rate, whereas ESI accounts for a slightly larger fraction of volatility in this variable. Shocks to forward-looking survey variables account for between 12 and 24 per cent of the 4-year-ahead forecast error variance of industrial production, and between 30 and 40 per cent of the unconditional variance the unemployment rate.

Summarizing, shocks to forward-looking survey variables generate a macroeconomic boom as in Leduc and Sill (2012). Shocks to economic confidence and sentiment account for a non-negligible fraction of variation in economic activity. The results are robust to the use of alternative measures of economic activity and various survey indicators.

One standard deviation increase in each survey variable. Top Row: Consumer Confidence Indicator (CCI); Middle Row: Economic Sentiment Indicator (ESI); Bottom Row: Industry Confidence Indicator (ICI). Error bands correspond to 95%.

5. CONCLUSION

We study the role of Confidence and Economic Sentiment Indicator for business cycle fluctuations in the Portuguese economy. To this purpose, we estimate a VAR model which, in addition to survey variables, also includes the inflation rate and the nominal interest rate and a measure of economic activity, such as industrial production or the unemployment rate. We use monthly data from January 1987 to September 2013. Our results show that an unexpected increase in consumers' perceived confidence raises industrial production and pushes up the inflation rate. Similar results can be obtained if we focus on the unemployment rate. Measures of economic sentiment and industrial confidence confirm the same results.

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Data Appendix

Macro Series

- Industrial Production : Production/Industry (Total industry excluding construction). Unit 2005Y. Source: OECD.
- Unemployment : Labour (Registered unemployment/Level/Total). Source: OECD.
- Inflation : Consumer Price Index/All items. Unit 2005Y. Source: OECD.
- Interest Rate : Money Market Portugal Interbank 3-month Yield, average of observations through period (Percent per annum).

Survey Series

- Consumer Confidence Indicator (CCI): Consumer opinion surveys/Confidence indicators/Composite indicators/OECD Indicator, Normal = 100 SA. Source: European Commission, ECFIN.
- Industry Confidence Indicator (ICI): Business tendency surveys (manufacturing)/Confidence indicators/ Composite indicators/OECD Indicator, Normal = 100 SA Source: European Commission, ECFIN.
- Economic Sentiment Indicator (ESI): Expectations about production, selling prices and employment in different sectors. Source: European Commission, ECFIN.

SEGMENTING WAGES *

Mário Centeno ** | Alvaro A. Novo **

"Salaries vary with job security." Adam Smith , in The Wealth of Nations , Chapter X Part 1

"The policy of Europe gives rise to major inequalities [...] because it restricts competition in some jobs and [...] prevents the free movement of workers." Adam Smith , in The Wealth of Nations , Chapter X Part 2

ABSTRACT

Employment protection entails costs for firms that reduce the demand for labor, and benefits for employees that increase their labor supply. In equilibrium, wages fall and employment may also fall. However, in a segmented labor market, the different adjustment margins lead to results that vary with the degree of employment protection. In 2004, a reform of the labor code increased employment protection for permanent contracts in a subset of firms (the treatment group), leaving it unchanged for other companies (the control group). The quasi-experimental setting provides causal evidence that points to (i) a reduction of wages for new permanent workers with longer tenure. The estimated reductions for new contracts range between -0.9 and -0.5 percentage points, enabling companies to cover a significant part of the expected increase in firing costs .

1. Introduction

The employment protection legislation aims to balance the bargaining power in the employment relationship. In its absence, there would be too many disruptions of employment spells and the uncertainty of its duration would induce workers to under-invest in match specific human capital. The absence of a market mechanism that encourages companies to "offer" this protection leads states to legislate to remedy this market failure. The legislation protects the contractual party with greater risk aversion, workers, and acts as an insurance for fluctuations in income, which is more valued the greater the degree of risk aversion. Alternatively, we can think about the economic role of employment protection as a "mandated benefit". Workers who value protection the most will be willing to offer the services of their work at a lower wage.

In a market without liquidity constraints, the cost of employment protection is fully reflected in lower wages, with no reduction in employment. However, in a segmented market economic paradoxes arise. Centeno and Novo (2012) show how greater protection of permanent employment in Portugal created



^{*} The opinions expressed in this article are those of the authors and do not necessarily coincide with those of Banco de Portugal or the Eurosystem. Any errors and omissions are the sole responsibility of the authors.

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more instability in employment spells by promoting greater turnover of workers in jobs. However, the paradox is only apparent, as it is explained by increasing the rotation of workers with fixed-term contracts. Thus, the greatest protection to permanent employment encourages greater use of fixed-term contracts, which are the scope of employment adjustment.

And what happens to wages when protection increases to permanent employment? The causal analysis in this article draws on a reform of the labor code implemented in 2004. The new legislation increased protection of permanent employment for a subset of firms, leaving the protection in the other firms unchanged. Inadvertently, but for the benefit of the researcher, the new legislation generated: (i) a treatment group consisting of companies with 11-20 employees, for which the protection to permanent employment increased and (ii) a control group consisting of larger firms, in which there was no change in employment protection. Comparing salaries between these two groups of firms, we observe a reduction of 0.3 percentage points (pp) of wages in firms in the treatment group relative to the firms in the control group, which is attributable to the increased protection of permanent employment. However, this reduction is concentrated in the new permanent contracts (up to -0.9 pp), while the wages of more tenured workers with permanent contracts, which did not benefit from the legislation, but had their salaries reduced by 0.7 pp.

This result confirms that the flexibility in the labor market is particularly strong in the dimension that characterizes it the most: segmentation. In Portugal, wage and employment adjustment is done with fixed-term contracts (Reis, 2013, and Centeno and Novo, 2012b). Models of non-segmented labor markets do not capture these mechanisms, making them useless to understand recent developments in the Portuguese labor market. In a segmented market, the increased protection of permanent employment does not give more bargaining power to the "marginal worker". In fact, it does just the opposite. This worker is used as a margin of adjustment, making it harder to maintain employment and wage progression. These workers pay a portion of the protection of permanent workers. This result reinforces the need to promote a contract simplification, to reduce the operating difficulties imposed by segmentation. Adam Smith in the XVIII century, in the first comprehensive approach to the labor market, was already aware of the fact that regulation tends to be one of the greatest vehicles of inequality in the labor market. Unequal employment protection legislation promotes a wage premium that favors permanent employment at the expense of temporary employment. This premium further penalizes investment in human capital, already low in temporary workers, and has negative consequences for the productivity of the Portuguese economy.

2. The Reform of the Labor Code 2004

The Portuguese labor market is an extreme case of segmentation. The Labor Code provides two alternative contractual arrangements: "fixed-term" (temporary) and "open-ended" (permanent). The largest difference between the two contracts is the litigation cost and uncertainty in dismissal. These costs are zero when the fixed-term contract expires, but quite significant for open-ended contracts. To dismiss an employee a firm is bound to a set of procedures with different phases, depending on the type of dismissal. For example, in the case of dismissal for cause attributable to the worker there are three phases: prosecution, defense and instruction, and assessment and decision (Furtado Martins, 2012). In the end, the process may be challenged in court by the parties. These processes involve different stakeholders, internal and external to the firm, for example, trade unions, or witnesses who can intervene at the stage of defense and instruction. The largest economic cost of these processes for firms and workers is the uncertainty of its duration. To reduce it, they often settle before the case reaches the court. Not surprisingly, these settlements involve a larger amount than what would result from the full implementation of the law.

In 2004, a reform of the Labor Code (Decree-Law 99/2003) increased procedural costs for a subset of firms. Before the reform, the law exempted businesses with 20 or fewer workers from some of

the aforementioned legal proceedings. The reform changed this limit to 10 or fewer workers. The difference in protection between open-ended and fixed-term contracts increased for a subset of firms (those with 11-20 employees), but remained the same for all other firms. The costs of the procedures are not explicitly defined in the legislation. However, companies can incorporate the expected costs with the new legislation and adjust salaries to (fully) compensate for this increase. This reform generated a quasi-experimental setting, ideal for the empirical identification of its consequences. Companies with 11 to 20 workers constitute the treatment group; firms with 21-50 workers, a subset of those not affected by the reform, constitute the control group. Restricting the size of the control group is common in the literature, e.g. Burgess *et al.* (2001), Kugler and Pica (2008) and Martins (2009). In this article, the choice of the control group was made to ensure that the treatment and control groups have common wage developments (not necessarily the same salary level) in the period prior to the implementation of the reform. This is important because it allows us to assume with some confidence that, in the absence of the new legislation, these companies would maintain a similar wage evolution in the period after the reform.

3. The expected impact on wages

In a competitive equilibrium with risk neutral workers, an increase in employment protection is completely offset by an initial transfer from the worker to the firm (Lazear, 1990). Later, the worker receives this value, whether in the form of higher wages or as a dismissal compensation. However, if there are restrictions on such transfers (e.g. liquidity constraints), the Coasean solutions are not available and the overall impact on wages is negative. The increased employment protection reduces labor demand and creates a deadweight loss because the firing costs are not recovered by workers and firms are not as profitable as before. Furthermore, if additional protection is valued by workers, labor supply increases and wages fall further (Summers, 1989), though in this case the reduction in employment is lower. In a segmented labor market, and under the assumption of substitutability between the two contracts, Boeri (2010) predicts that an increase in employment protection for permanent workers increases the permanent contract wage premium. The impact on wages reflects a decline in the rate of conversion of temporary jobs into permanent, the increase in the rate of destruction of contracts and a reduction in the rate of destruction of permanent jobs. The model of Lindbeck and Snower (2001) also predicts a larger wage gap as a result of increased protection. This increase reduces the bargaining power of firms, particularly on workers who already have open-ended contracts. Contrarily, the new contracts lose bargaining power, which is reflected in lower wages.

4. Data

The analysis of the legislative reform is based on *Quadros de Pessoal*, an administrative statistical source of the Ministry of Employment and Economy. These data include detailed information on the firm, the worker and match. The information collected relates to the month of October of each year and includes all private and public firms in Portugal. The analysis begins in 2002, the first year for which information on the type of contract is available, and ends in 2008, in order to avoid the influence of the revision of the labor code 2009 and also the 2009 financial crisis. The sample includes all matches in firms with 11 to 50 workers. Moreover, we consider only workers between 15 and 65 years of age. Matches with less than 85 hours or more than 215 hours of work per month are also eliminated in order to keep only those that correspond to a job full time. Jobs with wages lower than the minimum wage and above the 99th percentile of the wage distribution were also excluded. Finally, all observations were verified to ensure longitudinal consistency of the information. Table 1 presents a statistical summary of the data. There are a total of 1 405 800 matches (pairs worker x firm), resulting in an unbalanced panel with 3 581 305 observations (pairs match x year). The sample has

SUMMARY STATISTICS - 2002-2008		
	Average	Standard deviation
Fixed-term contracts (%)	25.8	43.8
Base wage	657.4	356.1
Base wage per hour	4.0	2.3
Total wage	807.8	442.2
Total wage per hour	4.8	2.8
Age	37.4	10.9
Education level, percentage of works with:		
4 or less years	27.9	44.9
4 - 6 years	23.9	42.6
7 - 9 years	20.7	40.5
10 - 12 years	17.9	38.3
College	9.6	29.5
Women (%)	41.6	49.3
Immigrants (%)	4.0	19.5
Minimum wage (%)	8.3	27.5
Tenure (months)	84.1	89.5
Firm size (average number of workers)	25.6	11.2
Foreign capital (%)	3.5	18.3
Number of jobs	1 -	405 800
Number of workers	1.	302 865
Number of firms	Ę	56 680
Number of observations (jobs x year)	3	581 305
Open-ended contracts	2	656 122
Fixed-term contracts	9	25 183
Before (2002-2003)		
Treatment	3	72 770
Control	5	13 638
After (2004 - 2008)		
Treatment	1	128 155
Control	1	566 742

Sources: Quadros de Pessoal, 2002-2008. and author's calculations.

Notes: Unit of observation: match employer-employee. Treatment group composed of firms with 11 to 20 workers and control group firms with 21 to 50 workers.

56 680 firms and 1 302 865 different workers. In the pre-reform period, there are 372 770 observations in the treatment group and 513 638 observations in the control group. In the period after the reform, there are 1 128 155 treatment observations and 1 566 742 control observations.

Fixed-term contracts were introduced in Portugal in 1976, but only since 1995 have they constituted the main source of employment growth. In particular, during the sample period about 90% of the unemployed workers finding a job through a temporary contract. In 2002, these contracts accounted for almost 20% of salaried employment, increasing to 27% in 2008. In the sample, the average firm has 25.8% of its workers with temporary contracts, a figure similar to the average for all private sector. However, there is a great variation in the percentage of fixed-term contracts at the firm level. Some firms use massively this type of contract. The average length of employment is 84 months, but also with a large dispersion (the standard deviation is 89 months). These features suggest the existence of a segmented labor market, with long-term employment coexisting with an increasing number of short-term jobs.

Another feature of the Portuguese labor market is the low level of education, about 50% of workers in the sample have six or fewer years of schooling. Therefore, the average nominal base salary is about \in 657 (the average of the minimum wage in this period is \in 347), below the average of the economy, but in accordance with the wage premium associated with firm size (recall that the sample consists of small and medium size firms).

5. The Model Difference -in- Differences

The empirical exercise is based on the model of difference - in-differences :

$$log (y_{it}) = \psi_1 Treat_{it} + \psi_2 After_{it} + \psi_3 After_{it} \times Treat_{it} + X_{it}\beta + \varepsilon_{it},$$

where, for worker *i* in period *t*, y_{it} is one of four measures of earnings: (a) monthly, (b) hourly basis, (c) total monthly or (d) total per hour. $After_{it}$ is an indicator of the treatment period, with value 1 for the post-reform period, from 2004 to 2008, and 0 for the pre-reform period, from 2002 to 2003. In this first estimate, the indicator of treatment $Treat_{it'}$ is defined for each period *t* and takes the value 1 for the treatment group (matches in firms with 11-20 employees) and 0 for the control group (matches in firms with 21 50 workers). The coefficient of the interaction term, $After_{it} \times Treat_{it}$ identifies the average effect of the policy change on the wages of the treated firms.

Although limited to firms with 11-50 workers, there are elements of heterogeneity that are considered explicitly in matrix X_{it} . Firm control variables included are: (i) the logarithm of the number of employees, (ii) firm age (1, 2, ..., 10, 11-15, 16-20, and over 20 years), (iii) activity sector (2 digits), (iv) the region (23 districts), and (v) an indicator of majority of foreign capital. The worker information controls for: (vi) gender, (vii) nationality, (viii) the age, entering as a second-degree polynomial, and also to (ix) five levels of education (4 years or less, 6 years, 9 years old, high school graduate and college). In terms of match characteristics, we control for: (x) the skill level: high or low, (xi) the minimum wage, with an indicator variable, and (xii) the length of service, entering as a polynomial quadratic .

The definition of treatment and control units based on firm size opens up the possibility for firms and workers to self-select for these groups in response to the policy. The fixed effects estimator solves part of the problems of endogeneity in the regressors (Lee, 2005). The estimates reported include fixed effects on the match and the standard deviations are corrected for clustering.

6. Lower wages, But Not For Everyone

One of the key assumptions of the difference-in-differences approach is that the control and treatment groups have a common trend before the intervention giving rise to the treatment that would remain in the absence of the specific treatment. The tests made using the treatment and control groups prior to 2004 show that the two groups have a common wage (in all its definitions: base and total). This result strengthens the causal interpretation of the exercise.

Lazear (1990) tells us that firms should transfer to workers (part of) the higher firing costs in the form of lower wages. The parameter associated with the After X Treat variable in equation (1) is expected to be negative. The first line of Table 2 shows the results for all contracts. The impact on wages is fairly uniform in the different measures of wages – a decrease of about 0.30 percentage points, although slightly higher for hourly wages. The new legislation has prompted firms to pay lower wages relative to what would have been their behavior if there had not been an increase in the costs of redundancy. These results are consistent with a decrease in labor demand, possibly enhanced with an increase in labor supply (Summers, 1989).

Martins (2009) studies a similar reform that took place in Portugal in 1989. This reform exempted firms with fewer than 21 workers of the procedural requirements listed above. Using data at the firm level, Martins (2009) obtained the result that firms reduce wages in response to a reduction in employment protection. This result is consistent with a decline in the bargaining power of workers. In our quasi-experiment, firms are able to pass the cost of protection to lower wages, thus overcoming the increased bargaining power of the worker. The difference in results may arise from the segmentation of the labor market, which is stronger today than it was in 1990. Segmentation reduces the bargaining power of workers, an argument that we explore in the next section.

The available evidence for other countries is mixed. For the U.S., Author *et al.* (2006) find no evidence that the existing employment protection has an impact on wages. Leonardi and Pica (2013) found a negative impact on wages as a result of a decrease in employment protection for Italian firms with fewer than 15 employees. However, none of these studies explores the existence of segmentation in the labor market.

But who pays the protection?

Although the legislation is only applicable to workers with permanent contracts, firms can adjust labor costs also in contracts (Boeri, 2010), resulting in a negative spillover on contracts whose protection remained unchanged. Open-ended contracts with greater seniority and greater bargaining power may be protected from the direct impact of the reform (Lindbeck and Snower, 2001). In these models, employment protection strengthens the bargaining position of current workers and prevents their wages from falling. However, the salaries of new permanent jobs, competing with the flow of fixed-term contracts, should also adjust.

To identify the differential impact of the type of contract and seniority, we split the sample into three groups: workers with open-ended contracts and tenure of more than 36 months, workers with openended contracts and seniority up to 36 months and workers with fixed-term contracts. The choice of 36 months follows the maximum duration of fixed-term contracts in the pre-reform period. For each group of workers we estimate equation (1), the magnitude and statistical significance of the coefficient gives us an estimate of the burden supported by each of the three groups of workers.

The legislation had an impact on the wages of workers with open-ended contracts of -0.2 pp (second line of Table 2). However, the impact differs substantially with the tenure of these workers. For permanent workers with greater tenure (third row) there is only a small impact on base salaries, 0.1 pp, and no impact on the total salary. For new open-ended contracts, the decline varies between 0.8 and 0.9 pp and the wages of fixed-term contracts decreased from 0.5 to 0.7 pp.

These results suggest that firms adjust wages in the flow of new workers, both new permanent jobs and new fixed-term contracts (recall that the vast majority of new jobs are fixed-term contracts). Companies may face difficulties to adjust the wages for tenured permanent workers due to implicit or explicit restrictions in the contracts (Lazear, 2011). However this is not the case for the new contracts, which have lower wages than they would have in the absence of the increased employment protection, regardless of the type of contract wages.

But what fraction of the expected cost increase is covered by lower wages? Table 3 gives a simple answer. The starting point is the impact on wages presented in Table 2 for the three groups of workers. The annual reduction in wages ranges from 8 euros for permanent workers with tenure above 36 months, to 95 euros for new open-ended contracts. The average salary reduction weighted by the share of each job group in the 2008 employment is 37 euros. We can now compare this value with the expected cost incurred with dismissals. We know that in the population of treated firms (between 11 and 20 employees) the separation rate is 27%. However, there is no information about the fraction of these workers who lose their jobs with a dismissal for cause that requires a formal procedure for dismissal. The incidence of this type of procedure is generally low. Thus,

DIFFERENCE-IN-DIFFERENCES ESTIMATES					
	Base	wage		Total	wage
	Monthly	Hourly		Monthly	Hourly
All contracts	-0.289	-0.317		-0.272	-0.308
	(0,000)	(0,000)		(0,001)	(0,000)
			3581305		
Open-ended contracts	-0.227	-0.226		-0.213	-0.227
	(0,000)	(0,000)		(0,012)	(0,008)
			2656122		
Older (more than 36 months)	-0.094	-0.103		-0.061	-0.089
	(0,127)	(0,105)		(0,512)	(0,342)
			1990753		
Newer (Up to 36 months)	-0.623	-0.707		-0.843	-0.885
	(0,006)	(0,003)		(0,023)	(0,018)
			665369		
Fixed-term contracts	-0.644	-0.735		-0.508	-0.537
	(0,001)	(0,000)		(0,106)	(0,088)
			925183		

Notes: Match fixed-effects for After x Treat coefficient; values in percentage points, with p-values in parentheses adjusted for clustering. Before period, 2002-2003; After period 2004-2008. For each period, the treatment variable identifies treated workers in firms with 11-20 workers and control workers those in firms with 21-50 workers. The estimates are reported for 5 samples: (i) all workers; (ii) open-ended contracts; (iii) open-ended with more than 36 months of tenure; (iv) open-ended with up to 36 months of tenure; and (v) fixed-term contracts.

Table 3 COVERAGE OF PROCEDURAL COSTS BY WAGE REDUCTION Average wage loss Older open-ended Newer open-ended Fixed-term contracts contracts contracts Percentage wage loss^(a) -0.06% -0.84% -0.51% Average total wage in 2008 (euros) € 809 €782 €928 Annual expected wage loss in 2008 (euros)^(b) € 55.62 €7.93 € 95.45 Percentage of contracts in 2008 53% 17% 3% Average wage loss (euros)(c) € 37.11 Separations and expected costs Low Intermediate High 10% Litigation probability^(d) 5% 7.5% Separation rate of open-ended contracts 27.00% €2.500 Estimated litigation costs (euros) € 67.50 € 33.75 € 50.63 Expected increase in litigation costs Coverage ratio Coverage ratio of expected litigation costs by wage cuts 110% 73% 55%

Notes: (a)Coefficients from Column (3) in Table 2. (b) Portuguese workers are paid 14 monthly wages per year. (c) Average wage loss weighted by employment composition by contract type. (d) Probability that a separation involves a litigation process.

57 Articles we consider three different scenarios for the probability of such procedures: low, 5% of all separations involve a formal process, intermediate, 7.5%, and high 10%. It is not easy to estimate the cost of these procedures as there is a wide variety of situations that arise from the uncertainty about their length. The calibration uses \in 2500, which corresponds to 50% of the estimated value by Leonardi and Pica (2013) for Italy. This value seems reasonable, given the lower complexity of the procedure in Portugal and the income differences between the two countries. With these assumptions, the expected cost increases varies between \in 34 and \in 68. Thus, the wage loss imposed by the firm covers at least half of the expected costs with the additional protection.

7. Conclusions

Wages adjust downward with an increase in employment protection. The causal evidence shows that workers pay the additional protection in the form of lower wages. This result is consistent with a reduction in labor demand - due to higher expected costs for employers - but also with an increase in labor supply - the value to workers of the additional protection translates into lower reservation wages. Again, the Portuguese labor market is governed by the most basic principles of economics.

But the main novelties of this study are the existence of a wage loss for new contracts and the absence of wage losses for more tenured workers in the firm. Among the new contracts, the impact on workers with fixed-term contracts deserved attention. This result points to the strong polarization of Portuguese labor market and the importance of wage flexibility introduced by the channel of fixed-term contracts. The increase in the wage premium for permanent jobs is consistent with the reduced role of wages as an incentive mechanism for workers. Workers on fixed-term contracts have a low probability of achieving a long-term employment relationship: only about 15% of these contracts are converted into open-ended contracts (Centeno and Novo 2012a).

The evidence that employment protection reduces wages and increases the wage gap between permanent and temporary contracts confirms the models of job search and flows in segmented markets (Boeri, 2010). This also explains the inability of labor market of models that do not incorporate this duality to explain the Portuguese reality. As the results in Centeno and Novo (2012a) show, segmented labor markets are not characterized by a low level of rotation, but by an asymmetric distribution of rotation between permanent and temporary contracts. Schivardi and Torrini (2008) and Hijzen, Mondauto and Scarpetta (2013) obtained similar results for Italy. The rapid adjustment of wages to increase employment protection is the complement in terms of price adjustment to the observed flows: high rotation corresponds to lower wages. Workers with fixed-term contracts lose in both dimensions, partially paying the protection of other workers.

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LABOR UNIONS, UNION DENSITY AND THE UNION WAGE PREMIUM*

Pedro Portugal** | Hugo Vilares**

"Unions have an increasingly important role to play at the national level. But they can only do this if they can claim to represent the workers. The question of legitimacy strikes me as the main challenge facing European unions today."

The Future of Unions, Olivier Blanchard, 2000

ABSTRACT

The influence of trade unions' activity in the Portuguese labor market is reviewed, resorting to the information provided by around 200 000 firms on the number of unionized workers. In particular, the membership determinants are studied; the workers' wage benefit in more unionized firms is estimated; and the wages' compositional changes, due to different levels of firm's unionization, are revealed.

As in other developed countries, Portugal has recorded a steady erosion of the union representation. For 2010, the estimate of the union density in the private sector of the economy is around 11 percent. The union presence is more important in sizeable firms, when the company's equity is public, and in industries sheltered from competition. The unionized workers benefit from a substantial wage premium. In more unionized firms, this gap reaches levels above 30 percent, in contrast with non-unionized firms, with the same observed characteristics, that work in the same industry and region.

1. What do Unions do?

A labor union can be characterized as "an association of workers who bargain collectively with their employer, regarding the terms and conditions [pecuniary and non-pecuniary] of employment" (Farber, 2001). Differently, the labor unions are introduced as a coalition of employees which intend to negotiate with their employer over the share of economic rents. A critical dimension of the union activity portrays the organization as a vehicle for the workers to voice their grievances about the workplace (Hirschman, 1970).

The mainstream economic theory accepts that labor unions resort to the bargaining process to pursue the maximization of their members' welfare. In a simplified approach, the negotiation objectives may be abridged to the raise of wages (monopoly model) or of the workforce payroll (efficient contracts model), which combines, as targets, employment and wages.

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Within this framework, the bargaining power of a labor union, which is essential in the definition of the market equilibrium, is outlined by the capability of the labor organizations to mobilize the workers, in order to inflict economic losses to the firms, while upholding the inherent strike costs.

A conventional approach to empirically outline the bargaining power of a labor union resides in determining its mobilizing capability, through the union density, and the amplitude of its influence, conferred by the legislative context, through the union coverage.

2. Why do workers unionize?

The worker's decision to be unionized is settled by confronting the utility shift, which the consumption of that good provides, with the utility change resulting from the consumption of the most valued alternative good. Union membership requires, ordinarily, the payment of a fee, and entitles the worker to a bundle of benefits. In this strict perspective, the unionization good does not significantly diverge from any other consumption good available.

Conventionally, the benefits of unionized employees are partitioned into private and collective. For example, the reinforced employment protection, the grant of a wage premium, the improved workplace conditions, the availability of proper channels to present grievances without fear of dismissal or employer's confrontation, and the protection against arbitrary decisions of the employer are conventional examples of collective benefits. Differently, a greater investment in training and education, free legal advice, the provision of health insurance, and the access to beneficial pension schemes or financial loans are regularly offered as private benefits (Farber, 2001).

There are benefits which are endorsed to every employee regardless of its union status. As an illustration, the existence of a unique human resource policy, which covers every employee, involving questions like job protection, workplace conditions or even the union wage premium is ordinary, and it is decisively influenced by the union presence. Contrarily, the free legal advice, provided by the labor organizations, is an exclusive right of the unionized workers.

In this context, the union adhesion is frequently considered an imperfect club good, as an important share of its inherent benefits is extended to every worker independently of the status of its affiliation. This imperfection forges incentives to free-riding. This means that some employees prefer to not join a labor union, as they are capable to perk from a substantial share of the benefits of unionism, while they avoid the costs of affiliation. In their utility analysis, the exclusive benefits of the unionized workers do not compensate the intrinsic costs.

From the perspective of the worker, the option to adhere to a labor union is the decision about the consumption of an imperfect club good. Henceforth is not rare the presence of free-riding activity eroding the union density.

3. How are wages bargained in Portugal?

In the Portuguese labor market, collective bargaining is a core component of the wage determination. In the bargaining process, the Portuguese Constitution irrevocably attributes the worker representation's monopoly to labor unions (article 56°).

In general, the collective agreements only oblige the unionized workers, the signatory firms, or those represented in the employers' federations. Surprisingly, there are no legal mechanisms to unfold the identity of the subscribing firms, when represented by employer's federations, and the subscribing workers. This conundrum is ordinarily solved by the Government which extends the coverage of the agreements to the entire sector using *Portarias de Extensão*.¹

¹ Martins (2013) and Guimaráes *et al.* (2013) provide suggestive evidence of the negative effects of the Regulations of Extension on the employment in the Portuguese Labor Market.

These legal instruments delineate the key legal frameworks which regulates the labor relationships and, in particular, they establish the wage floors applied to a very detailed grid of job titles (around 30 000).

In 2010, the major influence of collective bargaining is indisputable. That framework determined the wage floors by which 88.5 percent of the employees' labor contracts were governed, and was the reference to the Firm's Agreements which subsequently were signed.² Therefore, the labor unions were capable to influence 92.3 percent despite the 10.9 percent representation in the same pool of employees. From another perspective, the base wages of 50 percent of the covered workers are determined by collective conventions in which the union density is below 5 percent. This discrepancy between union coverage and union density has been mounting due to the sharp shrinkage of the union density and the maintenance of coverage at very high levels.

4. The database

This study resorts to the individual records of *Relatório Único of 2010*. The data is collected through a mandatory questionnaire to every establishment with at least one wage earner, and it is implemented by the Ministry of Solidarity, Employment and the Social Security. In the current study, we limit our analysis to the pool of full-time employees in mainland Portugal, with ages between 16 and 65, excluding the workers of agriculture, forestry, fishing, public administration and extraterritorial organizations and bodies.

In 2010, the following question was answered in the survey to employers: "Indicate the number of workers for which you have knowledge of the respective affiliation in a labor union (because they are union delegates, because you discount a fee from their salary to deliver to the union, or because the worker informed you about his affiliation, namely to determine the collective regulation which is applicable)." The answers to this question are the core of the information used to the calculus of the union density rates.

5. Brief descriptive tour

The referred question had 198 326 replies from firms, which employed a total of 2 337 809 employees. The answers convey the information of an average union density rate estimate of 10.9 percent. This figure is likely to be consistent with those presented in Blanchflower and Bryson (2002), in which the average rate recorded a steady decline, from 52 percent in 1980, to 40 percent in 1990, 30 percent in 1995 and 25 percent in 1998.

The steady decline in the union density rate is not limited to the Portuguese case. Addison (2013) signposts that membership erosion has occurred in 23 of the 24 developed countries considered since 1980's, typically exceeding 30 percent in that period. However, reinforcing the trend presented by Blanchflower and Bryson, Pontusson (2013) include the Portuguese membership erosion among the most severe ones, only superseded by those in New Zealand and France.

At European level, Portugal seems to have followed a path similar to the French case.³ Several authors suggest that the collective bargaining, with a persistent high union coverage, is the main motive to the lack of French workers' affiliations, as many of them opt to free-ride.⁴

The union presence is particularly meaningful in the financial and insurance activities (63.8 percent), and in the sector of electricity, gas, steam and air conditioning supply (60.5 percent). The sector of transportation and storage also presents a significant union density rate (31.3 percent). In the remaining sectors of the economy, the union density rate fluctuates between 1.4 percent and 15.7 percent (Table 1). The distribution by sectors of unionization suggests that the union's offer of health services (or complementary

² In 2010, The Firm's Agreements represented 3.85 percent of the workers included in the study.

³ For the French case, data collected in Blanchflower and Bryson (2002) presented an union density rate of 22 percent in 1980, and 10 percent in 1995.

⁴ See Golden et al. (1997), Traxler (1994, 1996) and Booth et al. (2000).

UNION DENSITY RATES BY INDUSTRY

ISIC 1	Description of ISIC	Union density rate	Weight of the sector in total number of workers
К	Financial and insurance activities	63.80%	3.61%
D	Electricity, gas, steam and air conditioning supply	60.46%	0.31%
Н	Transportation and storage	31.30%	5.34%
J	Information and communication	15.65%	2.56%
E	Water supply; sewerage, waste management and remediation activities	14.48%	0.82%
В	Mining and quarrying	11.96%	0.41%
С	Manufacturing	11.69%	24.23%
R	Arts, entertainment and recreation	10.55%	0.78%
Q	Human health and social work activities	9.42%	7.90%
I.	Accommodation and food service activities	8.01%	6.88%
S	Other service activities	7.54%	2.76%
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	4.58%	19.46%
Ν	Administrative and support service activities	4.65%	7.49%
Р	Education	4.09%	1.66%
F	Construction	2.86%	11.10%
М	Professional, scientific and technical activities	2.36%	3.98%
L	Real estate activities	1.44%	0.71%
	Total number of workers		2,337,809

Source: Relatório Único de 2010.

schemes of health insurance) attracts a substantial adhesion of employees. From a different perspective, similarly to other economies, the union density rates are higher in natural monopolies and other sectors sheltered from competition. In those sectors, the presence of economic rents eases the organization of workplaces, and induces a more effective extraction of rents.

It is observed a very robust positive link between the size of the firm and the union membership (Table 2). While in firms with 1 to 4 employees the union density rate is below 1 percent, in firms with 500 or more employees the union density rate reaches 30.1 percent.

In small firms there will be greater difficulties in promoting union membership. The union is typically more concerned in maximizing overall membership. Henceforth, from the management perspective of the union's resources, it is rational to collectively represent larger groups of workers where the return, by unit of effort, measured in number of affiliations, is larger. Furthermore, smaller firms entangle lower pressure from coworkers to unionism. Finally, in those firms there is ordinarily a closer relationship between workers and the employer, which makes the need of intermediation more expendable.

Due to the same reasoning, the labor organization is concentrated in the more populated urban areas, namely in Lisbon and in the North region, particularly in the urban area of Oporto.

The prevalence of unionization is higher among male, non-foreigners, college graduates, and those with an open-ended contract (Table 3). The gender differential is not considerable, but, in the case of foreigners and fixed-term workers, the reduction to about a half of affiliations deserves being noticed. Indeed, these cohorts of workers have more fragile employment relationships, and henceforth, are more exposed to unemployment. Thus, there will be a weaker tie among the worker, the firm and the other coworkers, which do not favor unionization. For this group of employees, as the duration of the worker relationship is known and limited since the beginning, there will be a lower investment in improving the workplace conditions.

UNION DENSITY RATES BY THE CHARACTERISTICS OF FIRMS				
	Characteristics of firms	Union density rate		
	1 a 4 workers	0.87%		
	5 a 9 workers	1.38%		
	10 a 49 workers	3.68%		
Size of the firm	50 a 99 workers	8.33%		
	100 a 249 workers	11.91%		
	250 a 499 workers	16.71%		
	Mais de 500 workers	30.06%		
	North	9.17%		
	Center	6.54%		
Region NUT II	Lisbon	15.59%		
	Alentejo	6.89%		
	Algarve	6.27%		

Source: Relatório Único de 2010.

Table 3

UNION DENSITY RATES BY THE CHARACTERISTICS OF THE WORKERS				
Characteristics of the workers Union of		Union density rate		
	Below to elementary schooling	8.00%		
Education	Preparatory schooling	8.77%		
Lucation	High schooling	13.29%		
	College Graduate	15.75%		
Gender	Woman	10.37%		
Gender	Man	11.29%		
Origin	National	11.17%		
ongin	Foreigner	5.40%		
Type of contract	Fixed term contract	5.69%		
type of contract	Permanent contract	12.50%		

Source: Relatório Único de 2010.

Interestingly, the union density rates substantially increase with education, despite the literature recognition that a more educated worker has greater incentive to bargain individually, as the singularity of his knowledge provides him with greater bargaining power in comparison with the union. Conceivably, the higher union density rate among graduates is due to their strong presence in the financial and insurance activities.

6. About the determinants of unionization

In order to jointly infer the determinants of unionism and to account for the correlations among them, we employ a multiple regression model.⁵ The estimation results are summarized in chart 1. In this chart, the dots represent the point estimate of the regression coefficients, and the lines correspond to the confidence intervals at 95% level of confidence. Of course, if a confidence interval crosses the vertical reference centered at zero the variable will not be statistically significant.

Broadly, the results confirm the reasoning already provided in the previous section. Even with this consistency, four coefficients deserve a detailed discussion. Firstly, the average worker's age estimate reveals

⁵ The alternative use of zero inflated count models does not qualitatively alter the results (see Vilares, 2013).

Chart 1



Source: Relatório Único de 2010.

Notes: Estimation obtained resorting to the OLS estimator. The dots represent the point estimation of the regression coefficients, and the lines correspond to the confidence intervals at 95% confidence level. (a) Control group (Schooling): Proportion of workers with an education below the preparatory school. (b) Control group: From 1 to 4 workers. (c) Control group: Manufacturing.

that an increase in 10 years is associated with an increase by 5 percentage points of the union density rate. Noticeably, older workers are more unionized.

Secondly, there is strong evidence that companies with public equity have substantially higher union density rates. A fully public owned company records a 18.8 percentage points greater union density rate, comparatively with a 100 percent private counterpart. Frequently, regarding the public sector of the economy, it is referred that the atomistic nature of the property rights provides a more favorable background to the satisfaction of the labor unions' demands.

Regarding competition, the view that more protected activities have a higher level of unionization is reinforced. Either due to legal impediments (legal monopolies), or due to the nature of the economic activity (natural monopolies), the more unionized sectors are precisely located in activities sheltered from competition. Due to the imperfect nature of competition, the existence of economic rents extracted by firms in their product's markets attracts the union organizations, which seek to favor their members with the share of those rents. From the turnover perspective, for each percentage point increase in the

companies' market share (measured by the turnover) there is an increase by 0.22 percent of the union density rate.⁶

Fourthly, the higher prevalence of membership among college graduates is blurred, when the relationship is controlled for worker's observed characteristics, the firm's industry and region. Now, the owners of a high school diploma evidence the greatest prevalence of unionism.

Furthermore, the chart reveals a sizable monotonic relation between the level of membership and the size of firms, signposting that this relationship survives to the presence of the industry as control.

The suggestion of a strong industry asymmetry is partially attenuated when the firm's and worker's observed characteristics are taken into account. Nevertheless, the conspicuous cases of Financial and insurance activities, the Administrative and support service activities and the Transportation and Storage sector persist.

The first case is eventually the unique private industry where the labor unions offer a private health subsystem to workers (SAMS), suggesting that the offer of health services (or complementary schemes of health insurance) feeds a greater workers' adhesion.

Regarding the Administrative and support service activities, it is possible that the large presence of temporary labor firms, in which the employment relation is fickler and more unstable, provide an explanation for the lower union density rate.

Finally, it is known that the transportation sector accumulates several conditions which eases the success of labor disputes launched by unions: either due to the fact that the elasticity of service's demand is inelastic; or because there is a very low substitutability of inputs; or due to the low weight of the work-force payroll in the total expenditure of the firm; or because it is viable to impose restrictions to the production function which binds the firm to more labor utilization ("featherbedding").⁷

7. The Union Wage Premium in Portugal

The transfer of economic rents to the workforce is unfolded through an array of pecuniary and non pecuniary benefits. Among those, the estimation of the unionism's impact on the workers' wages, the so called union wage premium, is a classical concern of labor economics.

Conventionally, this union wage premium is measured as the differential between the wages of a worker in more unionized workplaces and an identical worker in less unionized environments. When the worker's choice is known, the comparison is made between two identical workers with contrasting decisions. In this study, due to the lack of knowledge about the worker's decision we exploit the first approach.

Whenever there is bargaining power of unions, and rents generated from imperfections in the product's markets there is margin to workers to claim and collect benefits, which partially may assume the form of a union wage premium.

In order to flexibly define the union wage premium, comparing firms with different union density rates, we implemented a fixed effect regression model and the smoothing of those fixed effects through a kernel regression.⁸ This methodology results in a non-parametric curve (that is, without any functional form imposed ex-ante), which exhibits the relationship between union density rates and union wage premia.

⁶ In the computation of the market shares it was considered the definition for the industry the ISIC 5.

⁷ The corollaries of Slutsky have a generalized application here.

⁸ Essentially, in a first step the model is estimated with the standard controls and 2289 fixed effects corresponding to each level of union density rate in the database. In the second step, the estimates of the fixed effects are graphically presented via the implementation of a kernel estimator. See Vilares (2013) for a detailed discussion of this methodology.

In the current exercise we studied three formulations of controls: the gross union wage premium curve (this means without any controls); the union wage premium curve comparing workers with identical observed characteristics; and the union wage premium curve comparing identical workers in firms which operate in the same industry and region.⁹

In chart 2, the estimates of the union wage premium are presented through curves which link the wage level and the union density rate. Immediately, the union's bargaining power converts into wage increases in a non-linear pattern. More precisely, until a firm's unionization of 25 percent the union wage premium is negligible. After this value, the premium displays a sharp increment until it reaches its maximum for a union density between 60 and 80 percent. Beyond those levels of unionization, the relationship sustains a plateau at very high wage premia.

To secure a sizable impact of the union activity on wages, it seems to be required a critical membership scale. However, the capability to marginally increase the wage premia is exhausted for union density rates above 75 percent.

The green curve establishes the comparison between workplaces with different union density rates and the ones without any unionized worker. Here, the curve reveals a monotonic increase with membership until it reaches a maximum union wage premium of 87 percent. For workplaces where more than 75 percent of the workforce is unionized, which corresponds to the group of firms with more affiliated workers, the average value of the wage premium is 81 percent (Table 4).

Nevertheless, if the observed characteristics of the workers are taken into account, the union wage premium reaches a maximum of 59 percent. For companies with more than 75 percent of the workforce



Chart 2

Source: Relatório Único de 2010.

Note: Estimates obtained through a fixed effect model and a nonparametric kernel regression.

Source: Relatório Único de 2010.

Note: We resorted to the specification with controls for the characteristics of the firm and the worker.

9 We considered as worker's control variables: age, squared age, gender, a binary variable for national or foreign and a set of education dummies. At firm level we considered the NUT II regions and the ISIC 1 industries. represented by a union, the correspondent average value is 53.5 percent. In comparison with the previous exercise, the reduction in the wage premium mirrors the higher levels of education of the affiliated workers.

Lastly, when the firms' location and industry is considered, the maximum union wage premium achieves 34.5 percent, with an average premium of 29 percent for workplaces with an union density rate larger to 75 percent.

These estimates for Portugal are considerably larger when compared with the other countries, even when methodological differences are accounted for. Also, they are sizably greater than the 17.9 percent obtained by Blanchflower and Bryson (2002) in the single study of union wage premia for Portugal which we found.¹⁰

In Portugal, the worker's overall labor compensation is composed by the base wage and a set of fringe benefits (lunch subsidy, shift subsidy, overtime compensation, and other bonuses not attached to productivity). By replicating the methodology implemented to each component of overall compensation we are capable to accurately estimate the impact of bargaining power on those contends.

The analysis of those components allows the detection of relevant compositional effects, as they present dissimilar trends. The profile of each component of remuneration allows the identification of union's priorities. In this structure, the unions obtain greater success in bargaining for more generous fringe benefits, even when it implies lower base wages. Therefore, a trade-off is established between the base wage and fringe benefits, in particular, the lunch subsidies and the bonuses.

8. Final Remarks

Table 4

A steady erosion of union membership has been recorded in Portugal, and in the most developed countries. In 2010, the estimate of the union density rate for the private sector of the Portuguese economy is about 11 percent. The union prevalence is greater in larger firms, in sectors in which unions additionally provide health services, in sectors sheltered from competition, and in firms with a strong presence of public equity. The unionized workers benefit from a very substantial union wage premium, independently of the metric used.

The evidence of a sizable union wage premia does not allow, per se, to establish a casual nexus between union bargaining power and wages. The phenomenon of reverse causality may occur from the fact that union prevalence is not random, as unions may locate preferably in firms with more generous compensation policies, or those more permeable to the unions' demands.

There exists a substantial differential between the number of unionized workers and the number of workers covered by collective agreements. This gap differs significantly among industries and sizes

UNION WAGE PREMIUM FOR DIFFERENT LEVELS OF UNIONIZATION							
Firm's union density rate: 0% to 25% 25% to 50% 50% to 75% 75% to 100%							
	Without controls	2.85%	29.19%	71.58%	80.96%		
Union wage	Controls for worker's characteristics	2.45%	22.51%	50.22%	53.52%		
F	Controls for worker's and firm characteristics	2.08%	17.94%	31.66%	28.86%		
Distribution of unionized workers per group 21.11% 16.48% 22.14% 40			40.27%				
Source: Relatório Único 2010.							

10 The study of Blanchflower and Bryson resorts to individual information about the membership. Since the union wage premium is typically extended to every worker of the firm, despite is union status, it is credible that studies of that nature systematically underestimates the impact of union influence.

of firms. In this context, the generalized use of regulations of extension, which extends to the entire industry the agreements settled between unions and employers' federations with **weak or very weak** representation, is especially problematic. In these cases, it is conceivable that unions and employers' federations mainly represent larger firms and better paid workers.

The framework of the collective bargaining was constructed under the assumption of a strong representation of unions and employers' federations. Through the decades, the use of regulations of extension helped the erosion of this representation, and provided the proper ground for the misalignment between bargained wages and feasible wages, which tends to raise unemployment (Martins 2013, Guimarães *et al.*, 2013).

Therefore, it seems clear that the implementation of regulations of extension should be parsimonious and dependent on a set of objective and transparent criteria based on a minimum representation of unions and employers' federations.

In general, it seems that the use of decentralized bargaining instruments provides an enhanced internalization of the idiosyncratic characteristics of firms, favoring a closer representation of workers, which will improve the efficiency of the bargaining process.
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THE PRICE ELASTICITY OF EXTERNAL DEMAND OF PORTU-GUESE EXPORTS: A COMPARISON WITH OTHER EURO AREA COUNTRIES*

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ABSTRACT

We compute the price elasticity of external demand of Portuguese exports in the period 1995-2009, comparing it with other euro area countries. This proxy of the export price elasticity is calculated as a weighted average of the import demand elasticities in each individual country-product destination market, using the elasticities of substitution across imported varieties of Broda *et al.* (2006). Overall, Portugal tends to export to individual markets that have, on average, a lower price elasticity than the markets where other euro area countries export to. Therefore, the product and geographical composition of Portuguese exports reduces their exposure to relative price fluctuations.

1. Introduction

Trade elasticities are important parameters in international economics that have been extensively studied for several decades. At present, the empirical literature provides a wide range of estimates for trade elasticities with different methodologies and at different data breakdown levels. The price elasticity of demand for exports measures the change in a country's exports with respect to changes in the price of exported goods relative to the prices of competing goods in destination markets. This article computes a proxy of the price elasticity of exports as a weighted average of import demand elasticities using detailed trade data from 1995 to 2009 for Portugal and other euro area countries.

The starting point is to measure the price elasticity of external demand of Portuguese exports in a sample of individual destination markets, which are defined as product-country pairs. The basic assumption is that, for each importing country and each product, imports supplied by different countries are different varieties of the product, as in Armington (1969)'s formulation of product differentiation by country. Under certain conditions, the price elasticity of demand facing all the exporters of a given product in each importing country is given by the willingness of consumers in the importing country to substitute among foreign products, that is, the elasticity of substitution among imported varieties. A measure of the elasticity of a country's external demand can be obtained by taking the weighted average of these import demand elasticities across individual export destination markets.

The estimates of the import demand elasticities are obtained from Broda *et al.* (2006), who report elasticities of substitution for a sample of 73 countries estimated using the methodology originally proposed by Feenstra (1994) and extended by Broda and Weinstein (2006). In each importing country, these elasticities of substitution are the same for all countries exporting a given good and are also assumed constant over time. Therefore, the differences among countries in terms of the price elasticities of

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external demand are totally determined by the product and geographical structure of their exports. This feature allows us to analyse to what extent the product and geographical composition of Portuguese exports exposes them to a relatively more/less elastic demand than other euro area countries. Our results indicate that the sectoral and geographical specialisation of Portuguese exports does not expose them to markets with a more elastic demand compared with other euro area countries.

This article is also related to other studies on the specialisation of Portuguese exports. Over the last decades, the relative product composition and the geographical distribution of Portuguese exports had a negative impact in the evolution of total market shares in world exports, as Portugal was relatively more specialised in individual markets than tended to grow below average.¹ In addition, there is also evidence that the product specialisation of Portuguese exports is relatively more similar to that of the new players in international trade than other developed economies.² These factors can create extra challenges for Portuguese exports, increasing the competition in third markets from low-cost trading partners with similar patterns of comparative advantage.

The article is organised as follows. Section 2 briefly presents the methodology and describes the database used. Section 3 starts by comparing the price elasticities of external demand of Portugal with those estimated for other euro area countries. The remaining of the section details the results along the product and geographical dimensions, comparing Portugal with Spain, Greece and Ireland in the 1995-2009 period. Section 4 presents some concluding remarks.

2. Methodology and data

In this framework, the response of the external demand of a country's exports to changes in relative prices depends on the willingness of consumers in importing countries to substitute among foreign goods. We start by defining that a specific good produced and exported by a particular country is a "variety". This is the standard definition of variety applied in several international trade papers, using Armington (1969)'s formulation of product differentiation by country. To give a concrete example, a good constitutes a particular product, *e.g.*, clothing, while a variety constitutes a given good produced by a specific country, *e.g.*, Portuguese clothing or Italian clothing.

The next step is to describe the preferences of consumers in importing countries. As in Broda and Weinstein (2006), consumers have a "taste for variety" in the sense that they prefer to consume a diversified bundle of varieties of the imported good. The elasticity of substitution among imported varieties of good *i* by country *j*, σ_{ij} , is interpreted as the price elasticity of demand for a good *i* exported by any origin country to destination country *j*. Using our example, if σ is the elasticity of substitution between Portuguese and Italian clothing for French consumers, then σ is also the price elasticity met by Portuguese and Italian clothing producers exporting to France. The domestic production of good *i* in country *j* is not considered as a competing variety, so σ_{ij} only captures the substitutability between imported varieties of good *i*.

The elasticity of substitution between imported varieties reflects the degree of differentiation among them. When σ_{ij} is low, consumers in country j see the imported varieties of good i as imperfect substitutes, that is, as differentiated varieties that are to some extent substitutable, based on actual physical product differences or other characteristics such as purchasing convenience, after-sales service or even consumers' perceptions of inherent unobservable quality. In contrast, when σ_{ij} is high, varieties of a particular good are assessed as more alike and consumers will easily substitute one for another when relative prices change.

¹ See, for instance, Amador and Cabral (2008).

² See, for instance, Cabral and Esteves (2006).

The price elasticity of external demand directed to a country's exports can be obtained as a weighted average of σ_{ij} , aggregated both across goods and destination markets. More precisely, the elasticity of the external demand faced by Portuguese producers in period t can be obtained as a weighted average of the elasticities of import demand in each individual product-country destination market, that is,

$$\eta^t = \sum_i \sum_j \theta^t_{ij} \sigma_{ij},\tag{1}$$

where σ_{ij} is the elasticity of substitution between imported varieties of good i in importing country j, assumed to be constant over time, and $\theta_{ij}^t = \frac{X_{ij}^t}{\sum_i \sum_j X_{ij}^t}$ is the share of exports of product i to destination country j in total Portuguese exports in period t.

The product and geographical dimensions of the external demand elasticity can be examined separately. The contribution of each sector k to this price elasticity in period t can be computed as:

$$\eta_k^t = \sum_{i \in K} \sum_j \frac{X_{ij}^t}{\sum_i \sum_j X_{ij}^t} \sigma_{ij} = \sum_{i \in K} \sum_j \left(\frac{X_k^t}{\sum_i \sum_j X_{ij}^t} \right) \left(\frac{X_{ij}^t}{X_k^t} \sigma_{ij} \right) = \theta_k^t \sigma_k^t,$$

where K is the set of all i goods of sector k, $X_k^t = \sum_{i \in K} \sum_j X_{ij}^t$ are total exports of sector k in period t, θ_k^t is the share of exports of sector k in total exports in period t, σ_k^t is the elasticity of import demand of sector k in period t and $\eta^t = \sum_k \eta_k^t$.

The contribution of each country of destination c to the external demand price elasticity in period t can be computed as:

$$\eta_c^t = \sum_i \frac{X_{ic}^t}{\sum_i \sum_j X_{ij}^t} \sigma_{ic} = \sum_i \left(\frac{X_c^t}{\sum_i \sum_j X_{ij}^t} \right) \left(\frac{X_{ic}^t}{X_c^t} \sigma_{ic} \right) = \theta_c^t \sigma_c^t, \tag{3}$$

where X_{ic}^t are exports of product i to destination country c in period t, $X_c^t = \sum_i X_{ic}^t$ are total exports to country c in period t, θ_c^t is the share of exports to country c in total exports in period t, σ_c^t is the elasticity of import demand of country c in period t and $\eta^t = \sum_c \eta_c^t$.

The price elasticity of import demand σ_{ij} is assumed constant across all exporting countries. Thus, all exporters competing in a given individual product-country market face the same elasticity of demand by assumption. Carrying on with our example, the elasticity of substitution between Portuguese and Italian clothing in the French market is the same as the elasticity of substitution between Chinese and Portuguese clothing or Chinese and Italian clothing in the French market so the same across origin countries, even with highly detailed product data (see Schott (2004)). These differences in import unit values point to differences in pricing power across exporters that can derive from differences in quality of the goods or any other non-price competitiveness factors, which are not captured by our framework. As a result, differences in the estimated elasticities of external demand across countries result only from differences in their sectoral and geographical specialisation of exports, a composition effect. Therefore, our analysis cannot be used to state that Portuguese exports face a more or less elastic demand due to their own intrinsic characteristics.

The international trade data used in this article comes from the BACI - CEPII database, which provides reconciled bilateral values (in US dollars) and quantities at the 6-digit of the 1992 Harmonised System (HS) classification, including over 5000 products and 200 trading partners in each year.³ The sample period starts in 1995 and ends in 2009. We make all computations at the HS 3-digit level in bilateral terms. For the sectoral analysis described above, we use a breakdown based on the sections of the HS, defined at the 2-digit level, which includes 18 sectors.

The methodology originally proposed by Feenstra (1994) and extended by Broda and Weinstein (2006) allows the quantification of the impact that new imported varieties have on import prices and, hence, on aggregate welfare. The main idea is that imports of new varieties of a good lead to a decline in import prices and this effect is not captured by conventional import price indices based on a fixed set of varieties, leading to a measurement bias. The methodology assumes that there are two determinants of how new import varieties affect the price index: the magnitude of the increase in varieties and the degree of substitutability among varieties. Hence, one of the key parameters of this methodology are the estimates of the elasticities of substitution between varieties of each imported good, which we use in this article with a different goal.⁴

We obtain estimates for these elasticities of substitution from Broda *et al.* (2006) who report the import demand elasticities at the 3-digit HS level (171 products) for a sample of 73 countries estimated according to the methodology of Broda and Weinstein (2006). The set of 73 countries includes most of the main trading countries in the world. However, countries like Belgium, Russia, Singapore and Taiwan are excluded, which, especially in the first two cases, can limit the coverage of the sample for some euro area countries.

Some import demand elasticities estimated by Broda *et al.* (2006) have extremely high values, signalling that varieties of a given good are undifferentiated. Even taking into account that the theoretical price elasticity with perfect substitutability is infinite, these few extremely high values are clear outliers and have no significant economic interpretation, since differences in the values of the elasticities above a certain level are not meaningful in economic terms (see Felettigh and Federico (2010) and Mohler (2009) for a discussion). However, these abnormally high import elasticities have a large impact on the elasticity of external demand of some countries. We choose to drop all import demand elasticities above 500 from the analysis, eliminating 7 individual markets of the 11293 available in Broda *et al.* (2006).⁵

In the end, the individual markets selected represent between 70 and 90 per cent of total exports of each euro area country in every year considered. For Portugal, exports in the sample represent more than 80 per cent of total Portuguese exports in each year examined.

3. The price elasticity of external demand of Portuguese exports

The methodology presented in the previous section was applied to data of the initial euro area countries and chart 1 displays the results of the estimated price elasticity of external demand of exports in the period 1995-2009.⁶ On average, the estimated price elasticity of external demand for Portugal is lower than for most euro area countries, with only the Netherlands and, especially, Ireland displaying smaller elasticities in this period. Ireland clearly stands out by its much lower elasticity of external demand than the other euro area countries considered. Finland also has below-average values, but slightly higher

³ See Gaulier and Zignago (2010) for a detailed description of this database.

⁴ For a quantification of the welfare gains from the growth in import variety for the Portuguese economy, see Cabral and Manteu (2010).

⁵ Several additional thresholds were tested and the results remained qualitatively similar.

⁶ Belgium and Luxembourg are examined together as the BACI database reports only information for the aggregate of the two countries.



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than those estimated for Portugal in this period. The highest external demand elasticity is estimated for Germany, with Spain and Belgium showing also high elasticities in the period. In France, external demand is also estimated to be more elastic than the average of the other countries examined.

Our external demand elasticities, computed as a weighted average of import demand elasticities estimated from detailed data, are much higher than the export elasticities obtained from aggregated data, which tend to be closer to one. This result is in line with the robust finding from the empirical literature that trade elasticities estimated from aggregated data are lower than those based on disaggregated data (see, for instance, McDaniel and Balistreri (2002) for a discussion). One reason for the comparative higher responsiveness of sectoral exports to relative prices is that estimating the response of aggregate quantities to changes in aggregate prices implies constraining all sectoral elasticities to be the same. As discussed by Imbs and Méjean (2009), this procedure ignores that different goods are not substitutable to the same extent and thereby creates a pure econometric bias. Another reason for the higher estimates obtained with detailed data is related to the fact that studies with disaggregated and aggregate import data, the price elasticity typically refers to the substitution between domestic goods and imports, which they call the "macro" elasticity. In contrast, with detailed trade data, the elasticity refers to the substitution between similar goods imported from different origin countries, that is, the "micro" elasticity. The next subsections analyse in more detail the elasticity of external demand of Portuguese exports in the 1995-2009 period, identifying the sectors and countries that contributed more to the results. A comparative analysis of the results for Portugal and three other euro area countries (Spain, Greece and Ireland) is included.

3.1 Product breakdown

This section identifies the individual sectors that contributed more to the estimated price elasticity of external demand directed to Portugal using a breakdown based on the sections of the HS, defined at the 2-digit level, which includes 18 sectors. Table 1 reports the sectoral breakdown of the average elasticities of external demand for Portugal, Spain, Greece and Ireland in the period 1995-2009 as described in equation 2. The first block of columns in table 1 includes the elasticity of import demand of each sector, the second shows the share of exports of each sector in total exports of each country, and finally the last block of columns displays the contribution of each sector to the total external demand elasticity. To facilitate the analysis, the top 3 values of each column are highlighted in table 1. In general, the different sectoral contributions to the external demand elasticities of these countries reflect mainly cross-country differences in terms of export specialisation since the import elasticities are relatively similar.⁷ The fact that differences in specialisation patterns explain most of the cross-country variation in external demand elasticities is also reported by Imbs and Méjean (2010) and Felettigh and Federico (2010).

What sectors contribute to the lower elasticity of external demand of Portugal compared to other euro area countries in this period? The result is mainly driven by two sectors: "Apparel and clothing accessories" and "Machinery and electrical equipment". Both sectors account for a significant share of total Portuguese exports (13.5 and 18.8 per cent, on average in the period 1955-2009, respectively) and face relatively low elasticities of substitution in their main destination markets. These results suggest that the Portuguese specialisation in some of the so-called "traditional sector" was positive insofar as it contributed to reduce the exposure of total exports to increases in relative prices. However, this specialisation probably also implied more adverse movements in relative prices, as these sectors are among those most affected by the entrance of low price producers from developing countries in international trade.⁸

The very high elasticities of substitution of import demand of the sector "Transport equipment" in the four countries, with values clearly above all other sectors, stand out in table 1. This sector has an important impact in the elasticity of external demand estimated for Portugal since it represents also a large proportion of Portuguese exports. However, even in this sector, the demand elasticity in Portuguese export destination markets is, on average, lower than that faced by most euro area exporters. The high external demand elasticity estimated for Spain results mostly from the sector "Transport equipment", which accounts for a much larger share of Spanish exports than for other euro area countries. In contrast, Ireland not only benefits from a low share of this sector in total exports but also from the very large export shares of the sectors "Chemicals and allied industries" and "Machinery and electrical equipment", both of which are exposed to a relatively inelastic demand in their destination markets.

A large part of the difference in total external demand elasticities among euro area countries is driven by the sector "Transport equipment" (Chart 2). Accounting for this sector, the elasticities of external demand among euro area countries range from 4.5 per cent in Ireland to 7.6 per cent in Germany in this period. Excluding "Transport equipment", the range of total elasticities in the euro area becomes narrower, between 3.8 per cent in Portugal and 5.4 per cent in Belgium. The ranking of the countries according to the estimated external demand elasticities also changes substantially excluding "Transport

8 For a detailed analysis of the textiles and clothing sectors in Portugal, see Amador and Opromolla (2009).

⁷ For a comparative analysis of the international trade specialisation of Portugal, see Amador et al. (2007).

ECTORA	AL BREAKDOWN OF THE ELASTICITY OF EXTERNAL DEMAND, AV	RAGE 1	995-2009										
			Import el	asticity			Export	: share			Contril	oute	
IS codes	Description	PRT	ESP	GRC	IRL	PRT	ESP	GRC	IRL	PRT	ESP	GRC	IRL
1-5	Live animals and animal products	4.9	8.4	6.3	6.3	2.1	3.2	4.6	4.6	0.1	0.3	0.3	0.3
6-15	Vegetable products; Fats, oils and waxes	3.6	4.3	4.8	3.5	1.9	8.3	10.4	0.5	0.1	0.4	0.5	0.0
16-24	Foodstuffs, beverages and tobacco	5.4	5.4	7.8	4.4	4.6	4.7	10.7	6.1	0.3	0.3	0.8	0.3
25-27	Mineral products	5.4	7.1	4.6	3.8	4.2	3.3	10.0	0.9	0.2	0.2	0.5	0.0
28-38	Chemicals and allied industries	3.9	5.0	5.7	4.5	4.6	10.1	9.3	44.6	0.2	0.5	0.5	2.0
39-40	Plastics and rubber	3.8	4.7	5.0	3.4	4.5	5.5	4.3	1.2	0.2	0.3	0.2	0.0
41-43	Raw hides, skins, leather and furs	7.8	6.9	5.6	5.4	0.4	0.9	1.3	0.2	0.0	0.1	0.1	0.0
44-46	Wood, cork and straw	4.0	4.3	3.8	2.8	4.6	0.8	0.4	0.4	0.2	0.0	0.0	0.0
47-49	Pulp, paper and paperboard	5.3	4.6	4.4	3.6	5.2	2.9	1.4	0.6	0.3	0.1	0.1	0.0
50-59	Textiles and textile fibres	5.5	5.7	5.5	4.5	3.4	2.1	5.8	0.6	0.2	0.1	0.3	0.0
60-63	Apparel and clothing accessories	3.3	3.7	4.3	3.3	13.5	2.2	10.2	0.5	0.4	0.1	0.4	0.0
64-67	Footwear and headgear	5.1	4.1	5.4	3.9	5.9	1.4	0.3	0.1	0.3	0.1	0.0	0.0
68-71	Stones, plaster, ceramic, glass and glassware	3.6	4.7	10.5	6.5	4.0	3.2	1.7	0.8	0.1	0.1	0.2	0.1
72-83	Base metals	4.4	5.0	5.1	3.9	6.2	8.9	15.8	1.3	0.3	0.4	0.8	0.0
84-85	Machinery and electrical equipment	4.3	5.1	5.2	3.9	18.8	16.4	9.1	29.0	0.8	0.8	0.5	1.1
86-89	Transport equipment	14.7	14.9	32.5	18.1	12.8	22.9	2.8	1.1	1.9	3.4	0.9	0.2
90-92	Optical, precision, medical and musical instr.	6.0	3.9	3.7	4.0	6.0	1.1	1.0	6.7	0.1	0.0	0.0	0.3
93-97	Miscellaneous manufactured articles	3.7	5.3	5.2	4.1	2.4	2.0	1.0	0.7	0.1	0.1	0.1	0.0
	Total excluding transport equipment					87.2	77.1	97.2	98.9	3.8	4.0	5.3	4.3
	Total					100	100	100	100	5.7	7.4	6.2	4.5

Sources: CEPII (BACI) and authors' calculations. **Note:** HS refers to the 1992 Harmonized System classification.

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Table 1

ELASTICITY OF EXTERNAL DEMAND, AVERAGE 1995-2009

Chart 2



Sources: CEPII (BACI) and authors' calculations.

equipment". While Portugal remains one of the euro area countries with a less elastic external demand, it is now joined by France and Spain, which were in the higher than average elasticity group when the "Transport equipment" sector was included. Excluding "Transport equipment", Germany is also in the below average elasticity group when it had the highest elasticity when this sector was considered.

One factor that may account for the extremely high import demand elasticity obtained for the sector "Transport equipment" is the fact that multinational corporations and their foreign direct investment decisions play a strong role in the organisation of production of these goods that tend to be produced and traded within global supply chains. In addition, as described in Sturgeon *et al.* (2009), the global automotive industry has an extremely concentrated firm structure at the top of the value chain with only a few lead firms of worldwide dimension. These lead firms own the final automobile brands and manage the local, national and regional value chains nested within their global organisational structure. As a result, the country that exports the final good becomes less relevant for the way consumers value additional varieties than the brand itself. For example, Portuguese exports of cars with German brands are perceived by consumers as German cars and, hence, are highly substitutable with German exports of cars produced in Germany.

3.2 Geographical breakdown

Following what was done in the previous section, we now turn to the geographical analysis of the estimated external demand elasticity of Portugal. Table 2 presents the main contributions to the elasticity of external demand of Portugal, as well as the respective import demand elasticity and the export share of each destination country. The corresponding results for Spain, Greece and Ireland are also included and the top 3 values of each column are highlighted. As in the sectoral breakdown, the cross-country differences in terms of the elasticities of external demand are mainly due to the distinct geographical specialisations of these countries. The differences in terms of geographical import demand elasticities are not substantial, even if they are higher than those obtained for the sectoral elasticities.

What geographical markets contribute to the lower elasticity of external demand of Portugal compared to other euro area countries in this period? The result is mainly driven by three destination countries: Spain, France and the USA. Spain is the most important destination of Portuguese exports, but France and, to a lesser extent, the USA also represent an important proportion of total exports. These three geographical destinations have relatively low elasticities of substitution for Portuguese exporters. Ireland,

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GEOGRAPHICAL BREAK	(DOWN OF	THE E	LASTIC	ITY O	FEXTE	RNAL	DEMAN	D, AVE	RAGE	1995-2	2009	
	I	mport	elasticit	y		Ехро	rt share			Contr	Ibute	
	PRT	ESP	GRC	IRL	PRT	ESP	GRC	IRL	PRT	ESP	GRC	IRL
Portugal	-	6.6	4.5	4.7	-	10.7	0.8	0.5	-	0.7	0.0	0.0
Spain	4.7	-	3.6	4.1	24.5	-	4.4	3.9	1.2	-	0.2	0.2
Greece	4.2	7.4	-	3.2	0.5	1.3	-	0.5	0.0	0.1	-	0.0
Ireland	8.3	7.1	8.1	-	0.7	0.7	0.5	-	0.1	0.0	0.0	-
Germany	6.6	7.1	4.2	5.4	16.9	13.5	16.2	11.7	1.1	1.0	0.7	0.6
France	5.2	7.9	8.1	6.8	14.1	21.3	5.7	8.0	0.7	1.7	0.5	0.5
UK	5.1	7.5	3.0	3.2	10.6	10.0	7.9	19.4	0.5	0.7	0.2	0.6
Netherlands	6.2	6.6	7.2	3.7	4.2	3.8	3.2	4.3	0.3	0.3	0.2	0.2
Italy	5.9	5.6	4.5	5.5	4.2	7.5	14.8	4.6	0.2	0.4	0.7	0.3
USA	3.2	3.4	3.2	2.5	6.4	5.1	6.4	23.2	0.2	0.2	0.2	0.6
Switzerland	13.6	6.8	31.0	9.5	1.3	1.7	1.5	3.5	0.2	0.1	0.5	0.3
Sweden	9.6	8.4	9.2	8.4	1.6	1.1	1.4	1.6	0.2	0.1	0.1	0.1
Hungary	25.8	44.7	7.1	5.7	0.5	0.5	0.7	0.3	0.1	0.2	0.0	0.0
Canada	10.3	11.9	10.9	11.1	0.8	0.6	0.8	1.4	0.1	0.1	0.1	0.2
Norway	8.9	31.1	19.1	4.1	0.9	0.7	0.6	0.8	0.1	0.2	0.1	0.0
Austria	5.3	5.5	4.9	5.0	1.5	1.1	1.4	0.6	0.1	0.1	0.1	0.0
Romania	19.8	18.5	13.4	18.3	0.3	0.4	4.0	0.2	0.1	0.1	0.5	0.0
Poland	6.7	7.4	7.7	5.5	0.8	1.3	1.6	0.6	0.1	0.1	0.1	0.0
Denmark	3.7	5.7	3.9	5.0	1.4	0.8	1.1	0.9	0.1	0.0	0.0	0.0
Turkey	5.9	7.6	6.3	9.9	0.7	1.8	5.2	0.7	0.0	0.1	0.3	0.1
Finland	4.7	4.3	2.5	3.6	0.8	0.5	1.0	0.6	0.0	0.0	0.0	0.0
Brazil	3.8	14.1	4.6	5.5	0.9	1.1	0.4	0.4	0.0	0.2	0.0	0.0
Total of countries included					93.5	85.5	79.4	87.8	5.3	6.4	4.7	3.9
Total					100	100	100	100	5.7	7.4	6.2	4.5

Sources: CEPII (BACI) and authors' calculations.

which shows the lowest elasticity of external demand in the euro area, also strongly benefits from its specialisation in some destination markets in which Irish exporters face relatively inelastic demands, namely the USA and the UK. In contrast, the relatively high elasticity of external demand estimated for Spain in this period reflects mostly its specialisation in the French market, where Spanish producers face a large import demand elasticity. In addition, two smaller destination markets, Hungary and Norway, also have very large demand elasticities for Spanish exporters.

4. Conclusions

This article computes the price elasticity of the external demand of Portuguese exports in the period 1995-2009 and confronts it with developments in other euro area countries. This elasticity is obtained as a weighted average of the import demand elasticities in each individual country-product destination market obtained from Broda *et al.* (2006).

For all euro area countries considered, our estimates based on detailed trade data point to relatively high elasticities of external demand, which suggest important effects on real export growth of changes in relative export prices. However, on average, the elasticity calculated for Portugal is lower than in most euro area countries in this period, implying that Portuguese exports are relatively less vulnerable to increases in relative prices. Conversely, a less elastic external demand will also hinder the positive response of exports to improvements in relative export prices. Ireland stands out by its much lower elasticity of external demand, while Spain is among the countries with higher external demand elasticities.

Given the methodology used, the product and geographical specialisation of exports explain all the difference among countries in terms of external demand elasticities, since all countries face the same elasticity of substitution in each individual product-country destination market. Therefore, the relatively



low elasticity obtained for Portugal only indicates that Portuguese exports are relatively more specialised in individual markets (product-country) that have, on average, a lower price elasticity of demand for imports.

In sectoral terms, this result is mainly driven by two sectors: "Apparel and clothing accessories" and "Machinery and electrical equipment". These sectors account for a large share of total Portuguese exports and Portuguese exporters face relatively low elasticities of substitution compared to other euro area countries. Even in the sector "Transport equipment", which is characterised by extremely high import demand elasticities for all euro area countries, the demand elasticity in Portuguese export destination markets is lower than that faced by most euro area countries.

Regarding geographical markets, the lower elasticity of external demand of Portugal compared to other euro area countries in this period results mostly from three destination countries: Spain, France and the USA. Portugal benefits from its specialisation in these markets that have relatively inelastic demands for Portuguese exports.

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