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OUTLOOK FOR THE PORTUGUESE ECONOMY: 2008-2009

1. INTRODUCTION

The outlook for the Portuguese economy in the 2008-2009 period is characterised by weak activity growth, in the context of a deteriorating international economic and financial environment. The interaction between the global economic deceleration and the turmoil in international financial markets, as well as the rise in commodity prices, especially oil prices, will continue to have a rather significant impact on small economies such as the Portuguese, strongly integrated both in economical and financial terms. The decline in external demand for Portuguese goods and services, the further tightening of financing conditions and the pass-through of high oil prices to domestic costs may negatively affect economic growth throughout the forecasting horizon. In this vein, the net external borrowing requirements are projected to increase considerably, reflecting a deterioration of the energy account balance and a substantial widening of the income account deficit arising from the trend of financing costs and the ongoing deterioration of the international investment position. This projection is surrounded by particularly high uncertainty levels and poses considerable downside risks to economic activity, mostly associated with the duration and magnitude of the turmoil in international financial markets, as well as with the respective interaction with global economic growth.

The latest estimates point to a 1.9 per cent increase in Gross Domestic Product (GDP) in 2007. The current projection envisages 1.2 per cent and 1.3 per cent growth in 2008 in 2009 respectively, which is still below the projections for the euro area published in the June 2008 issue of the ECB's Monthly Bulletin (Table 1.1 and Chart 1.1). Compared with the projections published in the winter 2007 issue of the

Table 1.1

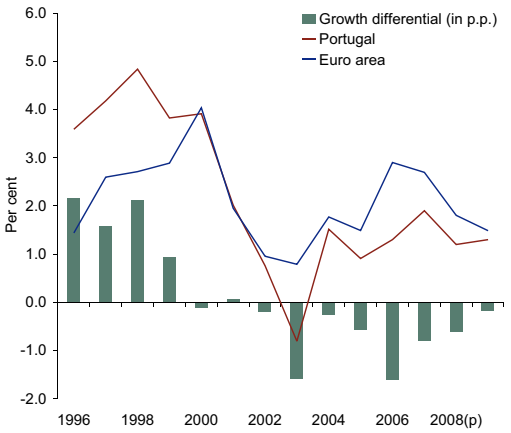
PROJECTIONS OF BANCO DE PORTUGAL 2008-2009
Rate of change, percentage

	Weights	Current projection			EB Winter 2007		
	2007	2007	2008	2009	2007	2008	2009
Gross domestic product	100.0	1.9	1.2	1.3	1.9	2.0	2.3
Private consumption	64.8	1.5	1.3	0.7	1.2	1.1	1.6
Public consumption	20.3	-0.1	-0.2	0.0	0.0	0.0	0.4
Gross fixed capital formation	21.7	3.2	1.0	1.2	2.6	3.3	3.1
Domestic demand	107.5	1.7	1.0	0.7	1.2	1.4	1.6
Exports	32.8	7.7	4.4	4.0	7.0	4.9	6.0
Imports	40.2	6.1	3.3	2.1	4.1	2.9	3.7
Contribution to GDP growth (in p.p.)							
Net exports		0.0	0.1	0.5	0.6	0.5	0.5
Domestic demand		1.8	1.0	0.8	1.3	1.5	1.8
of which: change in inventories		0.1	0.0	0.0	0.0	0.1	0.0
Current + capital account (% of GDP)		-8.6	-10.6	-11.1	-8.2	-7.3	-6.4
Trade balance (% of GDP)		-6.9	-7.8	-7.5	-6.7	-6.5	-5.3
HICP		2.4	3.0	2.5	2.4	2.4	2.0

Source: Banco de Portugal calculations.
Note: The central projection for each aggregate is shown (considered to be its most likely value, depending on the set of assumptions in question). As described in Section 7, probability distributions assigned to the possible values of the aggregate may be asymmetrical. Therefore, the probability of observing a value below the central projection may be different from the probability of observing a value above the central projection.

Chart 1.1

GROSS DOMESTIC PRODUCT
Rate of change



Sources: ECB, Eurostat and Banco de Portugal calculations.
Note: Figures for the euro area correspond to the midpoints of the projection ranges published in the June 2008 issue of the European Central Bank's Monthly Bulletin (*http://www.ecb.int/pub/mb/html/index.en.html*).

Economic Bulletin, the growth pace was revised downwards substantially in 2008 and 2009 (-0.8 percentage points (p.p.) in 2008 and -1 p.p. in 2009). This reflected a sharp revision of the underlying assumptions of the projection exercise, namely with regard to oil prices, as well as the materialisation of risks identified at the time, concerning in particular the possibility of a more intense and resilient turmoil in international financial markets (See "Box 1 *Revision of growth projections for the Portuguese economy*").

This article's projections rely on a series of assumptions on the Portuguese economy's international framework, namely on future developments in interest rates, exchange rates, the indicator of external demand relevant for the Portuguese economy and the international prices of several commodities, in particular oil. It is worth mentioning that in a small open economy such as the Portuguese economy, strongly integrated in economical and financial terms, the international framework plays a key role, namely as regards the transmission of shocks at global scale. However, this transmission occurs via a multiplicity of mechanisms, and high uncertainty remains as to how its impact can be quantified, namely taking into account the unprecedented nature of some of the above-mentioned external shocks.

Current projections also rely on specific assumptions for the Portuguese economy, namely as regards developments in the main public finance aggregates (see "*Section 2 Underlying assumptions*"). The current projection includes the reduction of the standard Value-Added Tax (VAT) rate to 20 per cent, with effect as of 1 July, having the technical assumption of full pass-through to consumer prices been considered.

With regard to developments in supply conditions, total factor productivity is expected to decelerate over the forecasting horizon, especially in 2008, although its growth is likely to remain above the average value recorded in the 2005-2006 period. These developments are likely to reflect the usual pro-cyclical behaviour, as well as ongoing structural changes not only in the manufacturing sector, in the sense of an orientation towards products with greater technological content and higher differentiation, but also in the services sector, which seems to be increasingly integrated in the global market. It should

be noted that the projection for total factor productivity in 2008 must be analysed taking into account that the employment performance in this year is strongly conditioned by high growth in the second half of 2007 and in the first quarter of 2008.

The acceleration in economic activity in 2007 seems to have been largely determined by developments in domestic demand and, in particular, by investment, following several years of very sharp declines in this aggregate. However, the various simultaneous shocks that occurred in the second half of 2007 and early 2008 – in particular the turmoil in international financial markets and the rise in energy and food commodity prices – seem to have restrained significantly developments in external demand for Portuguese goods and services and the intertemporal consumption and investment decisions of economic agents. Portugal is particularly affected by such shocks, due to the non-financial private sector's high indebtedness level and marked energy consumption per GDP unit[1]. Against this background, the slowdown in activity projected for 2008 results from a broadly based deceleration across final demand components. In turn, the maintenance of weak economic activity growth in 2009 reflects very subdued domestic demand growth, amid prospects pointing to a slight acceleration in gross fixed capital formation (GFCF). The latter stems from a gradual unwinding of some of the above mentioned shocks, improved demand expectations, and a slowdown in private consumption, which will evolve more in line with disposable income, in a context of maintenance of the households' saving rate at particularly low levels and of a stabilisation of the unemployment rate at high levels.

The inflation rate measured by the annual average change in the Harmonised Index of Consumer Prices (HICP) is projected to rise to 3.0 per cent in 2008 (2.4 per cent in 2007). This increase is chiefly determined by the strong acceleration in energy prices, in line with assumed oil price developments. As far as the non-energy component is concerned, the current projection includes a slight slowdown in prices. This reflects the impact of the cut in the standard VAT rate, with a full pass-through to consumer prices being considered as a technical assumption, as well as favourable developments in non-energy import prices as a whole, considering a significant appreciation of the euro in effective terms. However, the rise in international food commodity prices is expected to remain a source of upward pressure on the non-energy component of inflation. The projection for 2009 includes a decline in the inflation rate to levels similar to 2007, reflecting not only the progressive stabilization of energy prices, in line with assumptions regarding oil price developments, but also effects associated with the decline in the standard VAT rate.

With regard to the Portuguese economy's net external borrowing requirements, as measured by the joint current and capital account balance as a percentage of GDP, current projections envisage an increase to 10.6 per cent in 2008 and 11.1 per cent in 2009 (8.6 per cent of GDP in 2007). This profile mirrors in particular the considerable widening of the income account deficit, in the context of a likely increase in the goods and services deficit in 2008, which is expected to narrow slightly in 2009, and the fact that current and capital transfers as a percentage of GDP are likely to remain at levels similar to those of 2007. The deterioration of the income account deficit reflects, on the one hand, the progressive deterioration of the international investment position and, on the other, a substantial increase in financing costs in line with assumptions for interest rates. In turn, the widening expected for the goods and services account deficit in 2008 essentially reflects developments assumed for oil prices and their impact on the terms of trade, since real exports are projected to grow more than imports. This deficit is projected to narrow somewhat in 2009 due to favourable developments in the goods and services account, excluding energy.

Risk and uncertainty factors underlying the current projection point to downside risks to economic activity (see "*Section 7 Uncertainty and risk analysis*"). On the one hand, the turmoil in international finan-

(1) For more details, see Esteves, P. and Neves, P. D. (2004), "*Oil prices and economy*", Banco de Portugal, *Economic Bulletin-December 2004.*

cial markets may step up, particularly in a context of less favourable developments in real estate markets in countries with high price growth in the recent past, tightening credit standards and negative shocks on wealth stemming from further stock market falls. On the other hand, the resilience of global macroeconomic imbalances and the possibility of their abrupt adjustment remains a risk factor. Hence, economic activity growth in Portugal may turn out to be lower than projected for 2008 and especially for 2009. This might result from less buoyant domestic demand and exports, tighter financing conditions, negative shocks on wealth and the sharp deterioration in economic agents' confidence levels, as well as from more subdued developments in external demand for Portuguese goods and services, against the background of a sharp cooling of the European economy and, in particular, of the Spanish economy.

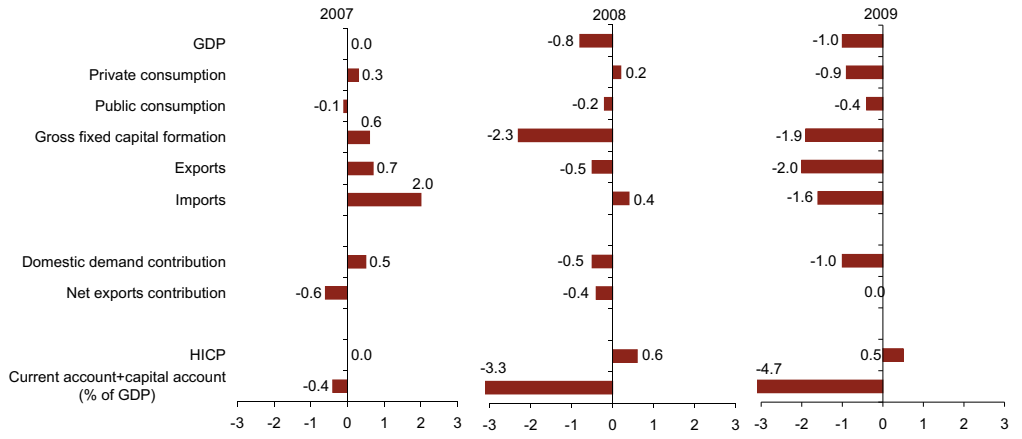
Although the estimate for GDP growth in 2007 remains virtually unchanged from that released by Banco de Portugal in the *Economic Bulletin-Winter 2007*, the composition of expenditure shows considerable changes, pointing to stronger domestic demand growth than previously estimated. In particular, GFCF growth was much higher than projections presented at the time, reflecting significantly higher business GFCF growth stemming, inter alia, from a greater acceleration in construction and transport equipment components. Likewise, exports were revised upwards, and import penetration in the domestic economy increased more markedly (Chart 1.2). [2]

The current projection for the 2008-2009 period implies a clear downward revision of economic activity growth vis-à-vis the projection released in the *Economic Bulletin-Winter 2007*, reflecting the materialisation of various risks identified then. The current projection for 2008 includes a rather significant downward revision of GDP growth prospects, of -0.8 p.p., reflecting a revision of business investment and exports, in a context where financial market turmoil and tightening financing conditions implied a downward revision of demand prospects in domestic and external markets. The projection for private consumption in 2008 reflects, on the one hand, dynamic effects related to stronger than expected growth in late 2007 and, on the other hand, the negative impact caused by more subdued growth in real disposable income, against the background of an unanticipated increase in inflation and a further

Chart 1.2

REVISIONS VIS-À-VIS THE PROJECTIONS OF THE WINTER 2007 ISSUE OF THE ECONOMIC BULLETIN

Percentage points



Source: Banco de Portugal calculations.

(2) The estimate for GDP growth in 2007 remains unchanged vis-à-vis that released in the *Economic Bulletin-Spring 2008* and the *2007 Annual Report*, there also being no remarkable changes in the composition of expenditure.

tightening of financing conditions. The current projection for activity growth in 2009 incorporates a downward revision of -1 p.p., reflecting a broadly based revision across final demand components. These revisions largely reflect tighter than previously expected financing conditions, as well as the impact of the downward revision of real disposable income in a context of weaker employment and real wage growth.

Current projections include a downward revision of the joint current and capital account balance as a percentage of GDP, of -3.3 p.p. and -4.7 p.p. in 2008 and 2009, essentially reflecting a downward revision of the goods and services account balance and of the income account balance. The revision of the goods and services account reflects a sharper revision of the export volume in 2008 and 2009 as a whole compared with that projected for imports, as well as an upward revision of oil prices and the consequent deterioration in the terms of trade. In turn, the revision of the income account balance reflects the upward revision of external debt financing costs.

Finally, the projection for the inflation rate was revised upwards by around 0.5 p.p. in 2008 and 2009. This revision reflects higher than expected growth in energy and food commodity prices, which more than offsets the opposite impact of the 1 percentage point reduction in the standard VAT rate effective as of July 2008.

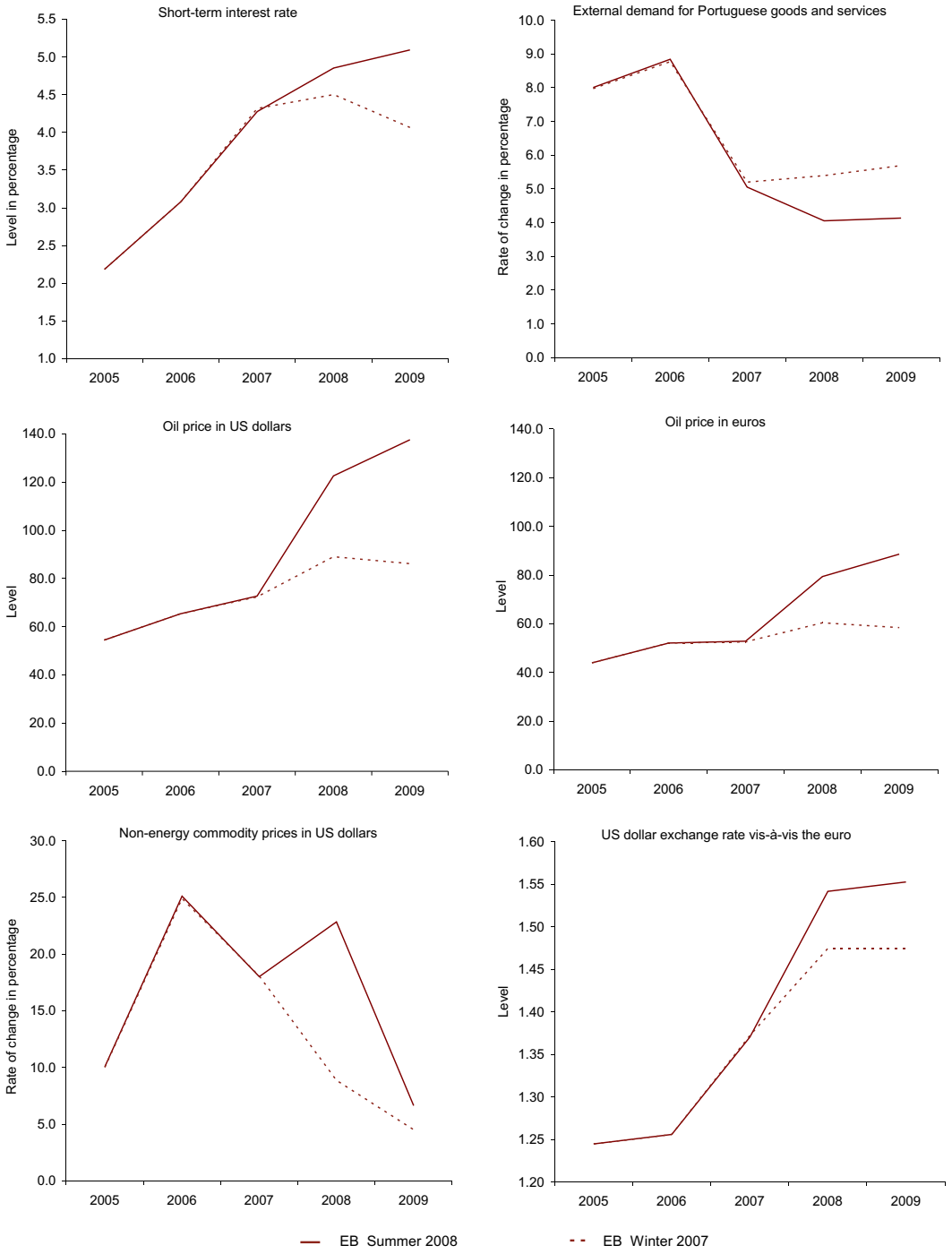
2. UNDERLYING ASSUMPTIONS

Current projections are elaborated on the basis of information available up to late June and consider a set of technical assumptions on interest rates, exchange rates and international commodity prices, as well as on developments in the indicator of external demand for Portuguese goods and services. The evolution of this indicator results from an update of the projections for euro area economies prepared within the scope of the June 2008 Eurosystem projection exercise, which have an underlying common set of projections on non-euro area economies. In addition, the projection also considered assumptions regarding other specific factors of the Portuguese economy, namely developments in public finance variables, in administered prices and the inclusion of the announced reduction of the standard VAT rate from 21 to 20 per cent, with effect as of July 2008.

In general terms, the framework set out by this set of technical assumptions is considerably more unfavourable than implied in the winter 2007 issue of the Economic Bulletin, translating into a significant revision of the projections (Chart 2.1.1). In fact, short and long-term interest rates were revised upwards, as well as commodity prices denominated in euro, particularly of oil, while current assumptions envisage a greater appreciation of the euro exchange rate, both against the US dollar and in nominal effective terms. Assumptions regarding the external demand for Portuguese goods and services are also more unfavourable.

Chart 2.1.1

REVISIONS OF THE PROJECTIONS' UNDERLYING ASSUMPTIONS VIS-À-VIS THE WINTER 2007 ISSUE OF THE ECONOMIC BULLETIN



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

2.1. Interest rates and exchange rates

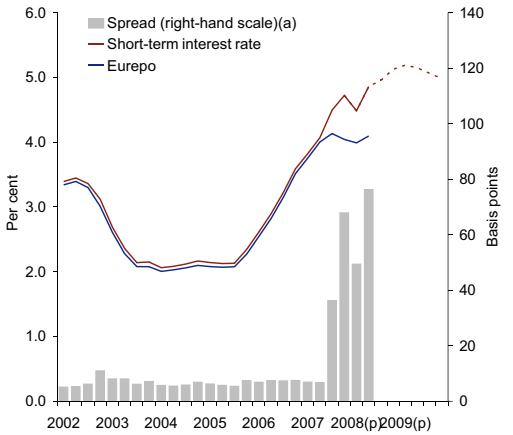
Assumptions on short-term interest rates measured by the tree-month EURIBOR rate are based on financial market expectations.[3] According to this information, the short-term interest rate is likely to rise gradually up to the first quarter of 2009, subsequently following a slight downward trend until the end of the projection horizon. In annual average terms, this profile implies a rise in this rate by 60 basis points (b.p.) in 2008 to 4.9 per cent, and by 20 b.p. in 2009 to 5.1 per cent (Chart 2.1.2). These assumptions reflect, on the one hand, expectations of a rise in key ECB interest rates by financial market participants, and on the other, the maintenance of a considerable money market risk premium throughout the projection horizon, amid the financial market turmoil that started in the summer of 2007 (Chart 2.1.3).[4]

Assumptions with regard to long-term interest rate developments based on ten-year nominal government bond yields imply an upward profile throughout the projection horizon, from 4.4 per cent in 2007 to 4.8 and 5.2 per cent in 2008 and 2009 respectively.

As far as exchange rates are concerned, the technical assumption considered implies that they will remain unchanged over the projection horizon at the levels recorded at late-June, which translates into a nominal effective appreciation of the euro of 6.6 per cent in 2008 and 0.5 in 2009 (3.9 per cent in 2007). This assumption implies a more significant appreciation of the euro against the dollar, of 12.5 and 0.7 per cent in 2008 and 2009 respectively (9.1 per cent in 2007).

Chart 2.1.2

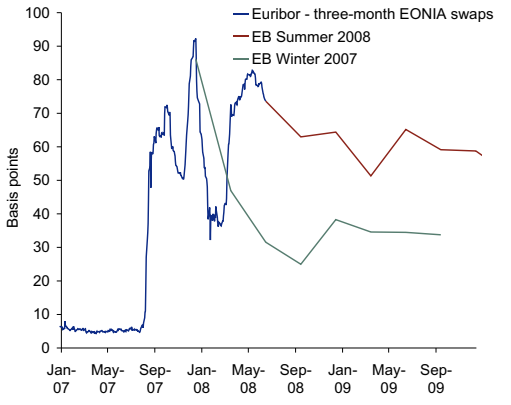
EURO AREA MONEY MARKET INTEREST RATES



Sources: Bloomberg, Reuters and Banco de Portugal calculations.
Note: (a) Spread between 3-month interest rates of uncollateralised operations (EURIBOR) and collateralised operations (EUREPO).

Chart 2.1.3

ACTUAL AND EXPECTED SPREADS BETWEEN EURIBOR AND 3-MONTH EONIA SWAPS (a)



Sources: Bloomberg, Reuters and Banco de Portugal calculations.
Note: (a) Expected spread measured as the difference between the three-month Euribor implied in futures contracts and the average expected three-month EONIA (derived from the EONIA swap index) starting from the future's maturity date.

(3) In this issue of the Economic Bulletin assumptions for short-term interest rates were calculated on the basis of 3-month EURIBOR futures up to the end of the projection horizon. Previously, these assumptions corresponded to 3-month forward interest rates implied by an estimated yield curve (using the Nelson-Siegel-Svensson method) based on spot Euribor rates and interest rate swaps. The revision presented for the short-term interest rate therefore reflects not only the update of assumptions, but also the impact of this methodological change, which is nevertheless negligible.

(4) For more details on the evolution of the money market risk premium in this context, see "Box 2.1 *Risk premium in the money market during the period of financial market turmoil: credit or liquidity risk?*, *Financial Stability Report-2007*.

2.2. International prices

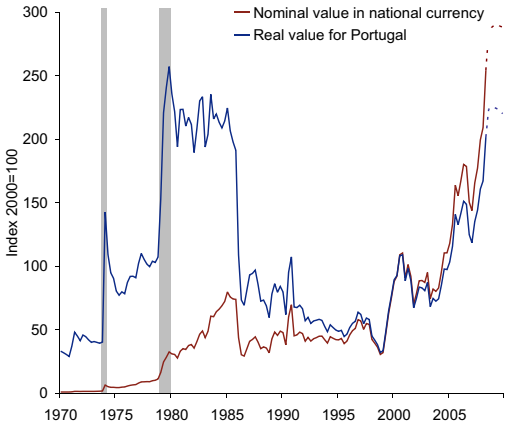
According to information implied in futures markets, oil prices are likely to stand close to USD 123 per barrel in 2008 in annual average terms, increasing rather significantly from the average value recorded in 2007, USD 73 per barrel. For 2009, the assumptions based on futures markets' information point to a continued rise in this commodity's price to around USD 138 per barrel. Current assumptions imply cumulative growth in oil prices denominated in US dollars of approximately 250 per cent in annual average terms between 2004 and 2009, i.e. close to the figures recorded in the first and second oil crises, between 1973 and 1974 and between 1979 and 1980 respectively. However, it should be noted that structural factors underlying both oil crises and the current upward path are of a different nature, since the behaviour of demand currently plays a more prominent role than in the past. In real terms, the oil price stands at levels close to those seen in the second oil crisis (Chart 2.2.1).

Assumptions on the oil price denominated in euro, i.e. the relevant variable in the context of the Portuguese economy, also imply an increase in this commodity's price over the projection horizon, to EUR 79 and 89 per barrel respectively in 2008 and 2009 (EUR 53 per barrel in 2007). This more moderate increase reflects the impact of the continuing appreciation of the euro against the US dollar in the same period.

Assumptions for the dollar price of non-energy commodities also point to the maintenance of a very significant growth pace. In particular, as far as food is concerned the growth pace will likely stand at 44 per cent in 2008 and 6.1 per cent in 2009. The non-food component should record growth rates of 13.8 per cent in 2008 and 6.2 per cent in 2009. Assessed in euro, these rates are lower in 2008 and 2009, namely 28.3 and 5.3 per cent in the case of food and 0.9 and 5.4 per cent in the case of the remaining non-energy commodities.

Chart 2.2.1

BRENT OIL SPOT PRICE (BRENT)



Sources: IMF (IFS) and Banco de Portugal calculations.
Notes: The shaded areas mark the 1973 and 1979 oil crises. The oil price in real terms was calculated on the basis of the private consumption deflator for Portugal. The dashed lines reflect assumptions underlying current projections.

According to the June 2008 Eurosystem projections released in the June 2008 issue of the *European Central Bank's Monthly Bulletin*, the euro area HICP should accelerate from 2.1 per cent in 2007 to a figure ranging from 3.2 to 3.6 per cent in 2008, reflecting developments in commodity prices, particularly oil and food, as well as higher wage growth. In 2009, as a result of a moderation of these external and domestic pressures, inflation is expected to lie in the range from 1.8 to 3.0 per cent.

2.3. Economic activity abroad and external demand

Assumptions on developments in external demand for Portugal are based on the update of projections for euro area economies, prepared by the respective national central banks within the scope of the June 2008 Eurosystem projection exercise. This exercise is based on a set of common projections with regard to developments in non-euro area economies. The consistency of goods and services trade flows among euro area countries is subsequently ensured in the context of these projections. The update took into account information available as at late-June and resorted to models usually used at the Eurosystem level.

Economic growth outside the euro area is expected to slow down to 4.0 per cent in 2008, stabilising the following year. This particularly reflects the slowdown in the US economy in 2008 and its effects on the remaining developed economies, amid continuing financial market turmoil. In line with these developments, growth in euro area export markets may also slow down in 2008 to 5.6 per cent, increasing somewhat in 2009 to 5.8 per cent.

According to the Eurosystem's projections released in the June 2008 issue of the *European Central Bank's Monthly Bulletin*, euro area economic growth is expected to decline over the projection horizon, from 2.7 per cent in 2007 to a figure ranging from 1.5 to 2.1 per cent in 2008 and from 1.0 to 2.0 per cent in 2009. These projections reflect decelerating exports, conditioned by the above-mentioned external demand profile, as well as a less buoyant domestic demand. In particular, investment growth is expected to decline, reflecting less favourable financing conditions and lower corporate earnings. Private consumption should reflect developments in real disposable income, partly conditioned by unfavourable inflation developments amid accelerating commodity prices.

This external environment of the Portuguese economy is likely to translate into a deceleration in the external demand indicator from 5.1 per cent in 2007 to 4.0 per cent in 2008 and 3.7 per cent in 2009. This indicator probably does not fully reflect the impact of recent changes in the Portuguese trade structure, namely the high growth of Portuguese exports to some non-euro area countries.[5]

2.4. Specific assumptions for Portugal

Current projections also include a set of specific assumptions for the Portuguese economy, stress being laid on those regarding developments in public finance variables and administered prices.[6]

With regard to assumptions on public finance variables, it is worth mentioning that, following the rule used within the scope of the Eurosystem projection exercise, account was only taken of fiscal policy measures already legally approved or specified in sufficient detail and likely to pass the legislative process. As for public consumption, developments in years to come will to a significant extent depend on

(5) In particular, goods exports to Portuguese-Speaking African Countries (Portuguese acronym: PALOPs), which grew by around 35 per cent in nominal terms in 2007, accounted for around 5.5 per cent of total goods exports in 2008, compared with a 3.5 and 2.5 per cent weight in 2005 and 2000 respectively. However, due to statistical limitations, the external demand indicator is not reflecting the significant growth of imports of some of these markets, in particular Angola.

(6) For more details on these prices, see the ECB's methodological note on this subject, available at *http://www.ecb.europa.eu/stats/pdf/hicp_ap.pdf*.

the effects of the public sector reform, which essentially covers measures that were already legally approved, albeit having a very uncertain impact. Against this background, a slight decline in public consumption in real terms is expected for 2008, followed by a virtual stabilisation in 2009 and 2010. This assumes a decrease in the number of public sector employees, in line with the rule of hiring only one employee per each two leaving service. This rule will admittedly hold true for an unchanged general government perimeter, meaning that is not being influenced by changes in the universe under consideration, such as those stemming from the setting up of new public hospitals transforming into public corporations.[7] In addition, negligible increases were assumed for intermediate consumption and spending on medicine co-payments, defined in real terms. The change in the volume of public investment (excluding revenue from real estate sales) is assumed to stabilise at around zero, similarly to 2007.

As far as indirect taxes are concerned, the current projection considers a decline in the standard VAT rate from 21 to 20 per cent as of 1 July 2008. In addition, it assumes that the tax on oil products will be maintained up to the end of the projection horizon and taxes on tobacco will rise in 2008 and 2009. Current projections are also conditioned by the reform of car taxes with effect as of mid-2007.

The current projection generally considers that administered prices should record growth rates in line with the average increase of the past few years. However, assumptions relating to gas prices are conditioned by changes in regulations governing natural gas prices, effective as of July 2008.[8] The current projection also includes a 5.8 per cent increase in passenger transport by road prices in July 2008.[9]

Finally, direct transfers from the European Union as a percentage of GDP are expected to remain relatively stable over the forecasting horizon. In 2008 these transfers will be quite influenced by an overlapping of projects still financed within the scope of the Third Community Support Framework with projects already covered by the National Strategic Reference Framework.

3. SUPPLY

The current projection points to a slowdown in economic activity from 1.9 per cent in 2007 to 1.2 per cent in 2008, and to economic activity growth at 1.3 per cent in 2009 (Chart 3.1). The growth pace of economic activity throughout the projection horizon results, on the one hand, from the slowdown in private sector activity and on the other, from the maintenance of virtually nil growth in public sector activity throughout the projection horizon.[10] This occurs in a context where it is essential that fiscal policy fosters an environment of stability leading to sustained economic growth.

At the sectoral level, based on data available for 2007, manufacturing activity is estimated to have grown by 3.5 per cent, probably associated with buoyant investment and goods exports. In 2008 and 2009 activity in this sector is likely to be conditioned by the slowdown expected for goods exports, reflecting expected developments in external demand for Portuguese goods and services, and by the projected deceleration in domestic demand, namely as regards corporate GFCF, amid heightened uncertainty and further tightening of financing conditions.

(7) For more information on the impact of public hospitals transforming into public corporations on public finances, see "Box 6.1 Public hospitals transforming into public corporations and public expenditure", Banco de Portugal, *Annual Report 2007*.

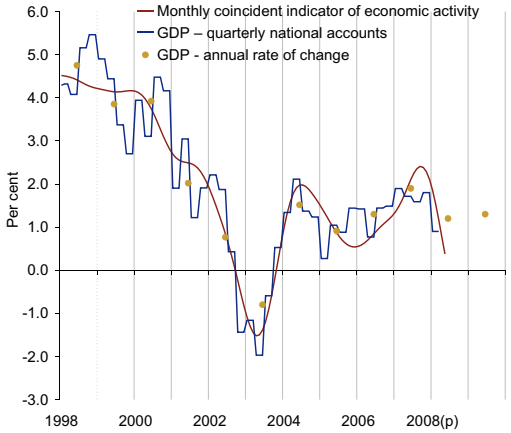
(8) Natural gas tariffs approved by the Energy Services Regulatory Authority (Portuguese acronym: ERSE) enter into force on July 2008, covering a one-year period. For more information on the change in natural gas tariffs, see the *ERSE press release* on this subject.

(9) The assumption that combined transport ticket prices will remain unchanged up to the end of 2008 was also taken into consideration.

(10) Public sector output corresponds to general government expenditure on primary factors intended for the supply of public goods and services, particularly staff costs and fixed capital consumption. Private sector output is obtained as the difference between total output and public sector output, thus including general government intermediate consumption expenditure on goods and services produced by the private sector.

Chart 3.1

DEVELOPMENTS IN ECONOMIC ACTIVITY
Year-on-year rate of change



Sources: *INE* and Banco de Portugal.

Growth in the construction sector seems to have been virtually nil in 2007, after successive falls in the past few years. In 2008 this sector is expected to be sluggish again, in a context of decelerating GFCF in the various institutional sectors. At the end of the projection horizon, it is likely to record further positive growth rates, chiefly reflecting some recovery in household investment spending on housing.

With regard to the services sector, activity should decelerate throughout the projection horizon, following estimated growth by 2.0 per cent in 2007. Expected developments for activity in this sector reflect the projected deceleration in household consumer spending and the slowdown in services exports, particularly tourism, after the very strong growth recorded in recent years. Services provided by the public sector are likely to record virtually nil growth.

Activity growth in 2007 exceeded somewhat available estimates for potential output growth, leading to a further narrowing of the output-gap. Available methodologies point to an output-gap at close to zero over the projection horizon (Charts 3.2 and 3.3).[11]

3.1. Employment

Developments in labour supply over the most recent years were characterised by the trend increase in the participation rate, reflecting, inter alia, the growing participation of women in the labour market, the demographic dynamics and the promotion of active ageing through employment retention policies targeted at older age groups. However, some of these factors are likely to have reached maturity, and therefore their impact on the participation rate throughout the projection horizon should be negligible. In this context, the current projection assumes a stable participation rate at close to 74 per cent, corresponding to labour force growth over the projection horizon below the average increase of the past few years.

(11) The results obtained differ slightly, according to the methodology used. The Hodrick-Prescott and Baxter-King filters point to a stabilisation of the output gap, while the Christiano-Fitzgerald filter points to a further narrowing in 2008 and a reversal to marginally positive values in 2009. This result derives from the fact that, contrary to the Hodrick-Prescott and Baxter-King filters, the Christiano-Fitzgerald filter presents a phase shift, i.e. below GDP growth tends to be reflected, with some lag, in a slowdown in potential output growth. For further details, see Almeida, V. and Félix, R. (2006), "*Computing potential output and the output gap for the Portuguese economy*", Banco de Portugal, Economic Bulletin-Autumn.

Chart 3.2

GDP AND POTENTIAL OUTPUT [(a)]
Year-on-year rate of change

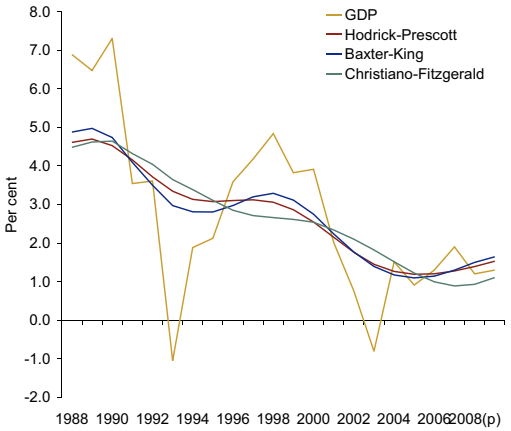
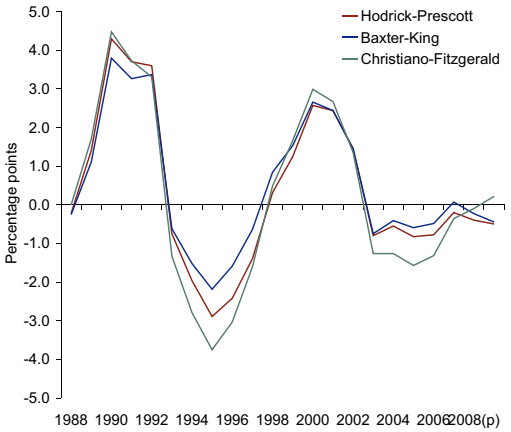


Chart 3.3

OUTPUT GAP [(a)]



Source: Banco de Portugal calculations.
Note: (a) For further details on the output gap computation methods, see Almeida V. and R. Félix (2006),"*Computing potential output and the output gap for the Portuguese economy*", Banco de Portugal, Economic Bulletin-Autumn.

Latest estimates point to average employment growth by 0.5 per cent in the 2006-2007 period, in a context of subdued activity growth. According to the current projection, employment will grow by 0.7 per cent in 2008, reflecting on the one hand buoyant effects associated with the acceleration profile of employment in the course of 2007, and on the other, the latest data released in the Employment Survey for the first quarter of 2008. Favourable employment developments, against the background of a considerable slowdown in economic activity, suggest that the latest developments may be temporary and a reversal of the favourable trend during this year cannot be disregarded.[12] In 2009 the growth rate of employment is projected to decline to 0.4 per cent, i.e. more consistently with the projection for economic activity growth.

The dynamics projected for employment chiefly reflect the profile of its private component. With regard to public sector employment, the number of public employees is expected to continue to follow the net downward trend recorded in recent years, due to the maintenance of the rule of hiring only one employee per each two leaving service (see "*Section 2 Underlying assumptions*").

Labour productivity, as measured by output per worker, accelerated to around 1.7 per cent in 2007, following weak growth in 2006 (0.5 per cent), as a reflection of a rebound in economic activity within the scope of a slowdown in employment. Information available for the first quarter of 2008, pointing to strong employment growth in an environment of sharp slowdown in activity, implies a reduction in labour productivity. The current projection includes a reversal of this pattern over the year, which, however, does not prevent output per worker from slowing down to 0.6 per cent in 2008, reflecting the usual lag between employment and productivity developments. Labour productivity is projected to accelerate to 1.0 per cent in 2009, i.e. close to the average of the past few years, in the context of employment developments more in line with those of economic activity.

(12) According to information released in the Employment Survey for the first quarter of 2008, employment growth reflects a year-on-year increase of 11 per cent in the number of workers on temporary contracts, since the number of workers with permanent contracts fell by 0.8 per cent in the same period. In turn, the number of self-employed grew by around 2.9 per cent year-on-year.

3.2. Economic growth factors

The dynamics of growth factors underlying current projections can be analysed in the context of a growth accounting exercise. Within this framework, economic activity growth is broken down into contributions related to labour and capital accumulation and the change in total factor productivity.

This methodology has a number of limitations, namely the fact that total factor productivity corresponds to a residual breakdown item and as such, it reflects not only greater efficiency in the use of the remaining productive factors, but also all variables that are not explicitly included in the growth accounting exercise. Examples of this are the quality of productive factors, in particular human capital, changes to the economy's institutional framework or the degree of capacity utilisation. In particular, the latter factor seems to have played a relevant role in the very significant contribution of total factor productivity to GDP growth in 2007 (1.3 p.p.), given that the indicator of capacity utilisation in manufacturing released by the European Commission grew at the highest rate observed in recent years (Chart 3.2.1.). In addition to this pro-cyclical behaviour, total factor productivity seems to be also reflecting ongoing structural changes not only in the industrial sector, in the sense of a greater orientation towards products with higher technological content and greater differentiation, but also in the services sector, which is increasingly integrated in the global market.

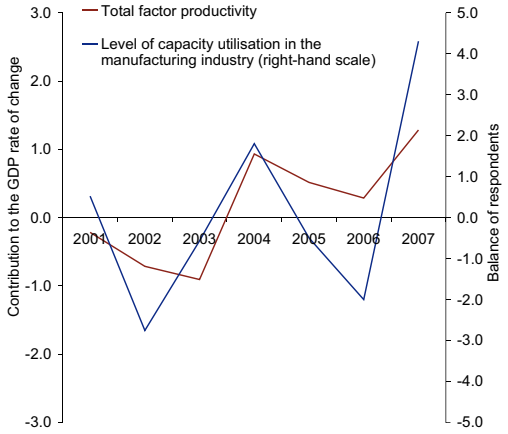
The contribution from total factor productivity to GDP growth is expected to decline significantly in 2008 to 0.3 p.p. However, projections point to a further more significant contribution to activity growth in 2009 (0.7 p.p.). (Chart 3.2.2). The contribution from the capital stock to GDP growth is likely to remain close to the 2007 value (0.4 p.p.), reflecting a rebound in GFCF in 2007, whose growth pace in the two following years, however, is likely to be slower than this year.

The labour factor contribution is likely to increase from 0.1 p.p. in 2007 to around 0.3 p.p. in the 2008-2009 period, reflecting a moderate recovery of employment in the whole economy.

The comparison of the 2003-2009 period with the stage following the previous downturn in the Portuguese economy (1993-1999) leads to the conclusion that lower GDP growth in the latest period mirrors

Chart 3.2.1

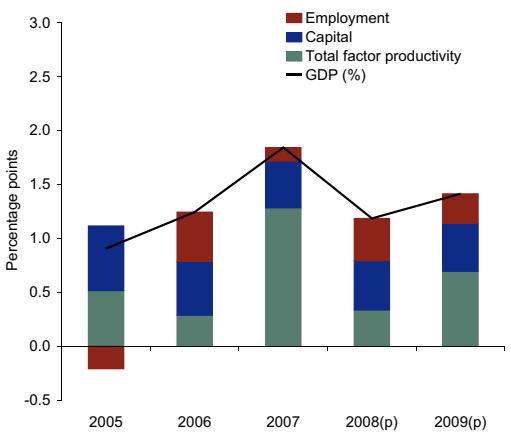
TOTAL FACTOR PRODUCTIVITY AND CAPACITY UTILISATION IN THE MANUFACTURING INDUSTRY



Sources: European Commission and Banco de Portugal calculations.

Chart 3.2.2

FACTORS OF OUTPUT GROWTH
Contribution to the rate of change



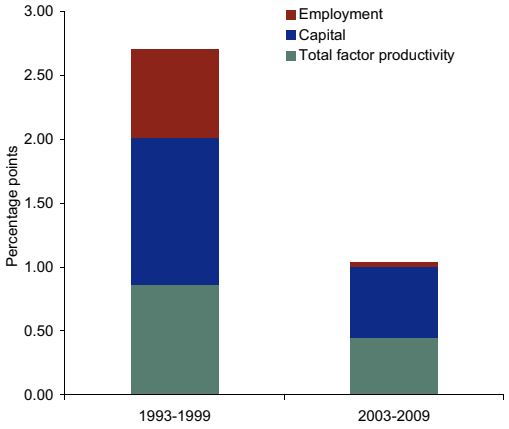
Source: Banco de Portugal calculations.

a lower contribution both from productive factors and total factor productivity. The lower contribution from the labour factor reflects, on the one hand, weaker growth in private sector employment, and on the other, the recent downward trend of the number of public sector employees, assumed to continue throughout the projection horizon (see "*Section 2.4 Specific assumptions for Portugal*") (Chart 3.2.3). The contribution from the capital stock also declined considerably in the 2003-2009 period, in line with the weaker investment performance at this stage of the cycle, compared to the corresponding stage of the previous cycle (see "*Section 4.3 Gross fixed capital formation*").

Chart 3.2.3

FACTORS OF OUTPUT GROWTH 1993-1999 VS 2003-2009

Contribution to the rate of change



Source: Banco de Portugal calculations.

4. DEMAND

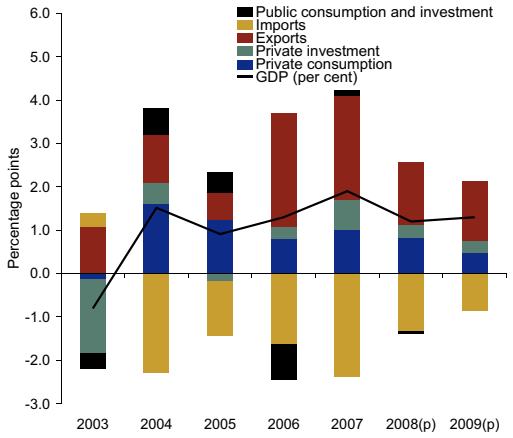
4.1. Composition of expenditure

Overall economic growth of 1.9 per cent in 2007 was largely due to the contribution of domestic demand and, in particular of GFCF, since the contribution of net exports seems to have been close to zero. The projected slowdown in economic activity to 1.2 per cent in 2008 and 1.3 per cent in 2009 reflects the expected decline in the contribution of domestic demand to 1.0 p.p. in 2008 and 0.8 p.p. in 2009, together with a slowdown in the contribution of exports to 1.4 p.p. in 2008 and 2009 (Chart 4.1.1). In turn, as a result of the projected slowdown in imports, the contribution of this component to GDP growth is expected to be -1.3 and -0.9 per cent in 2008 and 2009 respectively.

The significant slowdown in domestic demand (from 1.7 per cent growth in 2007 to around 1 per cent in 2008 and 2009) is a key feature of the current projection, which reflects to a great extent the effects of solvency conditions resulting from the intertemporal budget restrictions of economic agents, particularly households, in a context of high uncertainty surrounding macroeconomic developments and the gradual tightening of credit conditions. Moreover, the contribution of public consumption and investment to overall economic growth is assumed to be virtually zero. With regard to external trade, the slowdown in exports, in line with the developments in external demand for Portuguese goods and ser-

Chart 4.1.1

BREAKDOWN OF GDP GROWTH
Contribution to the rate of change



Source: Banco de Portugal calculations.

vices, is expected to be milder than that of imports, reflecting both a deceleration in the import content weighted final demand and the gradual fading out effect of the exchange rate appreciation witnessed in the past few years as assumed over the projection horizon, in line with the technical assumptions considered (see "*Section 2 Underlying assumptions*").

The expenditure pattern portrayed in the current economic cycle is in deep contrast versus that of the previous cycle, when private expenditure increased significantly (Chart 4.1.2), in a context of a significant decline in financing costs and increasing private sector indebtedness, which was substantially lower then. On the other hand, public consumption and public investment also made a significant contribution to GDP growth, in an environment where lower financing costs and the resulting decline in interest expenditure were accompanied by an unsustainable increase in primary expenditure, which led to the strong fiscal imbalance.

The current international economic situation has been dominated by the international financial market instability, by its effects on overall economic growth, and by the uncertainty surrounding the degree of tightness of financing conditions in the future. In this context, the need to ensure the fulfilment of obligations related to household indebtedness will tend to defer expenditure decisions.[13] On the other hand, non-financial corporations will also tend to postpone investment decisions related to the expansion of capacity utilisation in a context of more adverse financing conditions and owing to the international environment and increasing uncertainty as to future demand prospects, both domestic and external.

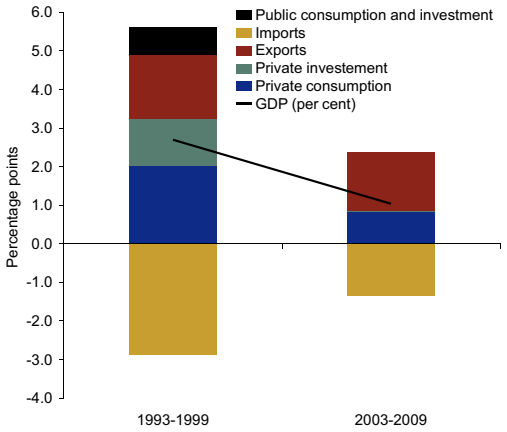
Moreover, in the context of the current financial market turmoil, Portuguese banks are now operating in a less favourable environment regarding their funding in international wholesale markets. Since these markets are an important source of funding for Portuguese banks, the maintenance of instability may lead to tighter credit conditions (see "*Section 7 Uncertainty and risk analysis*"). Qualitative data from the April Bank Lending Survey point to an ongoing tightening of credit standards by Portuguese banks.

(13) Household indebtedness level is estimated to have reached 129 per cent of disposable income in 2007 (123 per cent in 2006), i.e. one of the highest in the euro area (see Banco de Portugal, *Financial Stability Report-2007*).

Chart 4.1.2

BREAKDOWN OF GDP GROWTH 1993-1999 VS 2003-2009

Contribution to the rate of change



Source: Banco de Portugal calculations.

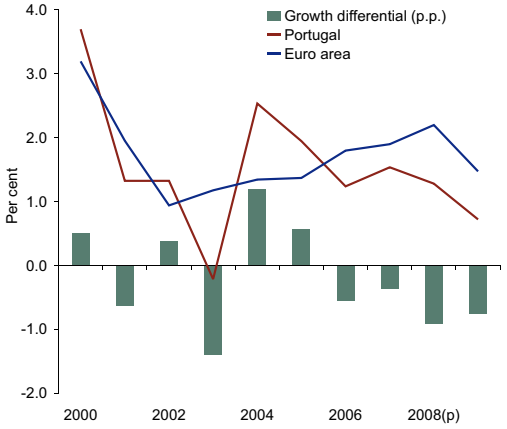
4.2. Private consumption

Private consumption recorded a 1.5 per cent increase in 2007, as against 1.2 per cent in 2006. According to the current projection, the pace of growth is expected to be 1.3 per cent in 2008 and 0.7 per cent in 2009. These projections are lower than those published by the ECB for euro area private consumption, taking as reference the central projection ranges presented in the *June 2008 issue of the ECB Monthly Bulletin* (Chart 4.2.1). They are also lower than those expected for overall economic growth in Portugal in 2009. Though developments in consumption are expected to be relatively subdued, its

Chart 4.2.1

PRIVATE CONSUMPTION

Rate of change



Sources: ECB, Eurostat and Banco de Portugal calculations.
Note: The figures for the euro area correspond to the midpoints of the projection ranges published in the June 2008 issue of the European Central Bank's Monthly Bulletin (*http://www.ecb.int/pub/mb/html/index.en.html*)

growth is foreseen to be globally higher than that of real disposable income, leading to the maintenance of the household savings rate over the projection horizon at levels below those in 2007.

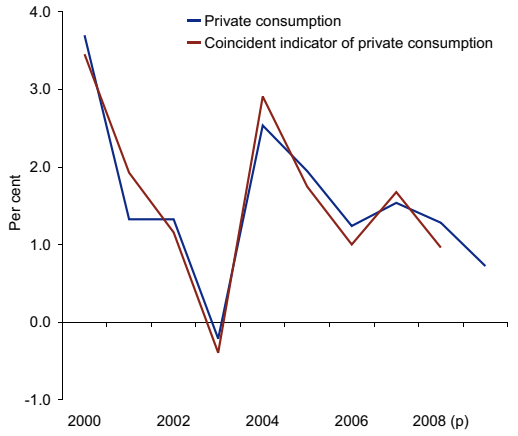
Private consumption has evolved broadly in line with the trend coincident indicator calculated by Banco de Portugal, as well as with developments in the indicators of the European Commission regarding consumer confidence and expectations as to the financial situation of households over the next 12 months. These indicators, which are used to calculate the coincident indicator, recorded an improvement in 2007, although very marginal in the case of the confidence indicator, suggest a greater moderation in consumption growth for 2008 (Charts 4.2.2 and 4.2.3). According to available data for the first quarter of 2008, private consumption is estimated to have not shown clear signs of deceleration, continuing to follow year-on-year growth rates similar to those seen in the previous quarter and to the average annual growth recorded in 2007.

The effects associated with the increase in interest rates continue to be a limiting factor in terms of household consumption decisions, particularly in a context when labour market improvements are not expected to be significant. In particular, the persistence of pressures in the money market stemming from the international financial market instability has had an impact on the behaviour of the reference rates commonly used in credit cost indexation in Portugal, which resulted in higher bank lending rates. In addition, data from the Bank Lending Survey suggests some tightening of credit standards applied to loans to the non-financial private sector. Moreover, the situation in international commodity markets, in particular in the oil market, has produced unexpected inflation increases, contributing to a temporary deceleration in real disposable income in 2008. Finally, in this scenario of high uncertainty, particularly due to the interaction of the above-mentioned shocks and overall economic developments, household consumption will also tend to moderate. Risks associated with developments in household consumption decisions, such as those related to a potential further tightening in credit supply, are reviewed in "*Section 7 Uncertainty and risk analysis*".

Chart 4.2.2

PRIVATE CONSUMPTION AND COINCIDENT INDICATOR OF PRIVATE CONSUMPTION

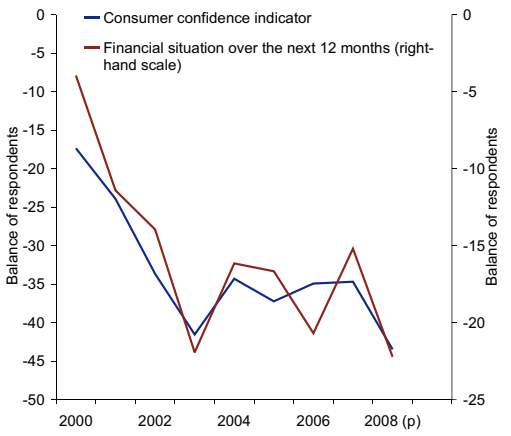
Rate of change



Sources: European Commission and Banco de Portugal calculations.
Note: In the case of the coincident indicator of private consumption, annual average figures were calculated on the basis of monthly figures. For 2008, only the January-June average is considered.

Chart 4.2.3

CONSUMER CONFIDENCE INDICATOR AND FINANCIAL SITUATION OVER THE NEXT 12 MONTHS

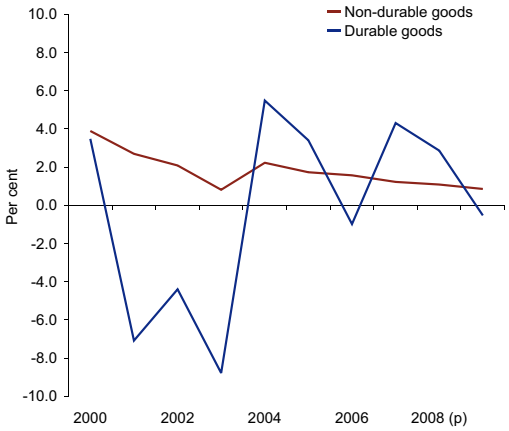


Source: European Commission.
Note: The "Consumer confidence indicator" and "Financial situation over the next 12 months" series refer to average figures calculated on the basis of monthly data. The monthly series "Financial situation over the next 12 months" was previously lagged by 5 months; for 2008, only the January-June average is considered.

In 2007 the acceleration in private consumption was mainly associated with household expenditure on durable goods.[14] In contrast, consumption of non-durable goods, accounting for around 90 per cent of this aggregate, decelerated further, following the trend observed since 2004 (Chart 4.2.4). Over the projection horizon, and in a context of increasing financing restrictions and uncertainty surrounding the macroeconomic environment, expenditure on durable goods is expected to slow down in 2008 and to stabilise somewhat in 2009. Consumption of non-durable goods is projected to follow the decelerating profile observed over the past few years. In both cases, average growth around 1.0 per cent is expected for the next two years.

Chart 4.2.4

DURABLE AND NON-DURABLE GOODS
Rate of change



Source: Banco de Portugal calculations.

4.3. Gross fixed capital formation

Gross fixed capital formation recorded a 3.2 per cent increase in 2007. This growth interrupted a cumulative fall of around 13 per cent over the 2002-2006 period. The current projection foresees growth rates of 1.0 per cent and 1.2 per cent respectively for 2008 and 2009 (Chart 4.3.1).

The most significant contribution to GFCF growth in 2007 by institutional sector was associated with corporate investment. This is in line with the overall industrial confidence indicator and order book indicator of the European Commission (Chart 4.3.2). As to the general government component, the contribution to GFCF growth is estimated to have been positive, as opposed to that recorded in 2006, which was influenced by the strong deceleration in real estate sales.[15] Finally, household investment in housing presented a negative rate of change in 2007, albeit more moderate than in previous years.

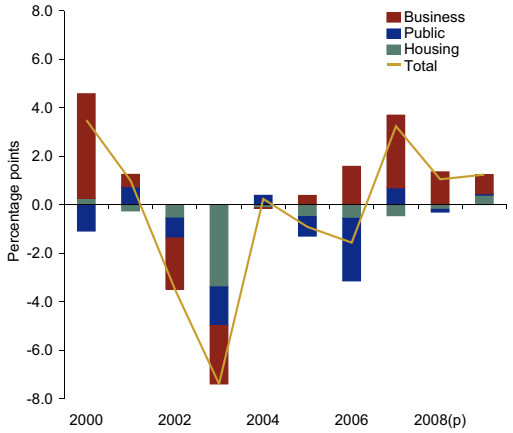
The current projection for GFCF reflects essentially developments in the private component, since the general government component is assumed to remain unchanged in real terms (see "*Section 2 Underlying assumptions*"). The current projection foresees a 1.2 per cent decline in 2008 and a 2.3 per

(14) In 2007 consumption of durable goods was affected by very significant growth of car sales associated with various administrative and tax changes. These effects are analysed in greater detail in "Box 4.1 Private consumption developments in 2007 and the behaviour of durable goods", Banco de Portugal, *Annual Report-2007*.

(15) Developments in the general government component of GFCF are analysed in greater detail in Banco de Portugal, Annual Report 2007. It should be noted that real estate sales are recorded as a negative purchase and therefore they contribute with a negative sign under GFCF.

Chart 4.3.1

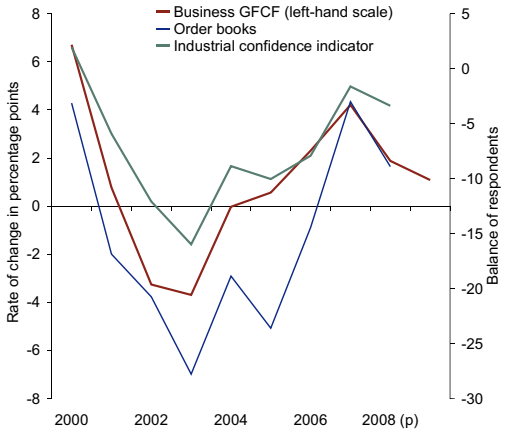
BREAKDOWN OF GFCF
Contribution to the growth rate



Source: Banco de Portugal calculations.

Chart 4.3.2

BUSINESS GFCF AND CONFIDENCE INDICATORS



Sources: European Commission and Banco de Portugal calculations.
Note: Annual average on the basis of monthly figures. For 2008, the average between January and June was considered.

cent increase in 2009 in housing investment. These projections incorporate available data for the beginning of 2008, which indicate unfavourable developments, thus deepening the negative developments registered over the past few years, i.e. a cumulative negative growth of around 30 per cent during the 2001-2007 period. Less favourable financing conditions and the debt servicing burden of households, together with uncertainty regarding future disposable income prospects, seem to be two of the main factors limiting the growth potential of housing investment.

One fundamental condition for a more sustained recovery of economic activity continues to be the intensification of quantitative and qualitative growth of corporate GFCF. This is, however, a particularly pro-cyclical and very volatile component, which depends on expectations about future developments in demand, and is also sensitive to expected financing conditions. Over the past few years, the gradual recovery of overall economic activity, together with favourable signs on the correction of major macroeconomic imbalances in the Portuguese economy, contributed to the acceleration in corporate investment, with cumulative growth of 6.6 per cent in 2006 and 2007.[16] In terms of favourable developments, special mention should be made to the favourable external demand and the restructuring of the goods and services export sector. The decline in overall borrowing requirements of the public sector over this period seems to have also contributed positively to reduce uncertainty surrounding the context in which economic agents make decisions, showing the relevance of maintaining fiscal consolidation efforts.

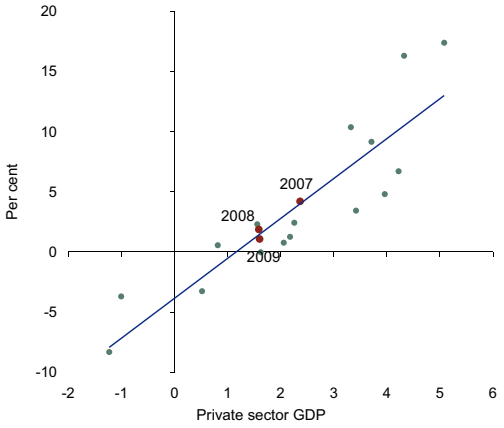
Developments in the first half of 2008 suggest a slowdown in corporate GFCF in contrast with the accelerating profile recorded in the previous year. The profile of the industrial confidence indicator and the order book indicator are also consistent with a decelerating path in 2008 (Chart 4.3.2). Therefore, following a 4.2 per cent growth in 2007, the current projection foresees an increase of 1.9 per cent of corporate investment in 2008 and 1.1 per cent in 2009, in line with the historical relationship with private GDP growth (Chart 4.3.3).

(16) In contrast, in previous years, namely between 2000 and 2005, there was a cumulative fall in the corporate component of GFCF of around 5.5 per cent. These developments seem to have been influenced by the deterioration in demand growth prospects, in a context of uncertainty regarding the correction of major macroeconomic imbalances in the Portuguese economy.

Chart 4.3.3

BUSINESS INVESTMENT AND PRIVATE GDP

Annual changes in 1991-2007 and projections for 2008-2009

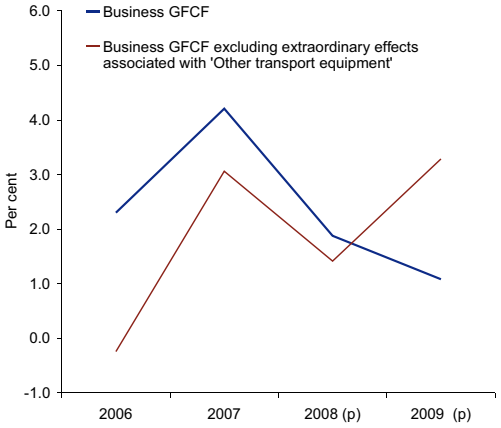


Source: Banco de Portugal calculations.

Chart 4.3.4

BUSINESS INVESTMENT EXCLUDING EXTRAORDINARY EFFECTS

Rate of change



Source: Banco de Portugal calculations.

The projection for GFCF should be interpreted taking into account some distinct factors. First, several external shocks have been observed which are very important in the context of a small open economy like Portugal. Uncertainty regarding the extent, duration and magnitude of the international financial market turmoil and its effects on worldwide economic growth, which has conditioned prospects for world economic developments, seems to have led to deterioration in the expectations on growth of demand, both domestic and external. On the other hand, as previously mentioned, Portuguese institutions participating in the euro area Bank Lending Survey confirm that in the first quarter of 2008 there was a further tightening of credit standards to loans to non-financial companies. The effects on GFCF developments of a potentially more significant tightening of credit standards is analysed in "*Section 7 Uncertainty and risk analysis*".

Second, developments in corporate GFCF should also be analysed taking into account the very irregular pattern of GFCF in "Other transport equipment". This profile stems in particular from the purchase of air transport equipment, both due to the amounts involved and the erratic nature of these purchases. Therefore, the slight slowdown in corporate GFCF projected for the second half of 2008 and 2009 comes entirely from the unwinding of the base effect associated with the profile of air transport equipment purchases recorded in the first half of 2008.[17] Discounting this effect, one concludes that the projection incorporates some recovery in corporate GFCF in 2009 (Chart 4.3.4).

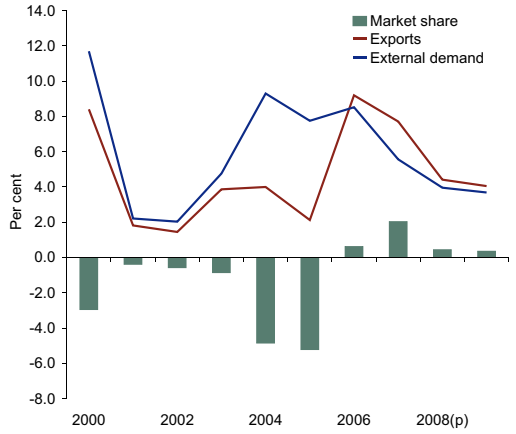
4.4. External trade

In 2007 exports of goods and services are estimated to have grown by 7.7 per cent. The current projection foresees a slowdown in exports to 4.4 per cent in 2008 and 4.0 per cent in 2009 (Chart 4.4.1), in line with the developments in the external demand indicator underlying the current projection (see "*Section 2 Underlying assumptions*").

(17) Since the increase in GFCF associated with purchases of air transport equipment basically implies an increase in imports, the effect on GDP in the quarter of purchase is broadly neutral.

Chart 4.4.1

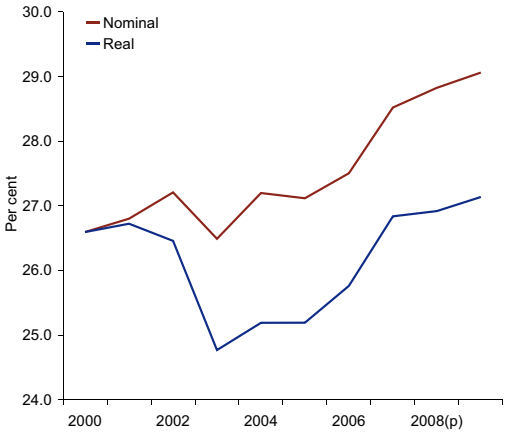
EXPORTS AND EXTERNAL DEMAND
Rate of change



Source: Banco de Portugal calculations.

Chart 4.4.2

RATIO OF EXPORTS OF TOURISM AND OTHER SERVICES TO TOTAL EXPORTS



Source: Banco de Portugal calculations.

Although presenting a slowdown as against 2006, exports continued to contribute very significantly to GDP growth in 2007. This deceleration resulted exclusively from less buoyant sales of goods, which increased by 6.0 per cent (8.3 per cent in 2006), since exports of tourism and other goods and services continued to grow close to 12 per cent. In nominal terms, the greatest contribution to the decelerating exports of goods by groups of products was associated with sales of fuel, which had increased significantly in 2006 and, to a lesser extent, with sales of machinery and appliances, which registered negative year-on-year growth changes in the second half of 2007.[18] As to exports of services (Chart 4.4.2), growth of tourism exports continued strong as well as exports of other services, namely those related to transportation or to the provision of professional technical services. In both real and nominal terms, the share of exports of services in total exports has continued to increase since 2003. This is due to the greater importance of sales of other goods and services, since the share of tourism exports has somewhat stabilised since 2006, following a period of decline since 2002 (Chart 4.4.3). The growing importance of this sector is due to the increasing expansion of the international services market, in a context of decreasing transportation and communication costs, as well as the possibility of breaking down production process stages across several countries.

The evolution of the European Commission indicator regarding the export order book has been broadly consistent with the profile of Portuguese exports of goods and services. In 2006 and 2007 that indicator presented a very favourable trend, in line with the acceleration in overall exports in that period. For 2008, available data suggest an interruption in the upward trend, which is particularly apparent in the case of the order book indicator (Chart 4.4.4).

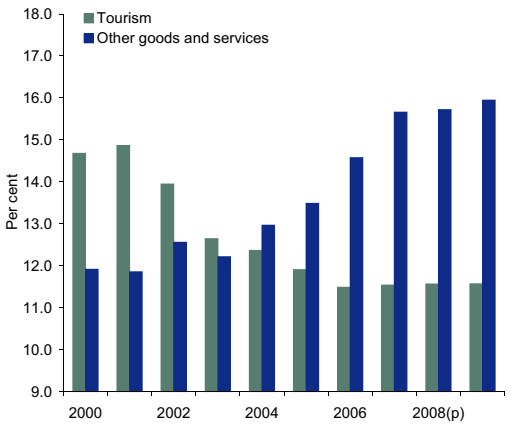
The current projection foresees a deceleration in exports of both goods and services, in comparison with 2006 and 2007. Despite the less favourable international environment, it is important that a gradual conversion process proceeds in the export sector, boosted by the increased competition in global markets. The gradual reallocation of resources to market segments with higher technological and human capital content is an important condition for selling more differentiated goods and services in international markets.

(18) Developments in exports by types of goods are analysed in greater detail in Banco de Portugal, *Annual Report-2007*.

Chart 4.4.3

RATIO OF EXPORTS BY TYPE OF SERVICE TO TOTAL EXPORTS

On the basis of figures in real terms

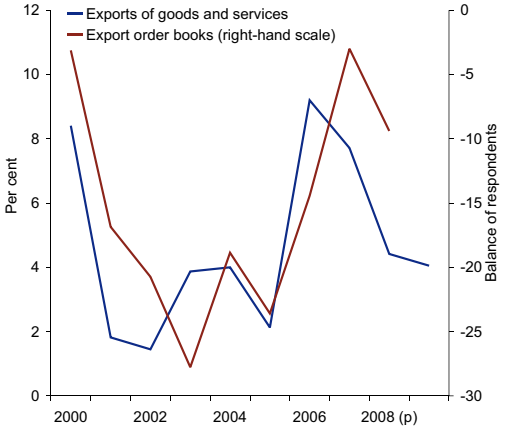


Source: Banco de Portugal calculations.

Chart 4.4.4

EXPORTS AND ORDER BOOK

Rate of change



Sources: European Commission and Banco de Portugal calculations.
Note: The "Export order books" series was calculated on the basis of monthly figures; for 2008, the figures shown correspond to the January-June period average.

Deceleration in exports flows mainly from the developments assumed for 2008 and 2009 for external demand for Portuguese goods and services (Chart 4.4.1). In 2008 the projected annual rate of change in overall exports is affected by the decelerating profile recorded throughout 2007 and early 2008. Moreover, exports of transport equipment are expected to accelerate, owing to the start of production of a new car model in a major company in this sector.

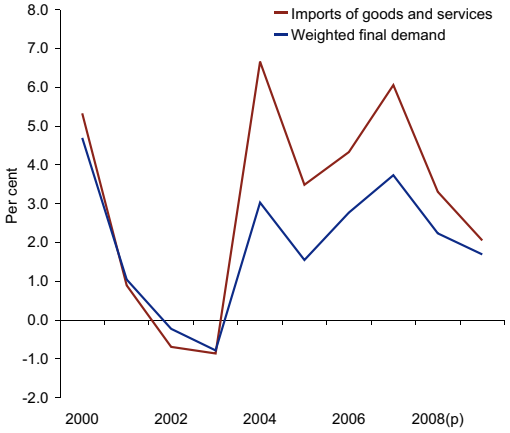
The decelerating profile of exports mentioned above continues to suggest that the sustainability of buoyant sales abroad and the stability of the market share are surrounded by a high degree of uncertainty. Moreover, due to statistical limitations, the external demand indicator does not seem to fully capture the geographical diversification of Portuguese exports (see "*Section 2 Underlying assumptions*"). The strengthening of the current international financial market instability may lead to the postponement of investment and consumption decisions at worldwide level and bring about lower-than-expected world economic growth. Therefore, the current projection entails significant risks and uncertainty in terms of external demand developments (see "*Section 7 Uncertainty and risk analysis*").

Imports of goods and services are estimated to have accelerated to 6.1 per cent in 2007. This was due to imports of goods, which accelerated by around 2.0 p.p., to 6.0 per cent, since imports of other goods and services maintained a growth rate of slightly above 6.5 per cent. The current projection foresees a slowdown in imports of goods and services to 3.3 per cent in 2008 and 2.1 per cent in 2009, in line with the projected developments in the overall import content weighted final demand indicator (Chart 4.4.5). The projection for 2008 already incorporates available data for the beginning of the year, which suggests a deceleration in real imports of both merchandise and other goods and services.

Moreover, the current projection foresees, on average, a further increase in the rate of import penetration in the Portuguese economy. The upward trend in the penetration rate is observed amid growing international economic integration, which tends to imply an increase in the import content of the various expenditure components of the Portuguese economy. One should stress that these developments have been more pronounced when measured in real terms, reflecting a decrease in the relative price of imports (Chart 4.4.6).

Chart 4.4.5

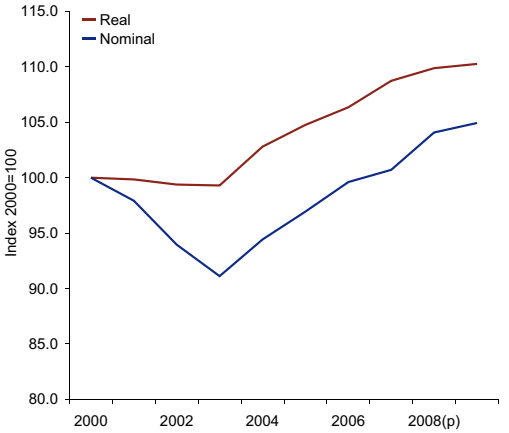
IMPORTS AND WEIGHTED OVERALL DEMAND
Rate of change



Source: Banco de Portugal calculations.

Chart 4.4.6

RATE OF IMPORT PENETRATION



Source: Banco de Portugal calculations.

5. INFLATION

According to the current projection, the average annual rate of change of the HICP is expected to increase by 0.6 p.p. to 3.0 per cent in 2008, and to decline subsequently to 2.5 per cent in 2009. The profile projected for inflation is chiefly determined by developments in the energy component, since the average annual rate of change of the HICP excluding energy is forecast to remain relatively stable over the projection horizon.

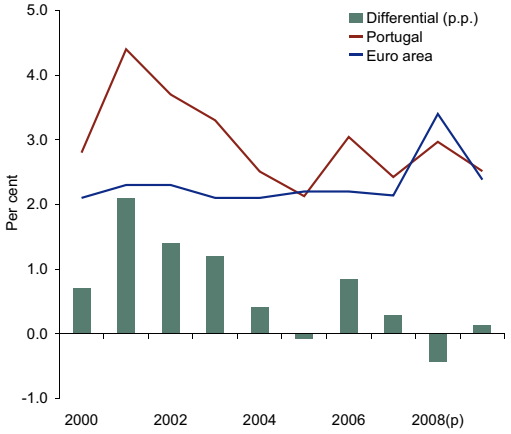
Taking as a reference the midpoints of the Eurosystem's projection ranges for inflation in the euro area, published in the *June 2008 issue of the ECB Monthly Bulletin*, the current projections imply that the inflation differential between Portugal and the euro area becomes temporarily negative in 2008, being virtually nil in 2009 (Chart 5.1). The negative inflation differential for the current year partly reflects the recent developments of the HICP in Portugal and in the euro area. In fact, since September 2007 year-on-year rates of change of the HICP have been higher in the euro area than in Portugal, reflecting the behaviour of prices of unprocessed food and industrial goods, both energy and non-energy. In addition, the negative differential in 2008 is also partly determined by the 1 p.p. cut in the standard VAT rate in July 2008. Under the assumption that the standard VAT rate change will pass through fully to final consumer prices, the estimated impact of this measure on the average annual change of the HICP is approximately -0.2 p.p. in 2008 and 2009.[19] This assumption is nonetheless a risk element in the current projection (see "*Section 7 Uncertainty and risk analysis*").

The average annual rate of change of the energy component of the HICP is expected to increase from 3.5 per cent in 2007 to 12.1 per cent in 2008, reflecting the rather significant acceleration assumed for oil prices (see "*Section 2 Underlying assumptions*"), notwithstanding the favourable base effects affecting this component in the current year, associated with the maintenance of the unit value of the tax on oil products and with a smaller increase in the electricity price than in the previous year. In 2009, in

(19) The cut in the standard VAT rate has a downward impact on the level of the consumer price index, affecting the year-on-year rates of change over a twelve-month period and, therefore, the inflation rate is expected to moderate in 2008 and 2009 as a result of this fact. After July 2009 the year-on-year rate of change of the HICP will mechanically increases via the dissipation of this effect. In addition, it was assumed that the pass-through of the VAT change to final consumer prices will occur gradually, reflecting the price collection periodicity implied in INE's methodology.

Chart 5.1

INFLATION IN PORTUGAL AND IN THE EURO AREA
Annual average rate of change



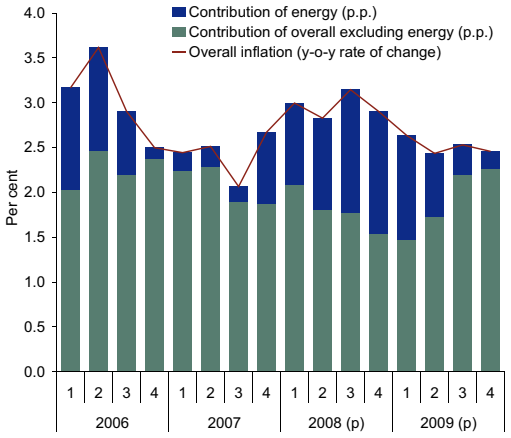
Sources: ECB, Eurostat, *INE* and Banco de Portugal calculations.
Note: The figures for the euro area correspond to the midpoints of the projection ranges published in the June 2008 issue of the ECB Monthly Bulletin (*http://www.ecb.int/pub/mb/html/index.en.html*)

line with the assumptions considered, which point to a slowdown in the oil price in euros, energy price growth is expected to decline to 5.9 per cent (Chart 5.2).

The overall HICP excluding energy is expected to decelerate from 2.3 per cent in 2007 to 2.0 per cent in 2008. This projection reflects a decline in non-energy goods import prices in 2008, in line with the deceleration assumed for prices of exports from main suppliers of the Portuguese economy, in a context of significant appreciation of the euro exchange rate. These developments make it possible to partly offset pressures arising from some acceleration in unit labour costs, limited by the decline in productivity observed in early 2008 (see "*Section 3 Supply*"). In 2009, the non-energy component of the HICP is

Chart 5.2

INFLATION AND CONTRIBUTION OF ENERGY AND NON-ENERGY HICP



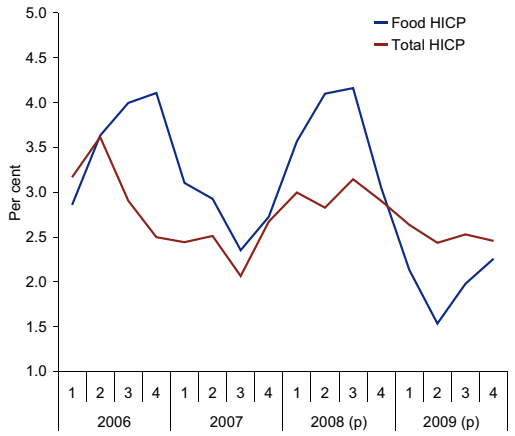
Sources: *INE* and Banco de Portugal calculations.

expected to stabilise when compared to the previous year, standing at 2.1 per cent, in line with the growth projected for unit labour costs and for the deflator of imports excluding energy goods, which is expected to resume values close to 2 per cent.

In intra-annual terms, the profile projected for the inflation rate is chiefly determined by developments in the energy component. The slowdown projected for this component from the last quarter of 2008 onwards mainly reflects assumptions as to the evolution of the oil price in euros which, notwithstanding its average annual increase, is expected to decelerate from 21.3 per cent in the second quarter of 2008 to -0.2 per cent at the end of 2009. The intra-annual profile projected for inflation also depends on the impact of changes in indirect taxation, which also contribute to the deceleration of the HICP in the end of 2008. The fading-out of the latter effect is expected to translate into a slight increase in inflation in the second half of 2009. Moreover, the current projection includes a decelerating trend of food consumer prices, in line with an expected moderation of the processed food component, partly reversing the impact in the price level resulting from the very significant increases occurred since August 2007 (Chart 5.3).

Chart 5.3

TOTAL HICP AND FOOD
Year-on-year rate of change



Sources: *INE* and Banco de Portugal calculations.

According to the European Commission Consumer Survey, expectations as to price trends over the next 12 months followed an upward path as of the second half of 2007 (Chart 5.4). This profile may be associated with consumer expectations that the recent unfavourable trend of some processed food[20] and energy prices may be maintained, given that this type of indicators seems to be particularly sensitive to changes in prices of the most frequently purchased goods.[21] In turn, the Consensus Economics indicator on inflation expected for the year following the one in which the survey took place, in spite of showing recently a slight increase, stands at values close to 2 per cent (Chart 5.5).

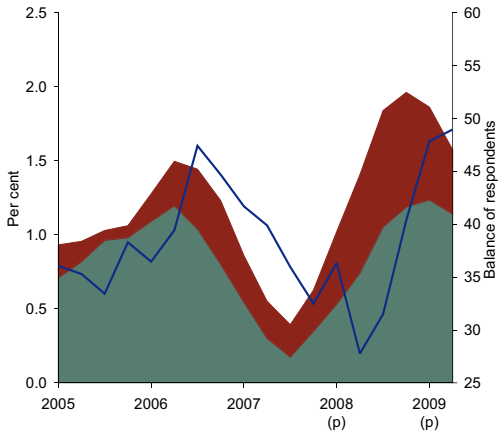
(20) As regards recent developments of some processed food prices, see "Box 5.1 Developments of processed food prices over 2007", Banco de Portugal, *Annual Report-2007*.

(21) For further information on factors that may influence inflation perception by consumers, see the article "*Measured Inflation and Inflation Perceptions in the euro area*", in the May 2007 issue of the ECB Monthly Bulletin.

Chart 5.4

HICP AND INFLATION EXPECTATIONS

Year-on-year rate of change and balance of respondents



Processed Food HICP: contribution to the average rate of change at the end of the quarter

Energy HICP: contribution to the average rate of change at the end of the quarter

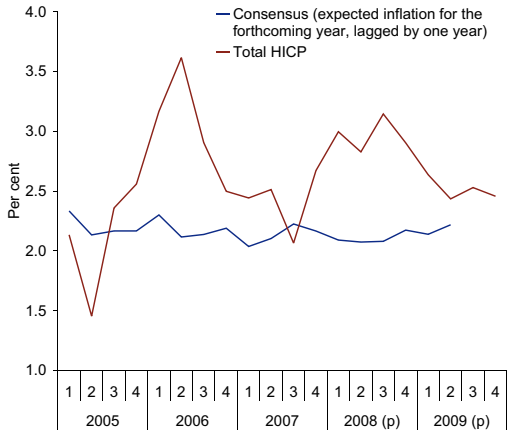
European Commission's price trend over the next 12 months indicator (quarterly average lagged one year (right-hand scale))

Sources: European Commission, *INE* and Banco de Portugal calculations.

Chart 5.5

HICP AND INFLATION EXPECTATIONS CONSENSUS

Rate of change



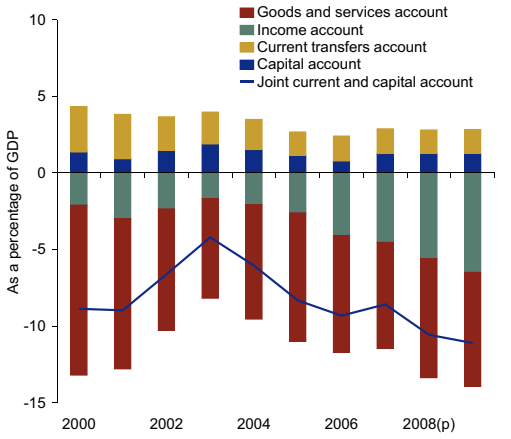
Sources: Consensus Economics, *INE* and Banco de Portugal calculations.

6. CURRENT AND CAPITAL ACCOUNT

The net external borrowing requirements of the Portuguese economy, measured by the joint current and capital account balance as a percentage of nominal GDP, declined from 9.3 per cent in 2006 to 8.6 per cent in 2007 (Chart 6.1). This reflected an increase in the capital account surplus and, to a lesser extent, a decline in the current account deficit. The relative stabilisation of the investment and domestic saving rates in the economy are distinctive features of 2007. Reference should also be made to the

Chart 6.1

CURRENT AND CAPITAL ACCOUNT



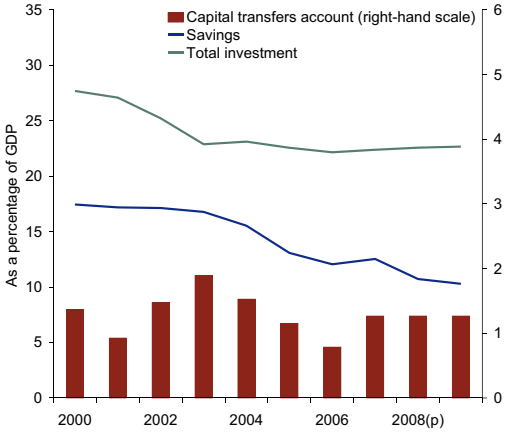
Source: Banco de Portugal calculations.

increase in capital transfers from abroad, determined by the implementation of projects still approved within the scope of the Third Community Support Framework.

Developments in net external borrowing requirements in 2008 and 2009 will fundamentally reflect the fall in the domestic saving rate, as well as the maintenance of the economy 's investment rate at levels close to those recorded in 2007 (Chart 6.2). The domestic savings profile is chiefly influenced by the expected behaviour of the private sector, while relative stabilisation is expected for the public sector. The current projection comprises an increase in net external borrowing requirements to 10.6 per cent in 2008 and to 11.1 per cent in 2009. The rise in the external deficit stems chiefly from the deterioration of terms of trade associated with the impact of the assumptions regarding oil price developments, from the increase in financing costs and from the deceleration of external demand.

Chart 6.2

SAVINGS, INVESTMENT AND CAPITAL TRANSFERS



Source: Banco de Portugal calculations.

The goods and services account deficit as a percentage of GDP is expected to deteriorate vis-à-vis 2007 (6.9 per cent) to 7.8 and 7.5 per cent in 2008 and 2009 respectively. This projection includes, in particular, unfavourable developments in terms of trade, which are conditioned by the assumptions regarding the oil price, and implies an increase in the energy account deficit to 5.6 and 5.9 per cent in 2008 and 2009 respectively, which compares with 3.8 per cent in 2007 (Chart 6.3).

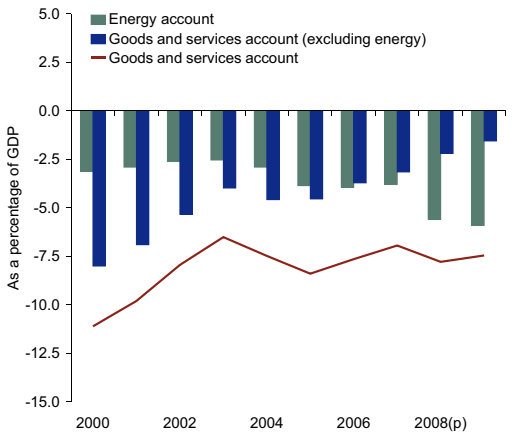
Excluding energy, the goods and services account deficit is expected to continue to decline, similarly to the two previous years, to -2.2 and -1.5 per cent of GDP in 2008 and 2009 (-3.1 per cent in 2007). This development is warranted by a volume effect and, to a lesser extent, by a terms-of-trade effect. The volume effect is the result of higher real growth of exports than of imports, in a context of expected deceleration of domestic demand in 2008-2009, vis-à-vis 2007. Gains in terms of trade excluding energy will likely continue to reflect the impact of international trade integration of countries with low unit production costs, allowing for continued moderate developments in import prices of non-energy goods and significant growth of the domestic export deflator, in a context of gradual redirection of resources to market segments with higher technological and human capital content.

According to the current projection, the deterioration of the external deficit of the Portuguese economy reflects to a large extent the developments in the income account balance, which is projected to increase to 5.6 per cent of GDP in 2008 and to 6.5 per cent in 2009 (4.5 per cent in 2007), maintaining the increasing trend observed after 2003. These developments reflect the continued worsening of the international investment position of the Portuguese economy, in addition to the interest rate hike in recent years.

The surplus of the joint current and capital transfers account is expected to stand at 2.8 per cent of GDP in 2008 and 2009 (2.9 per cent in 2007). These projections consider the current assumptions regarding the profile of European Union transfers to Portugal (see "*Section 2 Underlying assumptions*").

Chart 6.3

GOODS AND SERVICES ACCOUNT AND ENERGY ACCOUNT



Source: Banco de Portugal calculations.

7. UNCERTAINTY AND RISK ANALYSIS

The projection included in the current article is conditional on the assumptions presented in "*Section 2 Underlying assumptions*". The non-materialisation of these assumptions, as well as the possible occurrence of specific factors that directly affect the macroeconomic scenario, determine a range of risk and uncertainty factors. This section presents a quantitative evaluation of the risks for 2008 and 2009 as regards the growth of GDP and its components, and the inflation rate.[22]

The risk factors included in this quantitative evaluation stem, on the one hand, from the international economic and financial framework, characterised by continued strong turmoil in financial markets and persistent global macroeconomic imbalances. On the other hand, an additional internal factor was considered, related to the risk that the cut in the standard VAT rate may not pass trough fully to consumer prices, contrary to the assumption considered in the central projection. The developments of energy and food commodity prices remain a significant uncertainty factor around the central projection.

7.1. Risk and uncertainty factors

The main risk and uncertainty factor of the current projection for the Portuguese economy is closely related to the duration, magnitude and implications of the present international economic and financial framework as regards global economic activity.

The current projection embodies a high persistence of instability in financial markets and a gradual normalisation of global macroeconomic imbalances. International financial market turmoil, however, may intensify throughout the projection horizon and the adjustment of global macroeconomic imbalances may be more abrupt than considered in the current projection.

The international financial situation and increased difficulties in access to credit in wholesale markets have led to an overall increase in financing costs and to tighter credit standards in the United States, the United Kingdom and the euro area. This situation may deteriorate until the end of the projection horizon and its impact on economic activity developments in these economies may be stronger than considered in the current projection, in a context of declining agents' confidence and negative shocks on their wealth. As a result of their implications for credit risk and for the quality of collateral assets, developments in the international financial market situation will continue to follow closely the adjustment process in real-estate markets in the United States and in other countries which showed a strong increase in prices in this sector in the recent past, e.g. Spain, the main destination market of Portuguese exports.

The current financial market situation coexists with the maintenance of global macroeconomic imbalances, in spite of some correction in 2007. In fact, the slowdown in economic activity in the United States, notwithstanding robust growth of exports in 2007 in a context of sharp depreciation of the US dollar, allowed for some correction of the external deficit, which nonetheless remains at high levels. In turn, China and oil-exporting countries maintained current account surpluses, which have likely continued to be largely channelled to finance the North-American external deficit.

(22) The methodology followed in this analysis was published in A. Novo and M. Pinheiro, "Uncertainty and Risk Analysis of Macroeconomic Forecasts", Banco de Portugal, *Working Paper, 19-2003*.

The current projection is consistent with the maintenance of the process of gradual correction of the North-American external deficit and its financing by emerging market and commodity-exporting economies. However, the possibility of sharper and disorderly adjustment of global macroeconomic imbalances cannot be ruled out, determined by a fall in demand for US dollar-denominated assets, in a context of more diversified asset portfolios, which would tend to fuel mounting financial market turmoil, as well as its impact in real terms. Such a situation would imply an additional depreciation of the US-dollar, a loss of competitiveness of European economies (including the Portuguese economy) and hence a slowdown.

Since Portugal is a small open economy, strongly integrated in economic and financial terms, a more pronounced slowdown of the external demand due to lower growth of world economic activity, particularly in main destination markets of Portuguese exports, will determine a lower growth of Portuguese exports and business investment.

In addition, according to the results of the bank lending survey, Portuguese bank financing in wholesale markets has faced some constraints in recent months, namely reflected in an increase in its cost. The current projection is consistent with a slowdown in credit to the private sector and with an increase in financing costs in 2008. However, the possibility of substantially tighter credit standards cannot be excluded, together with an increase in uncertainty, a fall in agents' confidence and possible wealth effects resulting from financial asset losses. Such a situation would negatively affect developments in private consumption and investment, with an impact on economic activity growth in Portugal.

As regards internal risk factors, the present projection assumes that the cut in the standard VAT rate from 21 to 20 per cent will fully and quickly pass through to consumer prices. However, this assumption may not materialise if companies widen their profit margins, albeit temporarily. In this case, the impact of the cut in the standard VAT rate may be more limited than projected, causing an upward risk to inflation.

In addition to the mentioned risk factors, the current projection is influenced by a range of uncertainty factors. Particularly, as regards the trend of commodity prices, especially the oil price, the current projection bears a high uncertainty level, although it is difficult to identify a clear risk factor. In the course of 2007, chiefly at the end of the year, and in the first quarter of 2008, oil and food commodity prices accelerated strongly. The current projection points to some normalisation of food commodity price growth and to a relative stabilisation of the oil price in the second half of 2008. However, changes in investment portfolios at the global level, the persistence of global macroeconomic imbalances, the maintenance of financial market turmoil and the materialisation of geopolitical risks may determine important fluctuations in oil and food commodity prices, whose trend seems to be particularly difficult to anticipate and which implies high uncertainty as regards the present projection for inflation.

7.2. Quantification of risk factors

The previously identified risk factors make it possible to define a subjective probability of non-materialisation of the technical assumptions, and of occurrence of specific impacts that may affect the aggregates which are the focus of the projection (Table 7.2.1.). In this context, as far risks stemming from the international economic framework for 2008 are concerned, a 55 per cent probability of lower external demand growth and of appreciation of the euro exchange rate was considered in the current projection. For 2009, the probability assigned to these risks was of 60 per cent.

Risks due to a possible deterioration of credit conditions, namely as regards its cost, warrant the introduction of specific risk factors in consumption and investment. Hence, a 55 per cent probability in 2008

and a 60 per cent probability in 2009 of private consumption and investment growth rates falling short of the current projections were considered.

Finally, a specific risk was considered regarding the projection for inflation, reflecting the possible non-full pass-through of the cut in the standard VAT rate, wherefore a 55 per cent probability was considered of inflation exceeding the present projection.

Table 7.2.2 and Charts 7.2.1 and 7.2.2 present the main impacts of risks on the projected aggregates, namely GDP, its components and the inflation rate. As regards the projection for economic activity, the quantified risk analysis allows the identification of a clearly downward risk, i.e, a probability of approximately 60 per cent in 2008 and 66 per cent in 2009 of economic growth falling short of the present projection, reflecting the impact of the identified risks on global demand components.

As regards the inflation rate, risks are slightly upward, since the probability of a partial pass-through of the cut in the standard VAT rate is only partly offset by the impact of the risk of euro appreciation and by

Table 7.2.1

SUBJECTIVE PROBABILITIES OF RISK FACTORS

Percentage

	2008	2009
Conditioning variables		
Exchange rate	55	60
External demand	55	60
Endogenous variables		
Private consumption	55	60
Investment	55	60
HICP	45	45

Table 7.2.2

PROBABILITY OF AN OUTTURN BELOW THE CENTRAL PROJECTION

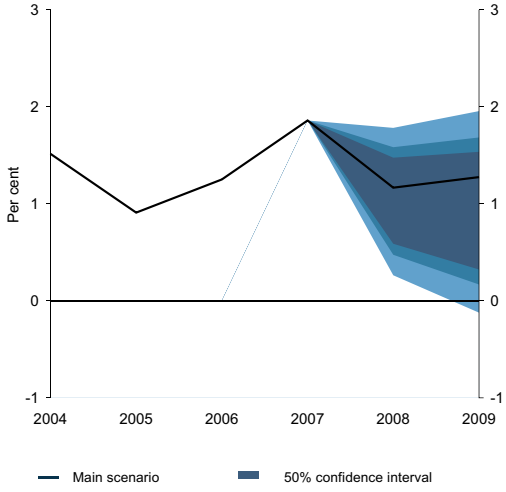
Percentage

	Weight (%)		
	2007	**2008**	**2009**
Gross domestic product	*100*	59	66
Private consumption	65	59	66
GFCF	22	58	66
Exports	33	53	59
Imports	*40*	58	66
HICP		46	44

Chart 7.2.1

GROSS DOMESTIC PRODUCT

Rate of change



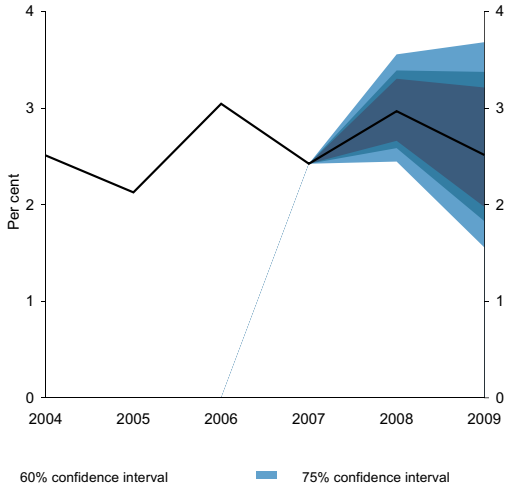
Main scenario | 50% confidence interval | 60% confidence interval | 75% confidence interval

Source: Banco de Portugal calculations.

Chart 7.2.2

HARMONISED INDEX OF CONSUMER PRICES

Rate of change



Source: Banco de Portugal calculations.

the effect on domestic costs of the probability that domestic demand may be weaker than considered in the central projection.

8. CONCLUSION

The current projections point to weak growth of the Portuguese economy in 2008 and 2009, hence implying a break in the process of gradual recovery of economic activity seen in previous years, which had been characterised by more favourable developments of exports after 2006 and by sharp acceleration of investment in 2007.

The second half of 2007 witnessed a number of external shocks, namely the outbreak of unprecedented turmoil in international financial markets, associated with a fast and significant revaluation of risk by investors. Recent evidence points to more persistent than expected turmoil, affecting in particular developments in export markets and financing conditions of economic agents. At the same time, the increase in oil prices intensified in international markets, rising to historically high levels in both nominal and real terms.

In this context, the current projections reflect, on the one hand, the deterioration of available indicators for the first half of 2008, not only those related developments in the confidence among economic agents, but also quantitative indicators related to exports and investment. On the other hand, compared to the winter 2007 issue of the *Economic Bulletin*, the current projection considers a significantly more unfavourable international framework, simultaneously characterised by contained external demand, higher oil price levels, increased interest rates and appreciation of the euro exchange rate. These revisions negatively affect the projection for economic activity in Portugal, considering in particular the highly indebted non-financial private sector and the intensive utilisation of oil per unit of output.

According to the current projection, the rise in inflation in 2008 will be temporary. The contained developments in wage costs, in a context of persistently high unemployment rate and stabilising growth of commodity prices – although with no reversal to the levels observed prior to 2007 – are likely to allow for a gradual decline in the inflation rate in the course of the projection horizon.

Although the downward revision of projections for economic activity partly corresponds to the materialisation of some downward risks identified in the winter 2007 issue of the Economic Bulletin, the present projection continues to be characterised by high uncertainty and by a balance of risks tending predominantly to a slower pace of growth of economic activity in the course of the projection horizon, especially in 2009. The main risk in the current projection is related to heightened instability in international financial markets. A higher increase in financing costs worldwide, a sharper adjustment of the real-estate markets in some countries with strong price increases in recent years, as well as a faster and disorderly correction of global macroeconomic imbalances would imply lower growth in Portuguese export markets and would affect intertemporal consumption and investment decisions by economic agents.

Box 1. Revised projections for growth of the Portuguese economy

In comparison with the Economic Bulletin Winter-2007, the current projection includes a downward revision of economic activity growth by 0.8 and 1.0 percentage points (p.p.) for 2008 and 2009 respectively. Albeit significant, the current revision is within the range of other past revisions. Chart 1 illustrates revised projections for the Winter and Summer Economic Bulletins since Banco de Portugal has started to publish projections between the Portuguese economy for horizons beyond the current year.

On average, throughout that eight-year period, the annual growth rate of the Portuguese economy was revised by -0.4 p.p. This reflects the fact that the non-foreseeable shocks that affected the Portuguese economy were mainly negative.

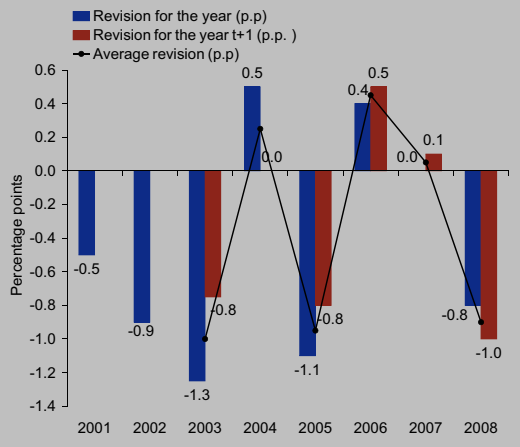
In fact, projections are based on a series of exogenous assumptions, the most important being the external environment of the Portuguese economy. The non-materialisation of these assumptions will certainly have significant repercussions on a small open economy like Portugal, which is strongly integrated in an increasingly global economic area. For illustration, Chart 2 shows the strong correlation between revised projections for economic activity and revisions assumed for Portuguese export market growth. In five of the past six years, revised projections for economic activity and external demand growth had the same sign.

As from the second half of 2007 there were several external shocks that prolonged over time, such as the strong turmoil in international financial markets, the marked deceleration in the US economy and the intensification of oil price rises in international markets. In this context, assumptions were significantly revised regarding the exercise published in the Winter 2007 Economic Bulletin (see "Section 2 Underlying assumptions").

Chart 3 presents an estimate for the impact of changes in assumptions on current projections. Based on simulations of the macroeconomic model that is normally used in Banco de Portugal, it can be concluded that these revised assumptions almost fully explain revisions to the projections for economic activity growth in 2008-2009. The results mainly highlight the effects of the significant upward revision to assumptions about interest rates and oil prices, besides less favourable developments in export markets.

Chart 1

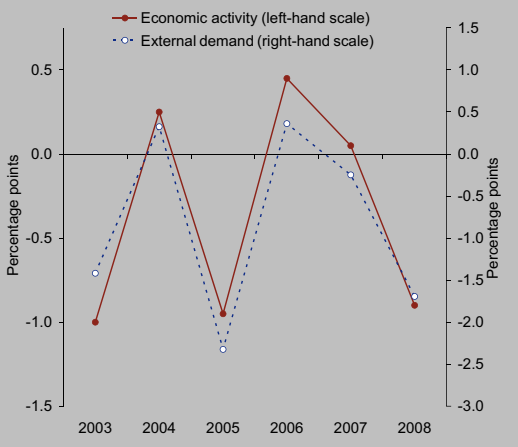
REVISED PROJECTIONS FOR ECONOMIC ACTIVITY GROWTH [a]



Source: Banco de Portugal calculations.
Note: (a) Banco de Portugal started to publish projections for the Portuguese economy for horizons beyond the current year in the December 2000 Economic Bulletin. The December 2000 and December 2001 issues of the Economic Bulletin only presented projections for the following year and, therefore, it is not possible to calculate revisions to the projections published in the Summer Economic Bulletins for the year t+1. Moreover, up to the December 2004 issue of the Economic Bulletin, projections were shown in the form of ranges. In those cases, figures used to construct the chart were based on the mid-points of such ranges.

Chart 2

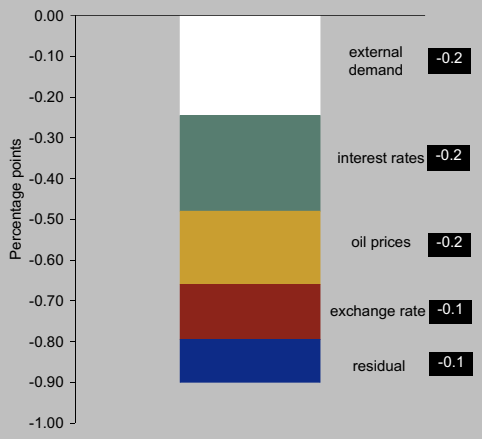
REVISED PROJECTIONS OF THE SUMMER ECONOMIC BULLETIN
Economic activity vs external demand [a]



Source: Banco de Portugal calculations.
Note: (a) Average revisions for the year t and for the year t+1, in percentage points.

Chart 3

IMPACT OF REVISED ASSUMPTIONS VS REVISIONS OF AVERAGE GROWTH PROJECTED FOR 2008 AND 2009 [a]



Source: Banco de Portugal calculations.
Note: (a) Figures based on simulations with the macroeconomic model normally used in forecast exercises.

ARTICLES

PORTUGUESE ECONOMIC DEVELOPMENT IN THE EUROPEAN AREA: DETERMINANTS AND POLICIES*

*José A. Ferreira Machado***

For the fourth time the Bank of Portugal as promoted its bi-annual conference on the topic of "Portuguese economic development in the European area: determinants and policies". The main purpose of this initiative is to have the Academia reflecting on the long-term or structural problems of the Portuguese economy.

This article presents a personal (and, necessarily, biased) account of what the author has learnt from the Conference.

1. Fostering growth in Portugal

The central talk at the conference, "Fostering Growth in Portugal", was delivered by the Harvard professor and growth theory specialist, Philippe Aghion. The problems of fostering Portugal's growth were analyzed from the vantage point of the so called "Schumpeterian theory", a paradigm originally proposed and developed by Aghion himself. The central tenant of this approach is that growth results from quality improving innovations; it thus focus on quality improving innovations that render old products obsolete, and hence involves the force that Schumpeter called "creative destruction."

Under this framework the growth effects of various policies are highly context dependent, as opposed to "one-size-fits-all" approaches, policies or institutions. Typically, the Schumpeterian theory gauges that context by proximity to the technological frontier (representing the stock of global technological knowledge available to innovators in all sectors of all countries). Far below from the frontier a country will maximize growth by favoring institutions that facilitate implementation (imitation) activities; here practices such as long term bank finance, export promotion, incumbent's protection or subsidies to production may be beneficial for growth. However as it catches up with the technological frontier, to sustain a high growth rate the country will have to shift from implementation-enhancing institutions to innovation-enhancing institutions; now, well functioning capital markets, product market competition, entry deregulation or labor market flexibility are key for growth.

A central idea is thus, that institutions and policies that favor frontier innovation are not necessarily the same as those that favor imitation. Two further examples highlight this context dependence. Higher education investment should have a bigger effect on a country's ability to make frontier innovation, whereas primary and secondary education are more likely to make a difference in terms of the country's ability to implement or imitate existing (frontier) technologies. Labor market flexibility is more necessary for frontier innovation than to imitation and, consequently is more growth-enhancing the closer a country is to technological frontier.

* The opinions expressed in the article represent the views of the authors'; they are not necessarily those of Banco de Portugal.

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In summary, the basic message from Aghion's talk is that for Portugal to move up on the skill and productivity ladders and thus resist the emerging economies' competition, the growth-enhancing institutions should evolve. Have they? Will they?

Several institutions or policies always promote growth. Chief among those are property right protection, the rule of law and product market competition. Two papers ("The impact of firm size and market size asymmetries on national mergers in a three-country model" by Luís Santos Pinto and "Merger analysis in the banking industry: the mortgage loans and short term corporate credit markets" by Duarte Brito, Pedro Pereira and Tiago Ribeiro) provide analytical frames to analyze quantitatively the impact on welfare of mergers in industries as banking, mobile communications, cement and fuel retail trade. Within the limits of its assumptions, the papers provide tools that might be used to design more efficient competition policies.

With the accession to EU more than 20 years ago, Portugal's economic institutions and policies changed significantly. Chief among those are, of course, the freedom of movements of capital, goods, services and people associated with the Single European Market. Also, a vast privatization program was launched. Additionally, several laws reforming corporate governance were passed: provisions reinforcing the protection outside investor's rights; a new securities law; and a reformed bankruptcy law. The paper "The Economic impacts of improving investor rights in Portugal" by Rui Castro, tries to evaluate the relative contribution of those reforms for improved performance of the Portuguese economy since joining the EU. The main conclusion is that, among the reforms under scrutiny, the improvement of investor's protection is the one most consistent with the macroeconomic facts (aggregate productivity growth) and micro-evidence of more efficient resource allocation. The rational underlying this conclusion has a "Schumpeterian" gist: poor investor's rights protections takes a disproportionate toll on the industries where economic activity involves higher risks ("capital goods" sectors in Castro's paper, "frontier sectors" in Aghion's).

2. Social Security

People live longer, living longer is more expensive and people don't save enough for it. These are three uncontroversial facts about modern societies that have far reaching implications. The paper by João Cocco and Francisco Gomes ("Longevity risk, retirement savings and individual welfare") estimates that a 65 years old male in Portugal to needed 24% more wealth in 2000 than in 1970 in order to ensure the same level of consumption after retirement. Only because he's expected to live longer.

An interesting point addressed in that paper is that longevity is very likely to continue to increase but these increases are typically underestimated by actuaries and insurers: this uncertainty makes that private savings only partially accommodate the increases in life expectancy.

The deficits of existing social security pensions systems are to a large extent explained by the increase in life expectancy. Governments react to these deficits by cutting on pension benefits or by creating incentives for additional private saving; Markets also adjust by introducing new types of financial instruments that hedge longevity risk (discussed in the paper "Hedging longevity risk", by J. Cocco and F. Gomes).

Several proposals to reform existing pay-as-you-go state pensions systems have been launched. Ricardo Rodrigues ("Simulation of unemployment insurance savings accounts in Portugal") discusses one of them: The creation of individual unemployment insurance savings accounts to replace the existing unemployment benefits system. A similar system is in place in Chile since 2002 and has the following basic ingredients: (i) Employers and employees contribute to an individual account earning a

market interest rate; (ii) The individual unemployment benefits are financed by that account; (iii) If balances not enough the State makes loan at market rate; (iv) Upon retirement or death the balance is collected or, if negative, debt is forgiven.

The idea of the proposed system is to overcome the incentives to work problems of the existing system without cutting social protection levels. In spite of several drawbacks of the simulation the system shows promise of constituting a viable alternative.

3. Climate change

The most widely raised ecological problems are ones involving open-access common-property resources such as the depletion of the ozone layer or the emission of green house gases. Given this nature of global public good, markets fail in delivering efficient solutions to dealing with the consequences of climate changes. The paper by Antonieta Cunha-e-Sá discusses what economic science has to say about appropriate actions to reconcile rapid economic growth and reduced risks of climate change.

In addition to the usual problems raised by public goods' provision and allocation, global warming presents some compounding difficulties. The first relates to the very long time horizon since the greatest costs of today's emissions will be felt in more than 50 years from now. The second, is that there is a huge uncertainty on the economic consequences (in spite of the significant progresses the science) of climate change; some of the consequences may be so large (even with low, and difficult to estimate, probability) that traditional cost-benefit analysis may be meaningless. Finally, emission control clearly requires world wide cooperation but impacts are not uniformly distributed among countries.

Two major consequences stem from these difficulties: It is hard to design incentives to foster innovation and R&D investment in low-carbon technologies (a time-inconsistency problem of the optimal "ramp" (increasingly tighter over time) policy, since it is not credible to announce today the tighter future caps); and it is also hard to design incentives for international cooperation.

These constitute major obstacles since any long term solution will necessarily rely on the development and adoption of new technologies and the global nature of the climate change externality require global cooperation. A solution will probably require – more than policies or, better, prior to policies – new institutions of international cooperation where groups of countries with common interests can achieve with the global environment what some are achieving with their local environments.

PRINCIPLES OF OPTIMAL STABILIZATION POLICY*

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1. INTRODUCTION

In this article, we derive principles of optimal stabilization policy. We show that optimal policy in response to shocks keeps prices stable, that the nominal interest rate should be low and stable, and that tax instruments play a crucial role. The analysis is based on Correia, Nicolini and Teles (2008).

The model we consider is a stochastic production economy, without capital, with cash and credit goods. Firms are monopolistic competitive and are restricted in setting prices, but are otherwise identical. Government consumption is financed with revenue from labor income and consumption taxes, as well as seigniorage. For simplicity, we assume that there is state-contingent public debt.[1]

The model has three sources of distortions. Because firms are monopolistic competitive, there is a mark-up distortion. The price setting restrictions are another source of inefficiency. Finally, the need to raise distortionary taxes to finance public expenditures implies various wedges in marginal decisions. One of those wedges is caused by the nominal interest rate in the marginal decision between money and bonds. The nominal interest on short term, riskless, bonds is the opportunity cost of money. Since the cost of producing money is negligible, a positive nominal interest rate is a distortion. The interplay between the three potential sources of distortions is at the heart of optimal stabilization policy. As shown by Correia, Nicolini and Teles (2008), optimal policy eliminates the distortions associated with sticky prices, as well as the money demand distortion. The markup distortion can be eliminated with an implicit subsidy financed with the lump-sum revenue from profit taxation. The only remaining distortions are the ones arising from the need to raise distortionary taxation in a competitive, flexible price environment.

Once it is clear that optimal policy neutralizes the effects of the nominal rigidity, then we can apply the principles of optimal taxation under flexible prices that are well known after Lucas and Stokey (1983), Chari, Christiano and Kehoe (1991) and many others.

The early approach in the literature (see Rotemberg and Woodford 1997 or Clarida, Gali, and Gertler 1999) is to assume that there are lump-sum taxes. Those taxes finance both government expenditures and a subsidy to production that eliminates the markup distortion. It is also standard to abstract from the money demand distortion by assuming that the economy is the cashless limit of a sequence of monetary economies. By keeping prices flat it is possible to eliminate the only remaining distortion, the nominal rigidity, and achieve the first-best allocation. In this context, price stability is optimal and the nominal interest rate moves one-to-one with the natural real rate of interest, in response to shocks. But lump-sum taxes are needed for these results, and those are obviously not available.

An alternative, more elaborate, approach is to assume that, indeed, lump-sum taxes are not feasible, but to be very selective in the fiscal instruments that are available. Benigno and Woodford (2003),

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(1) Public debt is normally assumed to be state noncontingent, even if there are ways of using maturities, or consumption taxes, to mimic state contingent debt.

Schmitt-Grohé and Uribe (2004), and Siu (2004) assume that only one tax can be used, either the consumption or the labor income tax. They obtain very different qualitative results, from the first-best ones.[2] Price stability is not optimal and the nominal rate is not the natural rate.

Correia, Nicolini and Teles (2008) solve the optimal fiscal and monetary policy problem assuming that taxes must be distortionary, but allowing for all the standard taxes. In particular, in this environment, because there is no capital, the taxes that make sense to assume are consumption and labor income taxes, in addition to profit taxes. They recover the first-best principles of price stability and the Friedman rule, i.e., a zero nominal interest rate, even if their analysis is a second-best one, in which distortions must be present.

Why should some distortions be fully eliminated, while others are kept? This is certainly against the general Ramsey principle that distortions should be balanced. There is, however, another well known principle, due to Diamond and Mirrlees (1971), that distortions associated with productive inefficiencies are not optimal even when there are other distortions. Productive inefficiencies bring the economy inside the production possibilities set and it is always better to be on the frontier of that set. It turns out that the distortions caused by sticky prices are productive inefficiencies. Indeed, because price setting decisions may be staggered, otherwise identical firms may set different prices. This is a productive inefficiency.

The reason why the Friedman rule is optimal even when there are other distortions, is also related to the same principle in Diamond and Mirrlees (1971). Money can be modelled as an intermediate good that it is not optimal to tax, precisely to ensure efficiency in production. There is another reason, however, not to tax money. Money is a free good that, regardless of the optimal tax rate, should have a very low price. The nominal interest rate is the price of money, and, therefore, should be close to zero.[3]

Our analysis proceeds as follows: We start by analyzing an economy with monopolistic competitive firms and flexible prices. We show that every allocation in the economy with flexible prices can be implemented with stable prices. We then show that price stability is optimal when there are sticky price firms. Because, under sticky prices, it is feasible and optimal to replicate the allocations with flexible prices, we solve the optimal taxation problem under flexible prices. We show that the Friedman rule is optimal, for preferences that are separable in leisure and homothetic in the consumption goods. We also show that, for those preferences, the optimal wedges are constant over time and across states, and that the tax rates do not have to vary with contemporaneous shocks.

2. THE MODEL ECONOMY[4]

The model is a standard, Ramsey, optimal taxation model, similar to the one in Lucas and Stokey (1983) or Chari, Christiano and Kehoe (1991), except that firms are monopolistic competitive and that there are restrictions in how they set prices.

The economy is inhabited by identical households, a continuum of firms indexed by i, and a government. In each period t, each firm uses labor n_{it} to produce a good that can be used for private consumption as a cash good c_{1it}, as a credit good c_{2it}, or for public consumption g_{it}. The technology is

$$c_{1it} + c_{2it} + g_{it} = A_t n_{it}$$

(2) Quantitatively, price stability is close to optimal.

(3) For more on the optimal price of money, see Teles (2003).

(4) We describe the model and derive the results with some detail but we advice the more technical reader to revert to the Appendix.

where A_t is the stochastic productivity that is common across goods.

The individual goods aggregate into composite cash goods C_{1t} and credit goods C_{2t}, with the Dixit-Stiglitz aggregator. The households draw utility from these composite goods and disutility from aggregate labor N_t, according to the utility function:

$$E_0 \sum_{t=0}^{\infty} \beta^t u(C_{1t}, C_{2t}, N_t),$$

Aggregate government purchases G_t are exogenous and stochastic, and must be financed with consumption taxes τ_t^c, taxes on labor income τ_t^n, and taxes on profits τ_t^d and by printing money M_t. For simplicity we allow for debt to be state-contingent.[5] Again for simplicity, we assume that profits are fully taxed, $\tau_t^d = 1$ and that initial wealth is also fully taxed.

The cash goods C_{1t} must be purchased with money M_t according to the cash-in-advance constraint

$$(1+\tau_t^c) P_t C_{1t} \leq M_t \quad . \tag{1}$$

The budget constraint of the households can be written as

$$E_0 \sum_{t=0}^{\infty} \frac{\overline{Q}_t}{R_t} [(1+\tau_t^c) P_t (C_{1t} + C_{2t}) + M_t (R_t - 1) - (1-\tau_t^n) W_t N_t] \leq 0$$

where $\overline{Q}_t$ is the state-contingent price of one unit of money at time t in a particular state, in units of money at time 0, normalized by the probability of occurrence of that state, and R_t is the gross nominal interest rate from period t to period $t+1$. W_t is the nominal wage. By arbitrage, because the sum of the prices of the contingent bonds must be equal to the price of the noncontingent bond, it must be that

$$E_t \frac{\overline{Q}_{t+1}}{\overline{Q}_t} = \frac{1}{R_t} . \tag{2}$$

Using the cash-in-advance constraint (1), we can write the budget constraint as

$$E_0 \sum_{t=0}^{\infty} \frac{\overline{Q}_t}{R_t} [(1+\tau_t^c) P_t (R_t C_{1t} + C_{2t}) - (1-\tau_t^n) W_t N_t] \leq 0 . \tag{3}$$

It is then straightforward to see that the relative price between the cash and the credit goods is the nominal interest rate, R_t, so that the marginal rate of substitution between those two goods must be equal to R_t,

$$\frac{u_{C_{1t}}}{u_{C_{2t}}} = R_t \geq 1.$$

The cash good is more expensive because it must be bought with money. The nominal interest rate cannot be negative, $R_t \geq 1$, since otherwise households could make arbitrarily large profits by issuing bonds and holding money. The marginal rate of substitution between credit goods and leisure must also be equal to the relative price,

(5) Correia, Nicolini and Teles (2008) obtain the results with noncontingent nominal debt of one-period maturity.

$$-\frac{u_{C_2 t}}{u_{Nt}} = \frac{(1+\tau_t^c)P_t}{(1-\tau_t^n)W_t}.$$

The relative price between consumption of the cash good in period t, in a particular state, and in period 0 is $\frac{\overline{Q}_t\ (1+\tau_t^c)P_t}{(1+\tau_0^c)P_0}$, and therefore the marginal rate of substitution must be equal to that price,[6]

$$\frac{\beta^t u_{C_{1t}}}{u_{C_{10}}} = \frac{\overline{Q}_t\ (1+\tau_t^c)P_t}{(1+\tau_0^c)P_0}.$$

Using the arbitrage condition between contingent and noncontingent bonds, (2), we have the Fisher equation,

$$\frac{u_{C_{1t}}}{(1+\tau_t^c)P_t} = \beta R_t E_t\left[\frac{u_{C_{1t+1}}}{(1+\tau_{t+1}^c)P_{t+1}}\right],$$

where the relevant prices are gross of the consumption taxes. One unit of money can either be used to buy $\frac{1}{(1+\tau_t^c)P_t}$, units of the cash good that give marginal utility $\frac{u_{C_{1t}}}{(1+\tau_t^c)P_t}$, or used to buy noncontingent bonds that give a sure gross return R_t that can, then, be used to buy $\frac{1}{(1+\tau_{t+1}^c)P_{t+1}}$ cash goods, with marginal utility $\beta E_t\left[\frac{u_{C_{1t+1}}}{(1+\tau_{t+1}^c)P_{t+1}}\right]$. The two marginal benefits must be equal.

For now, we assume that firms set flexible prices. Because all monopolists face the same demand and have the same technology, all set the same price. The common price is equal to a constant markup over marginal cost,

$$P_t = \frac{\theta}{\theta-1}\frac{W_t}{A_t}.$$

The markup is a function of θ, which is the elasticity of substitution between any of the individual goods. Notice that as the elasticity increases, the markup is reduced, to the point where it is zero, which would correspond to perfect competition.

Since all firms set the same price, they also sell the same quantities, so that the individual quantities are equal to the aggregate. The aggregate resource constraints are, then,

$$C_{1t} + C_{2t} + G_t = A_t N_t.$$

3. EQUILIBRIA WITH FLEXIBLE PRICES

The standard approach in the literature on Ramsey taxation in these kinds of models is to identify the smallest set of conditions restricting the equilibrium allocations of consumption and labor, in order to

(6) Notice that $\overline{Q}_0 = 1$ and that the state-contingent prices $\overline{Q}_t$ are normalized by the probabilities of occurence of the state.

make it easier to solve the optimal problem. We show formally in the Appendix that the allocations are restricted only by the following implementability conditions,

$$E_0 \sum_{t=0}^{\infty} \beta^t \left(u_{C_{1t}} C_{1t} + u_{C_{2t}} C_{2t} + u_{Nt} N_t \right) = 0 , \tag{4}$$

and

$$u_{C_{1t}} \geq u_{C_{2t}} , \tag{5}$$

and the feasibility conditions

$$C_{1t} + C_{2t} + G_t = A_t N_t . \tag{6}$$

The first condition is obtained replacing the prices and taxes from the marginal conditions of the households in the household budget constraint (3). Because the condition is derived using the conditions of the households only, it does not depend on the price-setting restrictions. The second condition ensures that the nominal interest rate is nonnegative, and also does not depend on whether prices are flexible or sticky.

These conditions are all that is needed to characterize the equilibrium allocations for the consumption of the two goods and labor. They are obviously necessary conditions, since they were obtained using the equilibrium conditions. They are also sufficient, meaning that all the other equilibrium conditions can be satisfied by the choice of policies, prices or quantities other than the consumption of the two goods and labor. It turns out that this can be shown, setting the price level constant over time and equal to some arbitrary number, $P_t = \overline{P}$. This means that each equilibrium allocation can be implemented with a price level that does not depend on the shocks. This result is instrumental for the main point we want to make in this article.

In order to implement an equilibrium allocation with constant prices there is a specific role for the fiscal and monetary policy instruments. To see this, we take a particular allocation for the two consumption goods and labor, satisfying (4), (5) and (6). Then,

$$\frac{u_{C_{1t}}}{u_{C_{2t}}} = R_t \tag{7}$$

pins down the nominal interest rate, $R_t - 1$, which is nonnegative because of the implementability condition (5). For a constant price level, $P_t = \overline{P}$, the intertemporal condition

$$\frac{u_{C_{t-1}}}{(1+\tau^c_{t-1})\overline{P}} = \beta R_{t-1} E_{t-1} \left[\frac{u_{C1t}}{(1+\tau^c_t)\overline{P}} \right] \tag{8}$$

can be satisfied by the choice of consumption taxes τ^c_t. Notice that it is possible to do this for a consumption tax that does not depend on the contemporaneous shocks. Given τ^c_0, we use the condition for $t = 1$, to determine τ^c_1, the conditions for $t = 2$, to determine τ^c_2, and so on.

The money supply is whatever satisfies the cash-in-advance condition (1). The price-setting equations,

$$\overline{P} = \frac{\theta}{\theta - 1} \frac{W_t}{A_t}$$

determine the nominal wage W_t, that must move with the productivity shocks. The household intratemporal conditions,

$$-\frac{u_{C_2 t}}{u_{Nt}} = \frac{(1+\tau_t^c)\overline{P}}{(1-\tau_t^n)W_t},$$

are satisfied by the choice of the labor income tax τ_t^n.

Notice that the household intratemporal conditions together with the price setting conditions can be written as

$$-\frac{u_{C_2 t}}{u_{Nt}} A_t = \frac{(1+\tau_t^c)}{(1-\tau_t^n)} \left(\frac{\theta}{\theta - 1} \right). \tag{9}$$

Suppose, now, that the optimal wedge or distortion between the credit good and labor, $-\frac{u_{C_2 t}}{u_{Nt}} A_t$, is constant, as is the case for the class of utility functions that we will analyze later. Then the implementation of a constant optimal wedge would mean that the ratio $\frac{1+\tau_t^c}{1-\tau_t^n}$ is constant, and if τ_t^c does not move with the contemporaneous shocks, then τ_t^n will also be independent of the shocks.

The equilibrium allocations described by the conditions above are the same here as in Lucas and Stokey (1983) and Chari *et al*. (1991), where firms are assumed to be competitive. Indeed, the implementability conditions are independent of θ, and therefore of the markup. Monopolistic competition creates a distortion but it also creates the lump-sum tax revenue necessary to subsidize production, to eliminate the distortion. The revenue from the full taxation of profits is exactly the revenue needed to finance the implicit subsidy to labor needed to eliminate the monopoly distortion.

We have so far made one very important point, that every allocation under flexible prices, and, in particular, the optimal one, can be implemented with constant prices. The importance of this point is that, if prices can be constant, this means that if firms were restricted in setting prices, those restrictions would not be relevant. It is then possible under sticky prices to achieve the same allocation as under flexible prices. It follows that we cannot do better under flexible prices than under sticky prices.

But maybe we could do better under sticky prices than under flexible prices. This is only surprising if we forget that the economy is distorted, so that adding one more distortion can be better. It turns out that the distortion from sticky prices is of a particular type that should be fully eliminated even if there are other distortions. If prices are sticky, firms that are otherwise very similar may charge different prices. This means that production is inefficient, and productive inefficiencies are not optimal even if there are other distortions.

4. PRICE STABILITY IS OPTIMAL

Suppose now that prices are sticky, and that firms set prices at different times so that there is price dispersion. If otherwise identical firms set different prices p_{it}, then the aggregate resource constraints have to be written as

$$(C_{1t} + C_{2t} + G_t) \int_0^1 \left(\frac{p_{it}}{P_t} \right)^{-\theta} di = A_t N_t \ , \tag{10}$$

where

$$P_t = \left(\int_0^1 p_{it}^{\,1-\theta} di \right)^{\frac{1}{1-\theta}} .$$

$\int_0^1 \left(\frac{p_{it}}{P_t} \right)^{-\theta} di$ is the measure of the resource cost due to price dispersion.

The set of implementable allocations under sticky prices must be characterized by the same two implementability conditions under flexible prices (4) and (5), because those were derived with the households conditions only, regardless of how prices were set. In addition, instead of the resource constraints (6), constraints (10) above must be satisfied.

There are certainly other equilibrium restrictions, but they are not relevant for the point we want to make. The point we make now is that allocations under flexible prices dominate the ones under sticky prices. Indeed, because the resource cost is zero, $\int_0^1 \left(\frac{p_{it}}{P_t} \right)^{-\theta} di = 1$, when prices are the same, $p_{it} = P_t$, and it is greater than zero, $\int_0^1 \left(\frac{p_{it}}{P_t} \right)^{-\theta} di > 1$, otherwise, under flexible prices it is possible to minimize the resource cost due to price dispersion. The resource cost is zero under flexible prices, in which case all the firms set the same price.

The intuition for this result is the following. Firms in this set up are symmetric, so that, if prices are flexible, they must set the same price. Production is then efficient, the economy is on the production possibilities frontier, and the job of the policy maker is to optimally distort along the frontier. Instead, if firms set different prices, there is a productive inefficiency, and the equilibrium will be inside the production possibilities set. This is never optimal, even when the economy is distorted. It is always better to avoid productive inefficiencies and optimally distort along the frontier. This result, that productive inefficiencies are not desirable in a distorted world is due to Diamond and Mirrlees (1971), that applied it to the optimal taxation of intermediate goods. As they show, when there are taxes on the final consumption goods, intermediate goods should not be taxed. Sticky prices act like differential taxation of intermediate goods.

We conclude, then, that price stability is optimal under quite general conditions. Stabilization policy that exploits the nonneutrality of money, to achieve any goal other than price stability is not desirable, unless, of course, taxes cannot be used for stabilization policy.

5. OPTIMAL TAXES – THE FRIEDMAN RULE

Once it is clear that the optimal allocation can be found in the set of allocations under flexible prices, we can solve a Ramsey problem where the optimal allocation is the one that maximizes utility in the set characterized by the implementability conditions under flexible prices, (4), (5), and (6).

Consider now the following utility function, which is separable in leisure and homothetic in the two consumption goods:

$$u(C_{1t}, C_{2t}, N_t) = \frac{C_{1t}^{1-\sigma} - 1}{1-\sigma} + \frac{C_{2t}^{1-\sigma} - 1}{1-\sigma} - \gamma N_t, \text{ with } \sigma, \gamma > 0.$$

The marginal conditions for the maximization of utility, subject to (4) and (6), are

$$\frac{u_{C_{1t}}}{u_{C_{2t}}} = 1$$

and

$$-\frac{u_{C_{2t}} A_t}{u_{Nt}} = \frac{1+\lambda}{1+\lambda(1-\sigma)},$$

where λ is the multiplier of (4), which measures the excess burden of taxation.

It is optimal, then, not to distort between consumption of the cash good and of the credit good, and the optimal wedge between any of the two consumption goods and leisure is constant over time and independent of shocks. The policy that implements these optimal wedges can be seen using the equilibrium conditions for the households, (7), (8), and (9).

The optimal nominal interest rate is zero, $R(s^t) = 1$, so that the Friedman rule is optimal. The opportunity cost of money, which is the nominal interest rate, should be zero, in order not to distort between the two consumption goods. Furthermore, the optimal distortion caused by taxes, $\frac{1+\tau_t^c}{1-\tau_t^n}$, should be constant over time.

We have seen above that the optimal allocation can be implemented with stable prices and with consumption taxes that do not depend on the contemporaneous shocks. How can the nominal interest rate be zero and prices be stable when the real rate is positive and volatile? This does not violate the Fisher equation, (8), because the consumption taxes can move to verify the equation. They move with a lag.

If the optimal wedge between consumption and leisure is constant, then $\frac{1+\tau_t^c}{1-\tau_t^n}$ is constant, and therefore, because the consumption tax can be predetermined, the labor income tax can also be predetermined. Both taxes have to move, but with a lag, in response to lagged information.

In this economy, in which the utility function is separable in leisure and homothetic in the consumption goods, it is optimal to tax all consumption goods at the same rate, in every date and state. Those conditions on preferences are the conditions for uniform taxation of Atkinson and Stiglitz (1972). This ex-

plains why it is optimal not to distort between cash and credit goods and why the optimal tax distortion is constant over time.

One final point on the money supply. The observation of the cash-in-advance constraint

$$(1+\tau_t^c)P_t C_{1t} \leq M_t$$

makes it clear that, with stable prices and predetermined consumption taxes, the money supply has to be elastic. It must move in response to shocks to accommodate the movements in transactions.

6. CONCLUDING REMARKS

We have summarized the main principles of stabilization policy assuming that both fiscal and monetary policy can be used to optimally respond to shocks. The optimal policy when prices are sticky is to neutralize the effects of that friction, by making sure that prices are stable. That way, the economy behaves as if prices were flexible. The resulting economy is still a distorted economy because the need to raise distortionary taxes cannot be overcome.

The reason why it is optimal to eliminate one distortion, when there are other remaining distortions, is the same reason why in Diamond and Mirrlees (1971) it is optimal not to tax intermediate goods, even if final goods must be taxed. Sticky prices create productive inefficiencies, just like the taxes on intermediate goods, that are not desirable even when there are other distortions.

The effects of the remaining distortions can be minimized using what we know of optimal taxation under flexible prices. In that context, the Friedman rule is generally optimal, and uniform taxation across different goods is approximately optimal.

In order to follow the Friedman rule and still have stable prices, the consumption taxes have to move. They only have to move with a lag, though. Because uniform taxation is approximately optimal, taxes on labor income also move with lagged information.

In the real world taxes are also sticky, possibly stickier than this model would imply. One conclusion we draw from this analysis, is that those conditions should probably be revised.

The model we analyze is very simple. The world is obviously much more complex; there are certainly many other frictions that we have abstracted from. In a more complex model with other restrictions on decisions, the results we derive in this article will certainly not hold exactly. They may still be approximately correct, though.

APPENDIX

The agents in the model are identical households, a continuum of firms indexed by $i \in [0,1]$, and a government. The history of events up to period is denoted by t and the initial realization s_0 is given. $\pi(s^t)$ is the probability of the occurrence of state s^t.

Each firm uses labor $n_i(s^t)$ to produce $y_i(s^t)$ that can be used as a cash good $c_{1i}(s^t)$, a credit good $c_{2i}(s^t)$, or public consumption $g_i(s^t)$.The technology is

$$c_{1i}(s^t)+c_{2i}(s^t)+g_i(s^t)=y_i(s^t)=A(s^t)n_i(s^t) \tag{11}$$

where $A(s^t)$ is the productivity that is common across goods.

Households draw utility from composite cash goods $C_1(s^t)$ and credit goods $C_2(s^t)$ and disutility from aggregate labor $N(s^t)$, according to:

$$\sum_{t=0}^{\infty}\sum_{s^t}\beta^t\pi(s^t)u(C_1(s^t),C_2(s^t),N(s^t)), \tag{12}$$

with

$$C_1(s^t)=\left[\int_0^1 c_{1i}(s^t)^{\frac{\theta-1}{\theta}}di\right]^{\frac{\theta}{\theta-1}},\ \theta>1, \tag{13}$$

$$C_2(s^t)=\left[\int_0^1 c_{2i}(s^t)^{\frac{\theta-1}{\theta}}di\right]^{\frac{\theta}{\theta-1}}, \tag{14}$$

and

$$N(s^t)=\int_0^1 n_i(s^t)di\,. \tag{15}$$

Aggregate government purchases $G(s^t)$,

$$G(s^t)=\left[\int_0^1 g_i(s^t)^{\frac{\theta-1}{\theta}}di\right]^{\frac{\theta}{\theta-1}}, \tag{16}$$

are exogenous and must be financed with consumption taxes $\tau^c(s^t)$, taxes on labor income $\tau^n(s^t)$, and taxes on profits $\tau^d(s^t)=1$ and by printing money $M(s^t)$.

The households

The households start period t with nominal wealth $\mathbb{W}(s^t)$. They decide to buy money balances $M(s^t)$, riskfree nominal bonds $\bar{B}(s^t)$ that pay $R(s^t)\bar{B}(s^t)$ units of money one period later, and $B(s^{t+1})$ units of state-contingent nominal securities. These bonds pay one unit of money at the beginning of period $t+1$ in state s^{t+1} and cost $Q(s^{t+1}|s^t)$ units of money in state s^t. Thus, the purchases of assets by the households must satisfy

$$M(s^t)+\bar{B}(s^t)+\sum_{s^{t+1}|s^t}Q(s^{t+1}|s^t)B(s^{t+1})\le W(s^t). \tag{17}$$

At the end of the period, the households receive labor income $W(s^t)N(s^t)$, where $W(s^t)$ is the nominal wage. The evolution of nominal wealth is governed by

$$W(s^{t+1}) = R(s^t)\bar{B}(s^t) + B(s^{t+1}) + M(s^t) - [1+\tau^c(s^t)]\int_0^1 p_i(s^t)c_{1i}(s^t)di$$
$$-[1+\tau^c(s^t)]\int_0^1 p_i(s^t)c_{2i}(s^t)di + [1-\tau^n(s^t)]W(s^t)N(s^t), t \geq 0. \quad (18)$$

Money, $M(s^t)$, is used to purchase consumption of the cash good, $C_1(s^t)$, according to the cash-in-advance constraint

$$[1+\tau^c(s^t)]P(s^t)C_1(s^t) \leq M(s^t), \quad (19)$$

where $P(s^t)$ is

$$P(s^t) = \left[\int_0^1 [p_i(s^t)]^{1-\theta} di\right]^{\frac{1}{1-\theta}}, \quad (20)$$

which is the money cost to buy one unit of the composite goods.

Households choose the sequence that maximizes utility (12), satisfying (13), (14), (17), (18) together with a no-Ponzi games condition, and (19). The following are necessary marginal conditions, for $t \geq 0$:

$$\frac{c_{1i}(s^t)}{C_1(s^t)} = \left[\frac{p_i(s^t)}{P(s^t)}\right]^{-\theta}, \quad (21)$$

$$\frac{c_{2i}(s^t)}{C_2(s^t)} = \left[\frac{p_i(s^t)}{P(s^t)}\right]^{-\theta}, \quad (22)$$

$$\frac{u_{C_1}(s^t)}{u_{C_2}(s^t)} = R(s^t) \geq 1, \quad (23)$$

$$\frac{u_{C2}(s^t)}{u_N(s^t)} = \frac{[1+\tau^c(s^t)]P(s^t)}{[1-\tau^n(s^t)]W(s^t)}, \quad (24)$$

$$Q(s^{t+1}|s^t) = \beta\pi(s^{t+1}|s^t)\frac{u_{C_1}(s^{t+1})}{u_{C_1}(s^t)}\frac{[1+\tau^c(s^t)]P(s^t)}{[1+\tau^c(s^{t+1})]P(s^{t+1})}, \quad (25)$$

and

$$\frac{u_{C_1}(s^t)}{[1+\tau^c(s^t)]P(s^t)} = \beta R(s^t)E_t\left[\frac{u_{C_1}(s^{t+1})}{[1+\tau^c(s^{t+1})]P(s^{t+1})}\right]. \quad (26)$$

The last two equations imply the arbitrage condition

$$\frac{1}{R(s^t)} = \sum_{s^{t+1}|s^t} Q(s^{t+1}|s^t) \ . \tag{27}$$

Let $Q(s^r|s^t) = Q(s^{t+1}|s^t)\ldots Q(s^r|s^{r-1})$ be the price of one unit of money at s^r in units of money at s^t. Imposing the transversality condition, the budget constraint of the households can be written with equality as

$$\begin{aligned}&\sum_{t=0}^{\infty}\sum_{s^t}\frac{Q(s^t|s^0)}{R(s^t)}\left\{[1+\tau^c(s^t)]P(s^t)[C_1(s^t)+C_2(s^t)]\right\}+\\&\sum_{t=0}^{\infty}\sum_{s^t}\frac{Q(s^t|s^0)}{R(s^t)}\left\{M(s^t)[R(s^t)-1]-[1-\tau^n(s^t)]W(s^t)N(s^t)\right\}=0\end{aligned} \tag{28}$$

We can replace in the budget constraint the intertemporal prices $Q(s^t|s^0)$ using (25), and use the intertemporal conditions (26), the intratemporal conditions (23) and (24), and the cash-in-advance constraints (19), to write the budget constraint as the implementability condition

$$E_0\sum_{t=0}^{\infty}\beta^t\left[u_{C_1}(s^t)C_1(s^t)+u_{C_2}(s^t)C_2(s^t)+u_N(s^t)N(s^t)\right]=0 \tag{29}$$

It is worth noting that the implementability condition (29) does not depend on the price-setting restrictions.

The government

Given the exogenous aggregate government purchases, $G(s^t)$, and the consumer prices, $p_i(s^t)$, the government minimizes the expenditure $\int_0^1 p_i(s^t)g_i(s^t)di$ on $G(s^t)$ given by (16) by choosing

$$\frac{g_i(s^t)}{G(s^t)} = \left[\frac{p_i(s^t)}{P(s^t)}\right]^{-\theta} \ . \tag{30}$$

Given full profit taxation, $\tau^d(s^t)=1$ for all s^t, a government policy consists of public consumption of each good, $g_i(s^t)$, money supply, $M(s^t)$, taxes on consumption and labor income, $\tau^c(s^t)$ and $\tau^n(s^t)$, nominal interest rates, $R(s^t)$, and debt supplies, $\bar{B}^g(s^t)$ and $B^g(s^{t+1})$ for all $t \geq 0$ and states $s^t \in S^t$.

If the budget constraint of the households and the market-clearing conditions hold, then the budget constraint of the government is also satisfied.

The firms

Each good $i \in [0,1]$ is produced by a monopolist firm that faces the constant elasticity demand function

$$y_i(s^t) = \left[\frac{p_i(s^t)}{P(s^t)}\right]^{-\theta} Y(s^t) \tag{31}$$

obtained from the demand functions for the private and public goods, (21), (22) and (30), where $Y(s^t) = C_1(s^t) + C_2(s^t) + G(s^t)$.

We now assume that all firms set flexible prices. The flexible price firms choose prices to maximize profits at each period $t \geq 0$,

$$p_i(s^t) y_i(s^t) - W(s^t) n_i(s^t),$$

given the technology (11) and the demand function (31). All monopolists set the common price

$$p_i(s^t) \equiv P(s^t) = \frac{\theta}{\theta - 1} \frac{W(s^t)}{A(s^t)}. \tag{32}$$

Market clearing

Demand must be equal to supply for each good i and for labor according to (11) and (15).

Equilibria

The set of equilibria is characterized by the household marginal conditions (20), (21), (22), (23), (24), (25), (26), and the cash-in-advance constraints (19), together with the nonnegativity constraint on the nominal interest rates, which can be written as

$$u_{C_1}(s^t) \geq u_{C_2}(s^t);$$

the price-setting conditions (32) characterize the optimal behavior of the firms; the government purchases public goods according to (30) and chooses the other policy variables, satisfying the budget constraint, which, given the market-clearing conditions, can be written as the household budget constraint (29); finally, the market-clearing conditions (11) and (15) must hold.

Equilibrium allocations under flexible prices

We can characterize the set of implementable allocations under flexible prices with only a few conditions. In particular, the set of implementable allocations for the consumption goods and labor, $\{C_1(s^t), C_2(s^t), N(s^t)\}$, is characterized by the implementability conditions

$$E_0 \sum_{t=0}^{\infty} \beta^t \left[u_{C_1}(s^t) C_1(s^t) + u_{C_2}(s^t) C_2(s^t) + u_N(s^t) N(s^t) \right] = 0, \tag{33}$$

$$u_{C_1}(s^t) \geq u_{C_2}(s^t), \tag{34}$$

and the feasibility conditions

$$C_1(s^t)+C_2(s^t)+G(s^t)=A(s^t)N(s^t). \tag{35}$$

These conditions are necessary and sufficient to characterize the set of equilibrium allocations $\left\{C_1(s^t),C_2(s^t),N(s^t)\right\}_{t=0}^{\infty}$. That they are necessary conditions is straightforward. We have shown before that (33) and (34) are equilibrium conditions. Since the prices are the same for all firms, consumption and labor input are also the same for every good $i \in [0,1]$, so that the resource constraints (11) and (15) imply (35). In order to show that they are sufficient conditions, we need to show that all the other equilibrium conditions are satisfied for the choice of policies, prices or other quantities. We will show this now setting the price level constant over time and equal to some arbitrary number, $P(s^t)=\overline{P}$.

The household marginal conditions on the choice of cash and credit goods, (23), determine uniquely the nominal interest rates, $\left\{R(s^t)\right\}_{t=0}^{\infty}$, which are nonnegative because of (34). Given $\pi^c(s_0)$, and for $P(s^t)=\overline{P}$, (26) for $t \geq 1$, repeated here,

$$\frac{u_{C_1}(s^{t-1})}{[1+\tau^c(s^{t-1})]\overline{P}}=\beta R(s^{t-1})E_{t-1}\left[\frac{u_{C_1}(s^t)}{[1+\tau^c(s^t)]\overline{P}}\right], t \geq 1, \tag{36}$$

restricts the process for $\tau^c(s^t)$. Notice that if the consumption tax was made invariant to the contemporaneous information, given $\tau^c(s_0)$, there would be a single solution for it. If the cash-in-advance constraint, (19), holds with equality, then, given $\tau^c(s_0)$, the money supply is uniquely determined.

The price-setting equations, (32), determine uniquely the nominal wages $\left\{W(s^t)\right\}_{t=0}^{\infty}$. The household intratemporal conditions, (24), given $\left\{W(s^t)\right\}_{t=0}^{\infty}$ and $\left\{\tau^c(s^t)\right\}_{t=0}^{\infty}$, determine, also uniquely, the labor income tax $\left\{\tau^n(s^t)\right\}_{t=0}^{\infty}$. Finally, the prices of the state-contingent debt, $Q(s^{t+1}|s^t)$, are given by (25).

Price stability is optimal.

Suppose now that prices are sticky. The result above that, under flexible prices, it is possible to implement each allocation with a constant price level implies that, if there were sticky price restrictions, for that policy, the restriction would not be binding. This means that it is possible to achieve, under sticky prices, the allocations under flexible prices. It follows, that it is not possible to do worse under sticky prices than under flexible prices, but it might be possible to do better. We now show that it is not the case.

If we add up the market-clearing conditions for each good i, (11), and use the demand functions (21), (22), and (30), as well as the resource constraints (15), we obtain the following aggregate resource constraints:

$$[C_1(s^t)+C_2(s^t)+G(s^t)]\int_0^1\left[\frac{p_i(s^t)}{P(s^t)}\right]^{-\theta}di=A(s^t)N(s^t). \qquad (37)$$

The set of implementable allocations $\left\{C_1(s^t),C_2(s^t),N(s^t)\right\}$ under flexible prices is characterized by the implementability conditions (33) and (34) as well as the feasibility conditions (35). The set of implementable allocations under sticky prices must be characterized by the same two implementability conditions, (33) and (34), because those were derived with the households conditions only, regardless of how prices are set. In addition, instead of the resource constraints (35), the constraints (37) must hold. The condition for the price level, (20), must also be satisfied. Because $\int_0^1\left[\frac{p_i(s^t)}{P(s^t)}\right]^{-\theta}di=1$ for $p_i(s^t)=P(s^t)$, and $\int_0^1\left[\frac{p_i(s^t)}{P(s^t)}\right]^{\theta}di>1$ for $p_i(s^t)\neq P(s^t)$, under flexible prices it is possible to minimize the resource cost due to price dispersion.

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THE ANATOMY OF EMPLOYMENT GROWTH IN PORTUGUESE FIRMS*

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> *"The worker does not know in detail the nature of the job which he is obtaining nor does he know his own capacities. Nevertheless [the "try and try again" process of advancing to a better position] is the principal method by which workers at the present time improve their condition on their own initiative."*
>
> *Slichter, 1919, p. 218*

> *"Do old fallacies ever die?"*
>
> *Milton Friedman, 1992*

1. INTRODUCTION

Slichter's description of the labor market at the beginning of last century proved to be timeless. Indeed, labor markets in developed economies are characterized by the existence of a continuous process of job destruction and job creation, which is naturally associated with a process of workers' reallocation. In each firm, this process is characterized by the simultaneous hire and separation of workers; to fill a job vacancy firms often resort to the hire and separation of more than one worker. This selection process is carried out jointly by workers and firms, and has similar results to the one described by Slichter (1919). The way the labor market works in Portugal is no exception to this general rule.

During the first five years of the twenty-first century, worker rotation rates in the Portuguese labor market largely exceeded the rates of job creation and destruction. On average, in expanding businesses, the creation of 100 jobs in a year involved the hire of 180 workers and the separation from 80 workers. The process, therefore, resulted in an excess rotation of 80 workers. Similarly, in contracting firms the reduction of 100 jobs involved the separation from 160 workers and the hire of 60 new workers. These numbers do not differ quantitatively from those observed for other European economies with levels of labor legislation rigidity similar to the Portuguese. When compared to the rates for worker turnover in countries with less rigidity in labor market regulation (for example, the United States), the figures for Portugal are smaller.

This study examines the process of simultaneous creation and destruction of jobs and the allocation of workers to those jobs through hires and separations. We use a database with more than 30 million

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job-years observations for the Portuguese economy, covering the period from 2001 to 2007.[1] We will be particularly interested in the differences in the intensity of hire and separation of workers in firms expanding (those that create jobs) and contracting (those that reduce their level of employment). The sectoral differences in this process of adjustment of the firm's employment level will also be examined, as well as the part played in the process by the age of workers, their wages, the type of contract and qualifications.

Following the work of Steven Davis and John Haltiwanger, at the end of the 80's, the interest in calculating job and worker flows increased substantially; Davis and Haltiwanger (1999) is an excellent summary. Since then, abundant international comparisons have been reported, such as in OECD (1994). The literature has also evolved to include micro and macroeconomic perspectives, examples of which are the work of Shimer (2007), Hall (2005) and Petrongolo and Pissarides (2007).

This article is at the interception of several strands of the economic literature. In particular, contributes to the description of the behavior of firms that face the decisions of hire and separation of workers, taken in a context of heterogeneous labor market conditions and within institutional constraints that influence the relative cost of the different contractual forms available (specifically, fixed-term and permanent contracts). The theoretical basis for the existence of a continuous flow of hires and separations in the same firm can be found in the seminal paper of Jovanovic (1979), Katz and Gibbons (1991) or Topel and Ward (1992). The existence of shocks (uncertainty) on the allocation of labor is the main explanation for the simultaneous occurrence of job creation and destruction. Additionally, it is recognized that the labor market works with imperfect information, whether it is because of asymmetries in information, as in Gibbons and Katz (1991), or because of differences in match productivity, as in Jovanovic (1979) and Topel and Ward (1992) (*i.e.*, the existence of a productive feature associated with the pair worker-firm makes the worker productivity to be firm specific and the productivity of a job vacancy in a firm to be worker specific as well). These factors are behind the simultaneous existence of hires and separations, as firms and workers each search for their better match.

We do not aim at testing all the results and assumptions derived from the aforementioned theoretical literature. However, the results reported in this article contribute to the characterization of employment adjustment intensity that occurs in Portuguese firms. As in other European countries, this adjustment takes place in a context where regulation of the labor market limits the ability of firms to freely adjust the level of employment to economic conditions. These limitations profoundly change the relative price of employment adjustments, for example, between different types of contracts, and thus may have a significant impact on economic welfare. For the French economy, Blanchard and Landier (2002) argue that the potential benefits of increased flexibility generated by fixed-term contracts may not exceed the potential costs of its coexistence with more rigid permanent contracts. We identify some traits in the functioning of the Portuguese economy similar to other European countries, and this fact raises questions about the efficiency of the functioning of the labor market in Portugal.[2]

The data used in this article have significant advantages over other sources of information commonly used for the calculation of these labor market indicators. We use data from the monthly administrative records of the Portuguese Social Security covering the universe of private sector salaried workers. We complement the results with annual data from the *Quadros de Pessoal*. The data from the *Quadros de Pessoal* are an excellent source of information and identify, on average, 98.1 per cent of workers in the Social Security dataset. The greatest advantage of the Social Security data is the availability of intra-annual information, allowing for a longitudinal treatment of both firms and workers.

(1) For reasons of availability of data, the study focuses on a phase of low economic cycle, which typically results in lower values in the processes of net job creation and rotation of workers.

(2) A more general model of the impact of employment legislation protection in welfare is Blanchard and Portugal (2001).

Each quarter, 24 per cent of firms are net creators of jobs and 26 per cent reduce their level of employment.[3] The remaining 50 per cent do not make adjustments in the size of their workforce in each quarter, but they very often make adjustments in the composition of their workforce that involves hires and separations in the same amount. The net change of employment in the Portuguese economy is associated with a process of creation and destruction of jobs at any stage that involves 125 thousand firms employing 2.1 million workers.

Our results point towards a strong heterogeneity in the pattern of worker rotation. In larger firms there is a higher incidence of excess worker rotation (90 per cent of new contracts do not result in net increases in the level of employment for expanding firms with over 250 employees, while for smaller firms the same figure drops to 30 per cent). The services sector is also subject to a greater worker rotation, which exceeds job flows to an extent much higher than in the manufacturing sector. As indicators of the polarization observed in the Portuguese labor market, worker rotation is much higher among young people, workers with fixed-term contracts and among low-skilled and low-wages workers. Note that these are the groups in which we observed the largest gains in employment.

This article focuses on aspects of employment mobility, not considering the important issues related with workers' remuneration that are associated to these changes in employment. Thus, a natural complement to this analysis will be the consideration of the pattern of wages associated with the phenomenon of entry and exit of workers and with the pattern of a firm's production and productivity. These issues are part of an agenda for research that is important to pursue.

2. DATA

In the analysis of the process of job creation and destruction and workers reallocation in the Portuguese economy we use two alternatives statistical sources. This is particularly useful not only because it allows a cross validation of the results between the two datasets but mainly because the two datasets complement each other in a number of important aspects. The statistical sources are the *Quadros de Pessoal*, collected by the *Ministério do Emprego e Solidariedade Social* (*MTSS*) and the administrative dataset of Social Security records, collected by the *MTSS Instituto de Informática*.

The original data were anonymized and the information reported does not disclose the identification of any individual worker or firm.

2.1. *Quadros de Pessoal*

The *Quadros de Pessoal* is a dataset created from the administrative information collected on an annual basis (reported to the month of October each year) by the *MTSS* covering all Portuguese firms with at least one worker. The *Quadros de Pessoal* dataset does not cover government workers, entities that employ non-permanent rural workers and domestic workers. The *Quadros de Pessoal* is a source of information of great importance in the microeconomic analysis of employment in Portugal and has been extensively used (see Centeno, Machado and Novo, 2008, for a more detailed description of the dataset).

The analysis with the *Quadros de Pessoal* is conducted for the period 2002 to 2005, the latest year available. In 2005, the data cover about 340 thousand enterprises with a total of nearly 3 million employees.

(3) Not counting firms with only one worker, which decide not to change their level of employment.

It is worth mentioning that the longitudinal file of workers often presents a number of records that do not match the number of workers declared by firms as employees, so that the flow of workers identified in the workers' file do not match the pattern of employment identified in the firms' file and could be overstated. To limit this difference, the flows of workers from the *Quadros de Pessoal* presented in this article relate only to firms that are recorded in two consecutive years and to which the number of workers with valid individual records in both years is at least 90 per cent of the number of workers that the firm reported as its level of employment. The resulting sample covers, on average, 1.5 million workers each year.

2.2. The Database of the Social Security Records

The Social Security database (*BDRSS*) is also an administrative source, with monthly frequency and constantly updated. In this way, it is an important source of information on the short-term behavior of the labor market.

Social Security data have been increasingly used in country studies for labor market analysis. These studies include issues related with mobility and wage determination process (see, for example, some of the studies on job creation and destruction cited throughout this text). The nature of the information, self-declared earnings subject to mandatory contributions to the Portuguese social security system, makes the *BDRSS* a unique source of information on labor market developments.

The *BDRSS* covers the period from March 2000 to March 2007. The dataset includes all worker-employer pairs for which there is at least one month of wages declared to the Social Security. For each of these pairs, the dataset has the information on the first and last month in which there are wage payments and the number of months in which a payment is reported during that period.

The dataset has about 14 million jobs, and for about 75 per cent of these jobs there were no interruptions in wage payments recorded and therefore they were considered single employment records. The remaining cases could correspond to periods of continuous work under the same contractual relationship or to successive work periods for the same employer, in which case we should split them as different employment spells. Given its prevalence and the difficulty of identification, all situations in which the interruption in wages reported was equal to one month were considered to be the part of the same employment spell.

All other situations (interruptions longer than one month) were checked against the information in several other datasets available in the Social Security records, namely the Unemployment Insurance Registry, the Temporary Impairments for Work Registry, the Pensioners Registry and beneficiaries of Social Integration Income, a minimum income support program available in Portugal. If the interruption in wages declared to the Social Security system coincided with a period of unemployment insurance benefit or any other contribution not corresponding to a temporary interruption of work (maternity, paternity, illness, etc.) it was considered an effective interruption of the employment relationship. In cases where additional information was not conclusive, the employment relationship was not interrupted; these situations correspond to 7 per cent of the total number of records in the *BDRSS*.

To minimize potential errors common in databases of this nature and size, the analysis excludes the most recent period. It should be noted, however, that this type of error is mitigated by the fact that the database includes only those situations where there are effective financial contributions for Social Security. Obviously, the situations of undeclared employment are not included in the dataset.

For these reasons the calculations reported for the creation and destruction of jobs and the hire and separation of workers are lower bounds of their true values.

2.3. Alternative sources of information

Portugal has a remarkable number of sources for labor market data. Indeed, there are only a few countries where the available data has equivalent detail and coverage.

In most countries, the study of worker flows has used datasets based on samples of firms and this imposes restrictions on the extension of the results for the whole economy. For example, Abowd, Corbel and Kramarz (1999), an important study for the French labor market, use a sample with monthly information of firms with more than 50 employees, the same sample used in Lagarde, Maurin and Torelli (1995), with the additional restriction that firms must remain two consecutive years in the sample. For the US there are several sources of information, collected with different time frequency, from monthly to annual information, in most cases covering the private sector and sometimes not dealing with the entry and exit of firms.

The differences in the characteristics of the sampling process used in each study limit the comparability of the results. One major example is the exclusion of entry and exit of firms. The flows obtained tend to be significantly downwards biased due to the important role of entry and exit of firms in employment adjustment in modern economies (Davis and Haltiwanger, 1999). Similarly, the exclusion of smaller firms reduces the rates of job creation substantially, since large firms tend to have more stable employment levels. On the other hand, large firms have higher worker rotation rates, replacing several workers in the same job. In France, for example, the annual rates of job creation and destruction reported in Abowd *et al.* (1999) are 30 per cent lower than those reported in Duhautois (2002) and Nocke (1994), the latter using samples representative of the demography of all French firms, while the former uses a sample of firms with more than 50 workers only.

This type of restriction must be taken very seriously when comparing results from different studies in the same country and, of course, when comparing results from different countries. It is therefore difficult to directly compare the results we report in this study, based on comprehensive censitary data, with those obtained in the studies of Portugal (1999) and Portugal and Varejão (2007), based on samples with a more limited coverage of Portuguese firms. These studies use data from the *Inquérito ao Emprego Estruturado* (*IEE*), a quarterly survey based on a sample of establishments from the *Quadros de Pessoal*. However, a major drawback of the *IEE* sample is that it is obtained from the *Quadros de Pessoal* data available only with a significant time lag. For example, in 2002, the sample of the *IEE* was obtained from the file of establishments in the *Quadros Pessoal* for 1995, a 7-year lag.[4] For these reasons, the *IEE* does not capture the strong dynamics of job creation and destruction associated with young firms. Additionally, the *IEE* has an under representation of firms in the services sector and small firms.

These difficulties are not exclusive to the *IEE*. They are present in all surveys obtained by sampling the administrative records of firms that are not continuously updated. An example of this kind of bias frequently encountered is the sample survey used to study the rotation of US workers, the JOLTS, which is discussed in great detail in Davis, Faberman, Haltiwanger and Rucker (2008). This article demonstrates that separations through dismissal and all types of hires suffer from a systematic downwards estimation due to problems associated with the exclusion of firms' entry and exit.

For these reasons, the use of different statistical sources may result in differences in rotation rates. In this sense, the observed discrepancies in the studies for the Portuguese labor market do not differ

(4) See http://www.dgeep.mtss.gov.pt/estatistica/emprego/ieejaneiro2002.pdf. The *IEE* was discontinued by the *MTSS* in 2006.

from the ones reported in Davis, Faberman and Haltiwanger (2006) for the US labor market, and are also in line with the differences reported above in studies of the French labor market.

3. TERMINOLOGY

The concepts of job creation, job destruction and worker rotation (hires and separations) follow Davis, Haltiwanger and Schuh (1996). We define each of these concepts as follows:

Flows of employment

Job creation – Job creation at time t is equal to the change in employment for firms that expand or begin their activity between $t-1$ and t;

Job destruction – Job destruction at time t is equal to the change in employment for firms that contract or exit the market between $t-1$ and t;

Flows of workers

Hire of workers – The hire of workers at time t is equal to the number of workers in a firm that were not employed in that firm at $t-1$;

Separation of workers – The separation of workers at time t is equal to the number of workers in a firm at time $t-1$ that are not employed in that firm at t;

Based on the job or worker flows, we can define:

Net job creation – The net job creation at time t is equal to the difference between the level of employment at $t-1$ and t;

Excess worker rotation (or churning) – The excess worker rotation at time t is equal to the difference between the total number of hires and separations and net job creation.

Note that the net job creation is equal to the difference between job creation and destruction, or alternatively, between the hires and separations of workers. However, the flow of workers is much higher than the flow of jobs. The process of hires and separations occurs simultaneously in most firms, whether they are expanding or contracting their employment level. This process of replacing workers to occupy the same job is a typical behavior of firms, and occurs either because the employee was laid off or because he left the job voluntarily. This activity takes place far beyond the needs that the firm has to adjust its level of employment and, hence, it is known in the literature as "excess rotation" or churning.

To convert these measures of employment change to rates, we divided them by the average employment in $t-1$ and t. Davis, Haltiwanger and Schuh (1996) discuss the advantages of this measure over traditional rates of growth. For example, for firms that did not exist at time $t-1$ the growth rates are not computable, while with the definition used in this article the corresponding value is 2 (and in the case of firms leaving the market the corresponding rate of destruction takes the value -2).

Employment flows, as measured by job creation and destruction, ignore an important component of job re-allocation. These measures do not capture the effects of changes in the composition of employment within the firm, for example, zero net changes in employment may be associated with the creation and destruction of an equally large number of jobs. However, this limitation can be addressed by the measures of worker flows, *i.e.*, the hires and separations of workers. It should be noted, however,

that because the measurement is made at fixed intervals of time for both cases, the calculations do not reflect the changes in employment that may occur within that interval of time.

The size of the firm is an important feature in the analysis of the process of job creation and destruction. However, the size of the firm depends on the point in time when the measurement is made. For firms entering the market, if the measurement is made in the period before entry the firm is classified as small (size zero), but if the measurement considers the period of entry, then it could be classified in any class size. So the choice of when and how we measure the size of the firm has the potential to influence the conclusions of the analysis, giving rise to fallacies of the type described in Friedman (1992). In this study, we report the results obtained using only one of the possible measures of the size of the firm, in particular, the average size of the firm during the sample period: $\left(N_1 + \ldots + N_t\right)/t$.[5]

In this article we give special emphasis to the relationship between the flows of jobs and workers. To this end, we present separately rates of hires and separations by type of employment growth at the firm level. From period to period (quarterly or annually), we identify firms with positive employment growth, with negative employment growth and with no change in employment. For each of these groups of firms we calculate rates of hire, separation and net change of employment using as reference the average level of employment in each of these groups (as opposed to total employment in the economy).

4. INDICATORS OF JOB CREATION AND DESTRUCTION

The relationship between the flows of jobs and workers is not easy to describe, since there are many competing reasons for the existence of worker rotation. Indeed, several studies show that the behavior of firms is rather complex (see, for example, Hamermesh, Hassink and van Ours, 1996). Firms that reduce their level of employment also hire new workers and firms undergoing expansion also lay off workers.

Clearly, the pattern of job flows will always be lower than that of worker flows. The process of worker reallocation beyond what would be necessary to increase or decrease the level of employment, *i.e*. the one that occurs in excess of job flows, is related to the re-evaluation of the match quality. This reassessment may be made either by the employer, resulting in the simultaneous existence of lay offs and hires, or by the worker, resulting in the occurrence of voluntary departures and the subsequent replacement of the worker.

This process of mobility must be understood as an investment decision, comparing the costs of changing labor market partner with the benefits of future earnings (Jovanovic, 1979). The existence of worker flows in excess of job flows should be understood as an essential aspect of the functioning of the labor market, the one that guarantees the individual progress referred to by Slichter, and identified in many empirical studies (for example, Topel and Ward, 1992).

Table 1 shows the annual rates of hires and separations of workers. The fact that we use annual information means that we only capture the hires of workers in the reference year that were still working in the firm at the end of that year. Also, the rate of separation only captures the exit of workers who joined the firm before the end of the previous year. Thus, this finding ignores all transitions involving one entry and one exit in the same year. The average rates of annual job creation and destruction are close to 12 per cent. These figures are very similar to the ones obtained from the *Quadros de Pessoal* in Centeno *et al.* (2008). On average, over the period, in firms that expand their employment level or that enter the

(5) Alternative measures include: current average $\left(N_t + N_{t-1}\right)/2$ and the average up to the previous period $\left(N_{t-1} + N_{t-2}\right)/2$ The limitations of these alternatives are widely discussed in the literature, for example in Davis, Haltiwanger and Schuh (1996), and Davidsson, Lindmark and Olofsson (1998). See Hijzen, Upward and Wright (2007) for a recent summary. The results with alternative measures are available from the authors upon request.

Table 1

ANNUAL JOB CREATION AND DESTRUCTION RATES AND WORKERS HIRING AND SEPARATION RATES

	Job		Workers		
Year	Creation rate	Destruction rate	Hiring rate	Separation rate	Net job creation
	(1)	(2)	(3)	(4)	(5)
2001	17.1	9.7	30.6	23.3	7.4
2002	15.6	13.2	29.4	26.9	2.5
2003	13.1	13.3	25.6	25.8	-0.1
2004	12.1	12.3	23.9	24.0	-0.1
2005	11.5	11.6	23.3	23.4	-0.1
2006	11.3	11.1	23.5	23.3	0.2
Average	**13.5**	**11.8**	**26.1**	**24.4**	**1.6**
Last 5 years	**12.8**	**12.3**	**25.1**	**24.7**	**0.5**

Sources: *BDRSS* (2000-2007). Authors' computations.

market, almost 13 new jobs are created for every 100 jobs in the economy; in firms that contract their employment level or that leave the market 12 jobs are destroyed for every 100 existing jobs.

The process of job creation and destruction is, however, characterized by much larger flows of entry and exit of workers. This process occurs simultaneously in most firms, whether they are expanding or contracting their employment level. In aggregate terms, the worker flows are almost double the job flows. This is clear evidence in favor of the existence of significant levels of churning; worker flows exceed the minimum rotation needed by firms to bring about the observed adjustment in their employment level. For *Quadros de Pessoal* data, the annual flow of workers between 2003 and 2005 is, on average, 20 per cent, both for the hires and for the separations rates.[6]

The level of job and worker flows differs substantially according to the frequency with which these flows are observed. This is shown in Table 2 which provides quarterly rates of job creation and destruction and workers hires and separations. Thus, on average, Portuguese firms in each quarter create 5 new jobs for every 100 existing jobs (and the same number is destroyed). This process of expansion and contraction of employment in firms is achieved through the hire of 9 new employees and an equal number of separations, also for every 100 existing jobs.

The amount of hires and separations is high.[7] However, in the current Portuguese labor market, it has behind it a significant asymmetry of paths across some groups of individuals, such as low-skilled workers, young people and those with lower levels of education. The flow of workers co-exists with a strong process of polarization, where a growing number of individuals only have access to jobs of short duration, with a very high risk of separation and subsequent passages through non-employment without

(6) These figures should be read with caution given the discussion in Section 2, *i.e.*, the fact that the sample from the *Quadros de Pessoal* does not consider the universe of all workers.

(7) Based on the *Inquérito ao Emprego* (Labor Force Survey), Banco de Portugal reports regularly on flows between the different states of the labor market: employment, unemployment and inactivity. Such flows are not measures of hiring and separation rates in the economy, and indeed, they underestimate the true values (see Shimer, 2007 and Gomes, 2008, for a discussion of these concepts with applications to the US and the UK). Employment exit rates based on the Employment Survey are "exit rates to unemployment and to inactivity". They do not include job-to-job flows, or the flows of employment of individuals with more than one occupation, among other. Finally, it is noted that the figures reported in this article are calculated as a percentage of the private sector non-agricultural salaried employment, while the indicators based on the Employment Survey and reported by the Banco de Portugal are calculated based on total active population; between 2001 and 2006, the former represented 50.3 per cent of the latter.

Table 2

QUARTERLY JOB CREATION AND DESTRUCTION RATES AND WORKERS HIRING AND SEPARATION RATES

	Job		Workers		
Year:Quarter	Creation rate	Destruction rate	Hiring rate	Separation rates	Net job creation
	(1)	(2)	(3)	(4)	(5)
2001:1	7.3	5.6	12.0	10.3	1.7
2001:2	6.5	4.3	10.8	8.6	2.2
2001:3	5.8	5.6	10.7	10.5	0.2
2001:4	6.0	6.3	10.4	10.7	-0.3
2002:1	7.1	6.7	11.8	11.4	0.4
2002:2	6.3	4.7	10.5	8.9	1.6
2002:3	5.0	5.6	9.5	10.1	-0.6
2002:4	5.2	5.8	9.1	9.7	-0.6
2003:1	6.0	6.5	10.0	10.5	-0.5
2003:2	5.2	4.8	9.1	8.6	0.4
2003:3	4.5	5.0	8.7	9.2	-0.5
2003:4	4.9	5.4	8.6	9.1	-0.5
2004:1	5.8	5.4	9.7	9.3	0.5
2004:2	5.3	4.0	9.0	7.7	1.3
2004:3	4.0	4.9	8.3	9.2	-0.9
2004:4	4.4	4.7	8.2	8.5	-0.3
2005:1	5.1	5.3	9.0	9.2	-0.2
2005:2	4.9	3.8	8.6	7.5	1.1
2005:3	4.1	4.7	8.3	9.0	-0.6
2005:4	4.3	4.8	8.0	8.5	-0.5
2006:1	5.2	5.0	9.2	9.0	0.2
2006:2	4.9	3.7	8.6	7.5	1.1
2006:3	4.0	4.8	8.4	9.2	-0.8
2006:4	4.0	4.9	7.9	8.9	-0.9
Average	**5.2**	**5.1**	**9.4**	**9.2**	**0.1**
Last 5 years	**5.0**	**5.0**	**9.0**	**9.1**	**0.0**

Sources: *BDRSS* (2000-2007). Authors' computations.

access to the unemployment system. However, it is lower than in countries with less rigid labor laws than the Portuguese.

The level of excess worker rotation is lower in the quarterly data than in the annual data. This result is expected given that part of the phenomena of rotation is associated with the end of fixed-term contracts, the end of specific tasks, and the fact that, in general, the trial period lasts more than three months.

The phenomenon of excess rotation is easier to study if the information is less aggregated. Table 3 separates firms according to their employment growth category. Thus, we have a group composed of firms with net job creation, another group of firms with net job destruction, and finally a group of firms with stable employment. For each group, we study worker hires and separations.

Firms that have positive annual employment growth hire two new workers and lose one worker for each job created in net terms. In these firms, the excess worker rotation corresponds to 80 per cent of the rate of job creation, *i.e.*, to generate 100 new jobs these firms hire 180 workers. In firms contracting

Table 3

WORKER FLOWS: HIRING AND SEPARATION RATES BY SECTOR OF ACTIVITY AND TYPE OF EMPLOYMENT GROWTH

Employment growth category	Expansion rate [a]	Hiring rate [b]	Separation rate [c]	Contraction rate [d]
	(1)	(2)	(3)	(4)
Average annual rate (2001-2006)				
Firms with net job creation	21.1	37.0	15.9	
Firms with net job destruction		11.6	30.7	19.1
Firms with stable employment		10.5	10.5	
Average quarterly rate (2001:03-2006:12)				
Firms with net job creation	12.1	17.8	5.7	
Firms with net job destruction		4.2	14.8	10.6
Firms with stable employment		2.3	2.3	

Sources: *BDRSS* (2000-2007). Authors' computations.
Notes: (a) The expansion rate is the job creation rate of firms that existed in $t-1$ and that expand their employment in t. (b) and (c) see text. (d) The contraction rate is the job destruction rate of firms that reduce their employment from period $t-1$ to t without exiting the market.

their level of employment, there is also high worker rotation, but still less than that of firms in expansion; to destroy 100 jobs these firms separate themselves from 160 workers.[8]

One interesting result is obtained for firms that have stable employment. These firms have hiring and separation rates lower than those of the other two groups, yet on average they hire and lose 10 per cent of their workforce each year.

The intensity of hires and separations in firms with net job creation is very different from that which occurs in firms with net job destruction. Firms in expansion destroy a much smaller fraction of their workforce than firms in contraction. Similarly, firms in contraction hire a percentage of new workers rather smaller than those that are in expansion. This differs from the result obtained for France by Abowd *et al.* (1999), but the discrepancy can be explained by differences between the two samples, in particular, because in the French sample there are only firms with more than 50 workers. Indeed the size of the company is a key variable for the level of excess worker rotation observed (as will be documented in the next section).

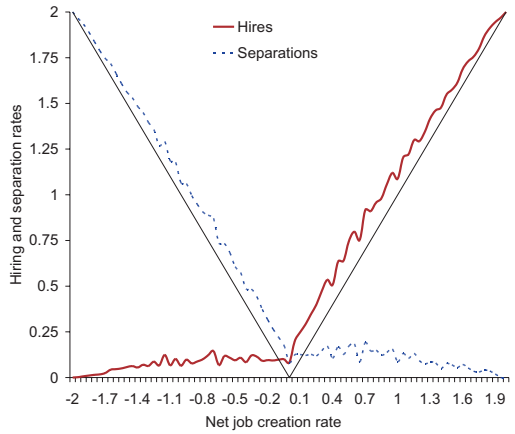
The analysis shows again that the excess worker rotation in quarterly data is about two thirds of what is seen in annual data. Note also, the sharp decrease in the hire and separation rates of firms with a stable level of employment.

This analysis can be further detailed if we take the individual behavior of each company in terms of the flow of workers and employment growth. Chart 1 shows the cross-sectional relationship between the hiring and separation rates with the rate of employment growth for each year and firm in the *BDRSS*. The hiring and separation rates are measured on the vertical axis as a percentage of total employment for each firm. The rate of employment growth is measured on the horizontal axis (also as a percentage of total employment). The V-shaped curve starting from the origin (zero net creation of employment) show the minimum level of recruitment (for firms in expansion) and separations (for firms in contraction) needed for a company to change the level of employment by a particular percentage. Chart 1

(8) The excess rotation for companies with net job creation is the ratio between the rate of separation and the rate of expansion; for companies with net job destruction, it is calculated as the ratio between the hiring rate and the rate of contraction.

Chart 1

FIRM LEVEL WORKER FLOWS AND NET JOB CREATION RATE, ANNUAL DATA, *BDRSS*, 2001-2006



Sources: *BDRSS* (2000-2007) and authors' calculations.

uses all the annual observations of the firms in the *BDRSS* between 2000 and 2006 and estimates the average hiring and separation rates for small intervals of the distribution of the rate of employment growth. These rates are weighted by size of firms in terms of employment. Chart 1 allows also an examination of the relationship established between the worker flows and employment flows. The main results drawn from the chart are:

1. The hiring and separation rates are not linear functions of the employment growth rate. Indeed, it is clear that there is an inflection point around the null employment growth;
2. The hiring rate grows at about the same pace (and in a linear fashion) as the employment growth rate in firms in expansion, as does the separation rate in firms in contraction;
3. The expanding firms have a higher rates of worker separation than what is observed in terms of hires for firms reducing employment;
4. Finally, Chart 1 shows that firms with zero growth in employment have a lower rotation of workers than the others.

5. WORKER HIRES AND SEPARATIONS: SECTORAL, COMPANY SIZE, AND WORKERS' AGE HETEROGENEITY

5.1 Sectors: Manufacturing and services

Over recent decades the services sector has been gaining importance in the Portuguese economy. In this process, salaried employment in the services sector has gained more weight relative to the manufacturing sector. The specificities of the two sectors result, naturally, in differentiated human resources policies; in the services sector, capital is less specific to each company, resulting in greater labor mobility. Indeed, Table 4, detailing average values of hiring and separation rates from 2001 to 2006 shows that there is a higher rotation of workers in service firms that remain in business (for at least 2 consecu-

tive periods). In quarterly terms, firms in expansion in this sector hired workers representing 18.4 percent of the average employment of these firms; for firms in the manufacturing sector, that figure was 16.1 percent. Similarly, but with a greater gap between sectors, firms that reduce their level of employment in services cease relations with 16.6 percent of their workers during a quarter, while in the manufacturing sector relations ceased for only 12.4 percent. Note that the hiring rate for firms in expansion is higher than those of separation for enterprises in contraction (18.4 vs. 16.6 for services, and 16.4 vs. 12.4 for industry).

The higher rotation of workers in services results also in more excess worker rotation. To increase employment by 11.9 per cent, 50 per cent of the hires become "redundant" (economically, the search for the best employer/employee pair can justify this additional volume). In manufacturing, for the same percentage increase in employment (11.9 per cent), that number drops to 40 per cent.

It is worth noting that firms in contraction in the services sector have a 50 per cent rate of excess worker rotation whereas the figure for the manufacturing sector is 30 per cent. This reflects the fact that firms in contraction have a low hiring rate (2.8 per cent), therefore, almost all separations result in reductions in the level of employment (little excess worker rotation). In services, the hiring rate of firms in

Table 4

WORKER FLOWS: HIRING AND SEPARATION RATES BY SECTOR OF ACTIVITY AND TYPE OF EMPLOYMENT GROWTH

Employment growth category	Expansion rate[a]	Hiring rate[b]	Separation rate[c]	Contraction rate[d]
	(1)	(2)	(3)	(4)
		Manufacturing		
Average annual rate (2001-2006)				
Firms with net job creation	20.4	32.4	12.0	
Firms with net job destruction		8.2	26.4	18.1
Firms with stable employment		10.2	10.2	
Average quarterly rate (2001:03-2006:12)				
Firms with net job creation	11.9	16.1	4.3	
Firms with net job destruction		2.8	12.4	9.7
Firms with stable employment		2.2	2.2	
		Services		
Average annual rate (2001-2006)				
Firms with net job creation	21.3	39.3	17.9	
Firms with net job destruction		14.8	34.9	20.1
Firms with stable employment		10.8	10.8	
Average quarterly rate (2001:03-2006:12)				
Firms with net job creation	11.9	18.4	6.4	
Firms with net job destruction		5.4	16.6	11.2
Firms with stable employment		2.4	2.4	

Sources: *BDRSS* (2000-2007). Authors' computations.
Notes: (a) The expansion rate is the job creation rate of firms that existed in $t-1$ and that expand their employment in t. (b) and (c) see text. (d) The contraction rate is the job destruction rate of firms that reduce their employment from period $t-1$ to t without exiting the market.

contraction is almost twice this figure, standing at 5.4 per cent. This behavior is clearly related to the practice of labor hoarding over the economic cycle, more common in the secondary sector.

5.2. By worker age

The characteristics and productive capacity of workers change throughout their working life. It is, therefore, natural to observe differences in workers' rotation rates across age groups.

Table 5 shows worker flows by age group: young (up to 34 years) and older (35 years or more). For each of these groups we calculate the hiring and separation rates, having as reference (denominator) the employment of each age group by type of employment growth category. The results confirm that young workers face higher rotation rates.

In quarterly terms, for every 100 young employees, firms in expansion hired on average 23 workers and end the employment relationship, on average, with 7.6 young employees. In the process of employment growth, firms expand the employment of older people by only 13.3 per cent, ending the relationship with 4.1 per cent of these workers (3.5 p.p. less than for the young).

Table 5

WORKER FLOWS: HIRING AND SEPARATION RATES BY WORKERS' AGE AND TYPE OF EMPLOYMENT GROWTH

Employment growth category	Expansion rate[(a)]	Hiring rate[(b)]	Separation rate[(c)]	Contraction rate[(d)]
	(1)	(2)	(3)	(4)
		Workers aged 34 years or less		
Average annual rate (2001-2006)				
Firms with net job creation	28.4	48.9	20.5	
Firms with net job destruction		19.1	39.4	20.3
Firms with stable employment	1.7	16.3	14.6	
Average quarterly rate (2001:03-2006:12)				
Firms with net job creation	15.4	23.0	7.6	
Firms with net job destruction		6.6	19.2	12.6
Firms with stable employment	0.2	3.5	3.2	
		Workers aged 35 years or more		
Average annual rate (2001-2006)				
Firms with net job creation	15.3	27.4	12.1	
Firms with net job destruction		7.2	25.7	18.5
Firms with stable employment		7.0	8.0	1.0
Average quarterly rate (2001:03-2006:12)				
Firms with net job creation	9.2	13.3	4.1	
Firms with net job destruction		2.6	11.8	9.3
Firms with stable employment		1.6	1.7	0.2

Sources: *BDRSS* (2000-2007). Authors' computations.
Notes: (a) The expansion rate is the job creation rate of firms that existed in $t-1$ and that expand their employment in t. (b) and (c) see text. (d) The contraction rate is the job destruction rate of firms that reduce their employment from period $t-1$ to t without exiting the market.

Firms that reduce their workforce from one quarter to another demonstrate a similar behavior to those that expand: the incidence of employment adjustment is higher for young workers (separation rates of 19.2 and 11.8 per cent, respectively, for the young and older workers).

This behavior is also reflected in the excess worker rotation rates; 40 and 30 per cent for older people, respectively in firms in expansion and contraction and 50 per cent for young people in both groups.

This pattern of differentiation among younger and older workers is observed in other economies. For the Veneto province, one of the most industrialized regions of Italy, Tattara and Valentini (2005) reported an extremely large reduction in worker flows among individuals over 35 years working in manufacturing.

5.3 By firm size: Average number of workers

Hiring and separation rates vary substantially by firm size measured by the (average) number of workers. The failure to consider this fact limits the possibility of making comparisons across firms or countries; this point is taken up again below to make a comparison with the results in Abowd *et al.* (1999). In light of the models of industrial organization (see, for example, Cabral and Mata, 2003), the distinct behavior by firm size obtained in this article conforms with the expected theoretical result.

Three facts are worth highlighting in the quarterly results by average size of firms over the period under review (2001 to 2006) reported in Table 6 (see Table 7 for the annual values). These are:

- For firms in expansion, the hiring rates fall monotonically with firm size (from 36.8 to 12.0 per cent). The exceptions are the last 2 categories, firms with 250 or more employees, where there is a slight increase to about 14 per cent. For expanding firms, the separation rates, unlike the hires, increase with size, from 2.7 per cent in firms with less than 5 workers, to 8.6 per cent in firms with more than 500 employees.

- For firms in contraction, the separation rates fall with the firm size. For firms with 1 to 4 workers, the separation rate is 45.6 per cent, while for large firms the rate is 9 per cent. As opposed to this, the hiring rates increase with size, from 2.6 per cent in small firms to 5.1 per cent in large ones.

- Regardless of the firm size, the hiring rates of firms in expansion are always clearly above the hiring rates of firms in contraction.

Note that hires and separations occur even in firms with a stable level of employment, although the quarterly rates are much lower, hovering around 3 per cent, but still higher for larger firms.

In terms of excess worker rotation, Chart 2 illustrates that larger firms are the ones that "experiment" the most with workers. Even though they do not exhibit high rates of expansion or contraction (they are close to their desired level of employment), these firms foster greater worker rotation. For example, for firms with 250 to 499 workers, for every job created almost two workers (1.9) are hired, *i.e.*, 90 per cent of the hires do not result in employment gains. If we consider firms with 10 to 49 employees, the same indicators are 1.3 and 30 per cent, substantially lower.

For France, Abowd *et al.* (1999) note that separation rates between firms in expansion and contraction do not differ much. However, this is conditional on the size of the firm, at least for the Portuguese case. Indeed, if we consider only firms with at least 50 workers, as in Abowd *et al.* (1999) sample, the separation rates of firms in contraction are only slightly higher than the separation rates of firms in expansion.

Table 6

WORKER FLOWS: QUARTERLY HIRING AND SEPARATION RATES BY FIRM DIMENSION AND TYPE OF EMPLOYMENT GROWTH

Employment growth category	Expansion rate [a]	Hiring rate [b]	Separation rate [c]	Contraction rate [d]
	(1)	(2)	(3)	(4)
		Firm average work force dimension (2001-2006)		
		[1-4]		
Firms with net job creation	34.1	36.8	2.7	
Firms with net job destruction		2.6	45.6	43.0
Firms with stable employment		1.9	1.9	
		[5-9]		
Firms with net job creation	24.0	28.0	4.0	
Firms with net job destruction		3.3	26.3	23.0
Firms with stable employment		2.4	2.4	
		[10-49]		
Firms with net job creation	13.9	18.6	4.8	
Firms with net job destruction		4.3	17.0	12.7
Firms with stable employment		2.8	2.8	
		[50-99]		
Firms with net job creation	8.5	13.5	5.0	
Firms with net job destruction		3.8	11.4	7.5
Firms with stable employment		3.0	3.0	
		[100-249]		
Firms with net job creation	6.8	12.0	5.2	
Firms with net job destruction		3.6	9.3	5.8
Firms with stable employment		2.9	2.9	
		[250-499]		
Firms with net job creation	7.0	13.5	6.6	
Firms with net job destruction		4.5	10.2	5.7
Firms with stable employment		3.2	3.2	
		[500 or more]		
Firms with net job creation	5.7	14.3	8.6	
Firms with net job destruction		5.1	9.0	3.9
Firms with stable employment		3.6	3.6	

Sources: *BDRSS* (2000-2007). Authors' computations.
Notes: Average values for the period 2001-2006. (a) The expansion rate is the job creation rate of firms that existed in $t-1$ and that expand their employment in t. (b) and (c) see text. (d) The contraction rate is the job destruction rate of firms that reduce their employment from period $t-1$ to t without exiting the market.

Table 7

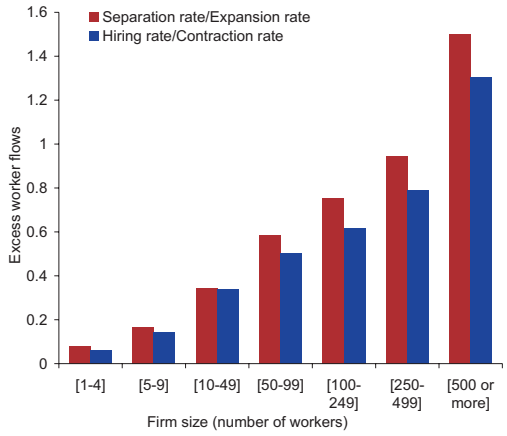
WORKER FLOWS: ANNUAL HIRING AND SEPARATION RATES BY FIRM DIMENSION AND TYPE OF EMPLOYMENT GROWTH

Employment growth category	Expansion rate [a]	Hiring rate [b]	Separation rate [c]	Contraction rate [d]
	(1)	(2)	(3)	(4)
	Firm average work force dimension (2001-2006)			
		[1-4]		
Firms with net job creation	39.7	48.2	8.5	
Firms with net job destruction		9.2	60.1	50.9
Firms with stable employment		9.8	9.8	
		[5-9]		
Firms with net job creation	31.2	43.8	12.6	
Firms with net job destruction		10.9	40.6	29.7
Firms with stable employment		11.7	11.7	
		[10-49		
Firms with net job creation	21.8	37.5	15.7	
Firms with net job destruction		12.8	31.9	19.1
Firms with stable employment		12.7	12.7	
		[50-99]		
Firms with net job creation	16.0	30.5	14.5	
Firms with net job destruction		11.5	25.9	14.5
Firms with stable employment		11.9	11.9	
		[100-249]		
Firms with net job creation	15.0	29.0	14.1	
Firms with net job destruction		10.5	23.1	12.6
Firms with stable employment		11.2	11.2	
		[250-499]		
Firms with net job creation	16.6	33.0	16.4	
Firms with net job destruction		11.7	24.1	12.4
Firms with stable employment		10.7	10.7	
		[500 or more]		
Firms with net job creation	13.8	35.4	21.6	
Firms with net job destruction		12.4	21.6	9.2
Firms with stable employment		12.8	12.8	

Sources: *BDRSS* (2000-2007). Authors' computations.
Notes: Average values for the period 2001-2006. (a) The expansion rate is the job creation rate of firms that existed in $t-1$ and that expand their employment in t. (b) and (c) see text. (d) The contraction rate is the job destruction rate of firms that reduce their employment from period $t-1$ to t without exiting the market.

Chart 2

EXCESS ROTATION BY FIRM SIZE
Quarterly rates – 2001-2006



Sources: *BDRSS* (2000-2007) and authors' calculations.

For the Veneto province in Italy, Tattara and Valentini (2005) also report a greater excess worker rotation in larger firms.

6. THE ROLE OF TYPE OF EMPLOYMENT CONTRACT

The incidence of fixed-term contracts is clearly influenced by rigidity in the regulation of permanent contracts. Blanchard and Landier (2002) present arguments according to which there may be a negative impact on the functioning of the market stemming from partial reforms of the labor market, introduced in order to ease the use of fixed-term contracts. More recently, Kahn (2007a) and Kahn (2007b) show evidence of the impact of legislation protecting employment in the pattern of incidence of temporary employment. The results point to an increase in non-employment in some demographic groups and, additionally, to a greater negative impact on less skilled workers, youth, women and immigrants, as they have a higher incidence of fixed-term contracts.

The literature associates the existence of various types of contracts to the different roles played by these contracts in adjusting the level and composition of employment in response to aggregate shocks, or to the uncertainty that usually surrounds the process of job creation in advanced economies.

Table 8 shows the hiring and separation rates for the set of firms that remain in the *Quadros de Pessoal* in two consecutive years, *i.e.*, excluding firms exiting and entering the market.[9] Worker rotation is much higher for workers on fixed-term contracts (hiring rates are about 4 times higher and separation rates about 3 times higher). The rate of net job creation is thus much higher for fixed-term contracts, in fact it is positive for this type of contract and negative for permanent contracts. As reflected in other sources of information (for example, the Labour Force Survey, *Inquérito ao Emprego*) net job creation in the Portuguese economy has been characterized by a major re-composition of salaried employment by type of contract.

(9) As stated in Section 2, the flows of workers computed with the *Quadros de Pessoal* relate only to companies that are in two consecutive years and where the number of workers with valid individual records in both years is at least 90 per cent of the number of employees that the company reported.

Table 8

HIRING AND SEPARATION RATES OF WORKERS BY EMPLOYMENT CONTRACT TYPE: FIXED-TERM AND PERMANENT

	Contract		
	Fixed-term	Permanent	Total
	Separation rate		
2003	31.8	12.3	15.8
2004	30.2	11.4	14.6
2005	33.2	12.5	16.0
	Hiring rate		
2003	40.1	7.8	13.4
2004	41.3	7.9	13.8
2005	46.4	9.0	15.5
	Net job creation rate		
2003	8.3	-4.5	-2.4
2004	11.1	-3.5	-0.8
2005	13.2	-3.4	-0.5
Weight in 2005	19.28%	80.72%	

Source: Workers longitudinal file from the *Quadros de Pessoal*, 2003 to 2005; firms longitudinal file from the *Quadros de Pessoal*, 2003 to 2005.
Note: The rates are computed as a percentage of the employment level in year *t*; Computations consider only firms that remain in activity for 2 consecutive years.

Table 8 also clearly shows the level of excess rotation observed in the Portuguese economy, and most importantly, its differentiation by type of contract. To create a job in net terms with fixed-term contract, 4 workers are hired and 3 separations with this form of contract occur. For permanent contracts, for which there is net job destruction, for each net loss there are 2 hires and 3 separations.

7. OTHER CHARACTERISTICS OF EMPLOYEES AND JOB MATCH: EDUCATION, QUALIFICATIONS AND WAGES

Employment growth in an economy is also characterized by re-composition in terms of the characteristics of jobs that are created and destroyed. For example, a gradual increase is expected in the average level of qualifications in an economy as it gets closer to the technological frontier. Similarly, the Portuguese economy has witnessed an increase in the average level of education, which should be reflected in the hiring and separation rates.

Table 9 shows the annual hiring and separation rates by level of qualification. Clearly, the net job creation rates are positive for the lower skill levels and negative in the higher levels of qualifications. But more important is the relationship between the hiring and separation rates for different levels of qualifications. The less skilled jobs are subject to greater rotation than the other jobs: hiring and separation rates are clearly above 10 per cent for the first group and around 10 per cent for the second group.

The conclusion in terms of the level of education (Table 10) is not very different from the analysis of qualifications. The separation rates fall sharply with the level of education, while the hiring rates are relatively stable over the distribution of education. This entails negative job creation rates for workers with

Table 9

WORKERS' HIRING AND SEPARATION RATES BY LEVEL OF QUALIFICATION

	Senior Management	Middle Management	Supervisors, skilled manual workers, heads of teams	Highly qualified profes sionals	Profes sionals	Junior profes sionals	Unskilled workers	Apprentices	Total
					Separation rate				
2003	9.9	12.3	11.6	13.2	15.0	15.7	23.4	28.3	15.8
2004	9.3	9.4	11.0	12.1	14.4	13.9	22.5	26.3	14.6
2005	10.8	11.6	11.2	11.7	15.4	15.5	24.9	33.0	16.0
					Hiring rate				
2003	7.5	10.1	7.0	10.5	12.1	12.7	23.4	29.9	13.4
2004	7.6	9.6	7.7	10.5	12.7	12.3	24.1	32.8	13.8
2005	8.5	12.3	8.4	13.0	14.0	13.6	27.7	38.2	15.5
					Net job creation rate				
2003	-2.4	-2.2	-4.6	-2.7	-2.8	-3.0	0.0	1.7	-2.4
2004	-1.7	0.2	-3.3	-1.7	-1.7	-1.6	1.5	6.4	-0.8
2005	-2.3	0.7	-2.8	1.3	-1.4	-1.8	2.8	5.2	-0.5
Weight in 2005	10.60%	5.21%	4.44%	7.18%	41.42%	16.15%	11.20%	3.80%	

Source: Workers longitudinal file from the *Quadros de Pessoal*, 2003 to 2005; firms longitudinal file from the *Quadros de Pessoal*, 2003 to 2005.
Note: The rates are computed as a percentage of the employment level in year *t*. Computations consider only firms that remain in activity for 2 consecutive years.

less than second level of basic education and positive for other employees. Among the groups that have positive job creation, the level of excess rotation is higher for the lower level of education. For groups where there is a net loss of jobs (1st and 2nd levels of basic education) that evolution is justified both by the lower hiring activity of such workers and by the higher levels of separations.

Another dimension in which firms adjust their labor force is the wage scale. This article, as mentioned earlier, will not go into a detailed analysis of how the pattern of job mobility is coupled with the wage mobility in the Portuguese economy. However, it is interesting to examine the incidence of worker rotation by quintile of wages. Clearly, the theoretical results suggest greater rotation in the lower wage levels (Jovanovic, 1979). With the endogenous survival of high quality job matches, the separation rate should decrease over the distribution of wages. This pattern is clearly observed in the *Quadros de Pessoal* sample used in this article (Table 11). Regarding hires, the existence of internal labor markets, where workers are initially hired for a relatively low level and then progress internally (Lazear and Oyer, 2004), would also result in a falling hiring rate over the distribution of wages. This behavior is confirmed in Table 11.

Table 10

WORKERS' HIRING AND SEPARATION RATES BY EDUCATION LEVEL

	Less than primary school	Primary school	6th grade	9th grade	High school	Higher education	Total
				Separation rate			
2003	23.8	15.1	15.2	16.1	14.8	13.8	15.8
2004	21.6	15.4	14.6	15.1	13.0	12.4	14.6
2005	23.8	15.9	15.4	17.4	14.7	15.4	16.0
				Hiring rate			
2003	15.8	10.3	13.2	16.1	14.2	15.5	13.4
2004	14.4	10.3	13.2	17.1	14.5	15.9	13.8
2005	14.1	11.1	14.2	19.4	16.6	19.1	15.5
				Net job creation rate			
2003	-7.9	-4.8	-2.0	0.1	-0.7	1.7	-2.4
2004	-7.2	-5.1	-1.4	2.0	1.5	3.6	-0.8
2005	-9.7	-4.8	-1.2	2.0	1.8	3.8	-0.5
Weight in 2005	1.59%	26.10%	22.85%	20.25%	18.64%	10.58%	

Source: Workers longitudinal file from the *Quadros de Pessoal*, 2003 to 2005; firms longitudinal file from the *Quadros de Pessoal*, 2003 to 2005.
Note: The rates are computed as a percentage of the employment level in year *t*. Computations consider only firms that remain in activity for 2 consecutive years.

Table 11

WORKERS' HIRING AND SEPARATION RATE BY WAGE QUINTILE

	Wage quintiles [a]				
	1st Quintile	2nd Quintile	3rd Quintile	4th Quintile	5th Quintile
			Separation rate		
2003	17.4	16.8	15.3	12.7	11.9
2004	16.6	15.3	13.0	11.3	10.6
2005	18.6	16.9	14.6	13.0	11.1
			Hiring rate		
2003	17.7	16.0	13.3	11.4	8.6
2004	17.7	16.0	13.6	12.3	8.6
2005	20.1	17.8	14.6	13.0	10.5
			Net job creation rate		
2003	0.3	-0.9	-2.1	-1.3	-3.3
2004	1.2	0.8	0.6	0.9	-2.0
2005	1.5	0.9	-0.1	0.0	-0.5

Source: Workers longitudinal file from the *Quadros de Pessoal*, 2003 to 2005; firms longitudinal file from the *Quadros de Pessoal*, 2003 to 2005.
Notes: The rates are computed as a percentage of the employment level in year *t*; Computations consider only firms that remain in activity for 2 consecutive years. (a) Wage quintiles refer only to full-time workers with full remuneration.

The pattern observed for net job creation rate has very different consequences for the process of employment adjustment in Portugal. The observation of positive rates of job creation in the first quintile and negative rates in the upper half of income distribution means that each year, employment re-composition in Portugal is made through the creation of jobs with lower levels of remuneration.

8. INTERNATIONAL COMPARISONS

The results presented in this article are broadly in line with those obtained in studies for other countries in that they show a significant activity of worker rotation, much higher than job rotation. Additionally, there are signs of a strong heterogeneity in the flow of workers, similar to other developed countries, notably France and the United States.

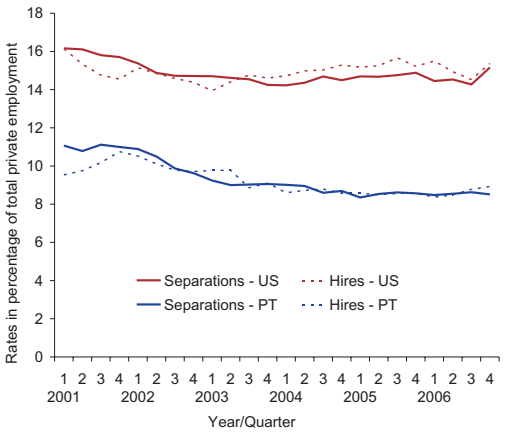
Note, however, that the comparison of hiring and separation rates across countries is constrained by several factors. Indeed, these levels depend on how the information is collected (administrative data *vs* survey data), and the level of coverage of data (census data *vs* samples of specific parts of the population).

It is, therefore, with some caution that we compare the rates obtained for the Portuguese labor market with those reported in Davis *et al.* (2008) for the US (see Chart 3).[10]

Worker flows in the US are higher than those observed in Portugal. Indeed, on average, and for the period considered, the flows in Portugal are 60 per cent lower than those in the US (see Table 12). Centeno *et al.* (2008) present an identical comparison for job flows; the relationship between these flows in the two countries is close to 1.4. Excess rotation in the US is clearly superior to that observed in Portugal. Indeed, the results for the US of Burgess *et al.* (2000), Burgess *et al.* (2001), and Davis *et al.* (2006) indicate a higher separation rate in firms in expansion than the one in Portugal. The same occurs in contracting firms.

Chart 3

HIRING AND SEPARATION RATES
Portugal and US



Sources: *BDRSS*, authors' calculations and Davis *et al.* (2008) for US.

(10) Davis *et al.* (2008) report results for the JOLTS that make them comparable to those obtained for Portugal, but that differ from statistics released by the Bureau of Labor Statistics.

Table 12

HIRING AND SEPARATION RATES – *BDRSS* AND JOLTS, 2001-2006

		Average	Standard deviation
Hiring rate			
	Portugal	9.22	0.72
	US	14.96	0.48
Separation rate			
	Portugal	9.36	0.98
	US	14.86	0.56
Relative volatility (Hirings/Separations) [(a)]			
	Portugal	0.74	
	US	0.85	

Source: The data for the US are estimates using JOLTS taken from Davis *et al*. (2008). The correction proposed approximates JOLTS's firm demography (which does not cover new firms, nor exiting firms) to the firm demography reported in other data sources for the American market.
Note: (a) Volatility is measured by the standard deviation of the data series.

An interesting fact in the comparison of the two labor markets is the existence of greater volatility in the rates of separation in Portugal, which is 26 per cent higher than the volatility of the hiring rate, while for the US it is 15 per cent higher. This is an important fact for the study of the cyclical behavior of these variables and their relationship with other aggregates of the labor market, such as the unemployment rate. An important aspect of this analysis is that the separation rate includes job-to-job transitions. These transitions are markedly pro-cyclical, so the behavior of the separation rate can become acyclic or pro-cyclical, unlike the exit rate to unemployment, which shows counter-cyclical behavior (see Shimer, 2007 and Fallick and Fleischman, 2004). In this context, an analysis of the relationship between labor market flows and the unemployment rate for Portugal deserves careful attention.

In another study, with data for the secondary sector in Denmark, Albaek and Sorensen (1998) obtain annual hiring and separation rates next to 28 per cent. These rates are very close to those obtained for Portugal. Another interesting fact in this study is the aggregate relationship between the hiring rates and job creation, and between the separation rates and job destruction. On average, for the period from 1980 to 1990, this ratio is slightly above 2. Thus, as in comparison with the US, the biggest difference between the Portuguese and Danish labor markets regarding worker rotation rests on the number of jobs that are created for each job created in net terms, (and similarly for job destruction).

9. CONCLUSION

This article uses the Social Security census records of salaried workers between 2000 and 2006 to identify the processes associated with worker and job flows. The results are, wherever possible, compared with those obtained with the *Quadros de Pessoal*, which includes a slightly smaller number of records and only in annual terms. A total of more than 14 million labor relations is used, representing about 5 million workers and 600 thousand firms.

A set of important conclusions emerges from this study:

- The annual job creation in firms operating two consecutive years is characterized by the hiring of two workers and the separation of one worker for each job created in a given year. In quarterly terms, the figures are lower, at around two thirds of the annual values.
- In turn, in annual terms, the job destruction in existing firms is characterized by the hiring of 2 workers and the separation of 4 workers for every 2 jobs destroyed (and therefore half the value for the hires), maintaining the relationship of two thirds for the quarterly data.
- Worker rotation is higher in small firms and among younger and less skilled workers.
- New hires each year are mostly made in the form of fixed-term contracts.
- The services sector has worker flows higher than the manufacturing sector.
- Jobs with lower wages, traditionally those of lesser quality, represent a huge quantity of job flows in the economy and concentrate the net creation of jobs in recent years.

These indicators are shared by the labor markets of many developed economies. In France, Denmark and Italy there is evidence of the existence of large worker and job flows. The level of these flows is still lower than that seen in the United States. In particular, the relationship between worker and job flows is lower in Portugal than in the United States. This is an important indicator of the difficulties experienced by the Portuguese labor market and that is shared by other European economies, especially the French (Abowd *et al.*, 1999). In Europe, employment adjustment is mainly done through the adjustment of new entries, whereas in the US this process is associated with a higher number of exits.

The available results indicate that firms have a marked idiosyncratic behavior (which is visible, for example, in the sectoral analysis). The human resources policies of these firms seem to be permanently attached to a minimum level of worker rotation. The reasons for this behavior may be very different, even in a context where the ability to adjust the level of employment is determined by the rigidity of legislation. For example, some organizations may need a constant influx of new workers (new human capital, new knowledge, and new creativity), while other firms, due to their specific activity or human resources policies, may opt for a strategy of low wage/high rotation. In any of these contexts, the restrictions imposed by the legislation become particularly harmful to their productive efficiency.

The evolution of the labor market in countries with high employment protection has been characterized by increasing the use of more flexible contractual forms rather than permanent contracts, which are difficult to terminate. In a situation where businesses need the degrees of flexibility indicated by the existence of high levels of excess worker rotation, the burden of such flexibility falls on the labor market groups most exposed to such rotation. This may have negative consequences for overall welfare, generating polarization phenomena similar to those that have been observed in some advanced economies.

In this article we concentrated on aspects of job mobility, ignoring quality aspects of the employer/employee pair, measured, for example, through the impact of rotation on wages and the distribution of job tenure. The role of wages assumes, however, a very important dimension in the labor market adjustment, which needs to be analyzed in future research.

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VERTICAL SPECIALIZATION IN PORTUGUESE INTERNATIONAL TRADE*

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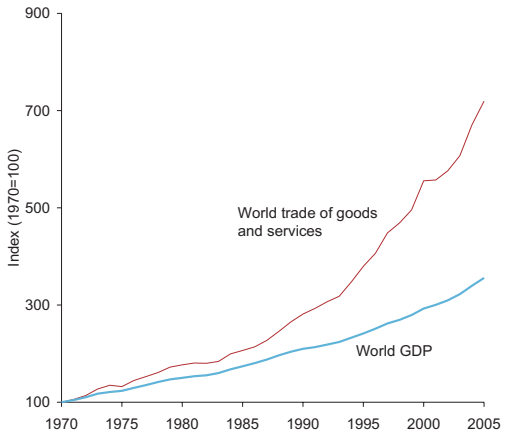
1. INTRODUCTION

One of the significant economic trends of the last decades is the strong growth of international trade flows. World trade volume of goods and services exhibited an average annual growth of 6.0 per cent over the period 1970-2005, well above the real growth rate of world GDP of 3.7 per cent (Chart 1). Another important feature of the current globalization phase is the increase in the stock of foreign direct investment (FDI) and the rising importance of multinational corporations in world production. Several explanations for these trends have been put forward in the literature. Firstly, the recent decades have witnessed substantial progress in the liberalization of international trade and capital flows, with the integration of several emerging market economies in world markets. Secondly, the dissemination of information and marketing strategies tends to increase consumers' taste for variety, intensifying international intra-industry flows of final goods (see Lloyd and Lee (2002)). Thirdly, a new paradigm in the international organization of the productive process has emerged since, for a large share of goods, activity is now vertically decomposed among different countries. Such activities explain part of the increase in world trade because more intermediate goods circulate between countries. The internationalization of production also relates with the increase of FDI because part of these activities are conducted within the structure of multinational corporations as intra-firm trade.

Chart 1

WORLD TRADE AND GDP (REAL)



Source: IMF.

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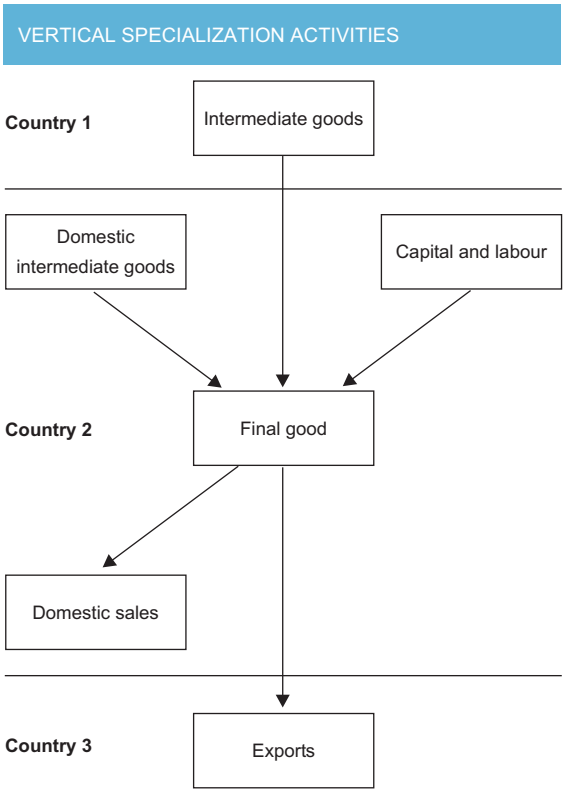
International production sharing has always been part of international trade as countries import manufactured goods to be incorporated in their exports (see Yeats (1998) for a discussion). Nevertheless, the reduction of transport and communication costs, the sharp increase in technical progress and the removal of political and economic barriers to trade exponentiated the opportunities for the internationalization of production, as firms began to offshore many tasks that were previously considered non-tradable. Overall, this new paradigm, named by Baldwin (2006) as the "second unbundling", led to the surge of new countries in world trade depending heavily on outsourced tasks in industries where potential gains of specialization are higher. In geographical terms, this phenomenon has been largely reported in emerging market economies in South East Asia.

In this article, we use the concept of vertical specialization introduced in Hummels *et al.* (1998) and further developed in Hummels *et al.* (2001) to quantify the international vertical linkages for the Portuguese economy from 1980 to 2002. This concept basically considers situations where one country uses imported inputs in the production of goods that are later exported. Therefore, vertical specialization requires that the production is carried out in at least two countries and that the goods cross at least twice the international borders (Chart 2). In this context, countries specialize in particular stages of a good's production. By comparison, as stated in Hummels *et al.* (1998), in a horizontal-specialization scenario, countries trade goods that are produced from start to finish in just one country. This vertical specialization concept has some similarities with the international outsourcing measure proposed by Feenstra and Hanson (1996) that has been widely used to asses the impact of international fragmentation of production on domestic employment and relative wages. Nevertheless, the differences between the two measures are relevant. The Feenstra and Hanson (1996) measure focuses on the foreign content of domestic production as it considers the share of (direct) imported inputs in production or in total

Chart 2



Source: Hummels *et al.* (2001).

inputs, while the Hummels *et al.* (2001) measure of vertical specialization considers the share of (direct and indirect) imported inputs in total exports.

It is relevant to analyse the experience of the Portuguese economy in the context of vertical specialization. Firstly, this new paradigm in world production implies the reconfiguration of the patterns of comparative advantages and FDI flows, making it important to assess the ability of the Portuguese economy to adjust to this reality. In addition, it is important to identify which sectors are more vertically integrated, as well as the geographical links of this phenomenon. Secondly, the calculations provide an accurate measurement of the import content of Portuguese exports, which is useful in macroeconomic analysis.

On a policy perspective, it is important to note that it is not possible to directly link the degree of vertical specialization with the economic performance of a country. In fact, a country can perform well in international markets if it is competitive in productions where vertical specialization is not adopted. Conversely, a country with a high share of vertical specialization activities may not take substantial benefits if it is placed on a segment of the production chain associated with very low value-added goods. Therefore, the participation in vertical specialization activities represents an opportunity but the underlying determinants of comparative advantages remain crucial for economic growth.

The seminal paper by Hummels *et al.* (2001) takes a sample of ten OECD and four emerging market countries and makes use of Input-Output tables to compute an index of vertical specialization. The index measures the share of such activities in total exports and reveals that it accounts for 21 per cent of exports in the countries considered in 1990 with a growth rate of almost 30 per cent between 1970 and 1990. Other studies have applied this methodology, in some cases with minor changes relatively to the original formulation, and have also identified increases in vertical specialization activities in several countries. Some examples are Minondo and Rubert (2002) for Spain, Breda *et al.* (2007) for Italy and six other EU countries, Cadarso *et al.* (2007) for nine EU countries, Dean *et al.* (2007) and Xiaodi and Jingwei (2007) for China, and Chen and Chang (2006) for Taiwan and South Korea. The vertical specialization measure of Hummels *et al*. (2001) is also computed by the OECD as one of its indicators of global economic flows under the name of import content of exports.[1]

The article is organized as follows. In Section 2 we describe the methodology developed by Hummels *et al.* (2001) and the data used to derive the results for the Portuguese economy. Section 3 starts by presenting the overall measure of vertical specialization and then moves to a sectoral analysis of vertical specialization in Portugal. Additionally, we explore the geographical link to Portuguese vertical specialization, focusing on the main trade partners. Finally, Section 4 presents some concluding remarks.

2. MEASUREMENT AND DATA

Vertical specialization in trade involves the use of imported intermediate goods in the production of goods for export. Following Hummels *et al.* (2001), vertical specialization activities (from now on referred as VS activities) in sector *j* can be defined as the contribution of imported inputs to exports of sector *j*, in nominal terms, that is:

(1) See Backer and Yamano (2007) and OECD (2007) for a presentation of several OECD indicators computed using Input-Output data. Although the total import content of exports (or embodied imports) was already computed by the OECD as one of its economic globalization indicators, the link with Hummels *et al.* (2001) concept of vertical specialization had not been established explicitly (see for instance OECD (2005a) and OECD (2005b)).

$$VS_j = \sum_{i=1}^{n}\left(\frac{M_{ij}X_j}{Y_j}\right) = \sum_{i=1}^{n} a_{ij}^{M} X_j \quad (1)$$

where M_{ij} is the value of imported intermediate product i absorbed by sector j, Y_j is the gross output of sector j, X_j is the value of exports of sector j, and a_{ij}^{M} is the proportion of imported input i used to produce output Y_j, for $i, j = 1,2,\ldots,n$. So VS_j measures the total amount of imported intermediate goods required to produce the exports of sector j, *i.e.*, the import content of exports or the foreign value included in the exports of sector j.

For country k total VS is simply the sum of VS across all sectors j:

$$VS_k = \sum_{j=1}^{n} VS_j = \sum_{j=1}^{n}\sum_{i=1}^{n} a_{ij}^{M} X_j \quad (2)$$

In order to facilitate the analysis, it is useful to calculate the VS as a percentage of total exports of the country. The VS share of total exports in country k is given by:

$$\frac{VS_k}{X_k} = \frac{\sum_{j=1}^{n} VS_j}{\sum_{j=1}^{n} X_j} = \sum_{j=1}^{n}\left[\left(\frac{VS_j}{X_j}\right)\left(\frac{X_j}{X_k}\right)\right] = \sum_{j=1}^{n}\left[\left(\sum_{i=1}^{n} a_{ij}^{M}\right)\left(\frac{X_j}{X_k}\right)\right] \quad (3)$$

where $X_k = \sum_{j=1}^{n} X_j$ are total exports of country k. Using equation (3), the total VS share of a country can be decomposed in an export-weighted average of sectoral VS export shares.

One basic element of the methodology proposed by Hummels *et al.* (2001) is the utilization of Input-Output (I-O) matrices to identify the value of the different intermediates used in the production of each sector, specifically the value of those that are imported. The advantages of the utilization of I-O matrices are twofold. Firstly, the value of imported intermediates is properly accounted, in the sense that the I-O approach bases the classification on the use of the good and not on its characteristics. In fact, there are many examples of goods that can be either final or intermediate, thus strong arbitrariness is introduced when the classification is based on the product characteristics. Secondly, the I-O approach allows for a sectoral breakdown of the VS measure. The drawback is that the I-O matrix does not differentiate the import content of a good that is domestically consumed from that of a good that is exported. Therefore, the assumption that the import content is similar in the two cases is necessary.

The VS measure presented in equation (3) is:

$$VS \text{ share of total exports in } k = \frac{VS_k}{X_k} = \frac{uA^{M}X}{X_k} \quad (4)$$

where u is a $1\times n$ vector, n is the number of sectors, A^{M} is the $n \times n$ imports direct input coefficient matrix, where each a_{ij}^{M} element represents the imports of product i absorbed per unit of output of sector j, X is a $n \times 1$ vector of exports of each sector j and X_k is the sum of exports across the n sectors.

Equation (4) measures the value of imported inputs that are used *directly* in total exports, *i.e.*, the direct import content of total exports. Nevertheless, the existence of an I-O matrix makes it possible to consider also the imported inputs used *indirectly* in exports. It is clear that one intermediate good can be initially imported as input of one domestic sector and the production of this latter sector is then used as an intermediate in a second domestic sector and so on, until the imported product is finally embodied in a good that is exported. Therefore, the original intermediate import may circulate in the domestic economy across several sectors before there is an export. Using the example stated in OECD (2005b), suppose that in producing cars for exports, a car manufacturer imports certain components (*e.g.* the

chassis), the direct import contribution will be the ratio of the value of the chassis to the total value of the car. And if the car manufacturer purchases other components from domestic manufacturers, who in turn use imports in their production process, those imports must also be included in the car's final value. Thus, the imported inputs required for the production of a car include not only the direct imports, but also the indirect imports that are used in the production of rounds of domestically produced inputs for cars. These indirect imports should also be included in a measure of the contribution of imports to the production of cars for export (see also Xikang (2007) for a discussion). This indirect effect can only be considered if an I-O matrix is used and it is captured by:

$$VS\ share\ of\ total\ exports\ in\ k = \frac{VS_k}{X_k} = \frac{uA^M \left[I - A^D\right]^{-1} X}{X_k} \qquad (5)$$

where I is the identity matrix and A^D is the $n \times n$ matrix of domestic technical coefficients. The term $\left[I - A^D\right]^{-1}$ can be written as the sum of a converging infinite geometric series with common ratio A^D, that is:

$$\left[I - A^D\right]^{-1} = \left[I + A^D + A^{D^2} + A^{D^3} + \ldots + A^{D^x}\right],\ when\ x \to \infty.$$

Thus, the numerator of equation (5) measures the total imported inputs, iterated over the economy's production structure, that are needed to produce the total exports (see Dean *et al.* (2007) and Xikang (2007) for a discussion). Dividing this by the amount of total exports of a country yields the total (direct and indirect) share of exports attributable to imported inputs, *i.e.*, the total VS share of a country. Therefore, equation (5) is the measure elected to compute the importance of VS activities.

The Hummels *et al.* (2001) concept of VS can be further clarified by using standard concepts of I-O models. The $\left[I - A^D\right]^{-1}$ matrix is the Leontief inverse matrix (see Miller and Blair (1985) for details). The elements of the Leontief inverse matrix are often termed as output multipliers, as they enable the estimation of both direct and indirect impacts of a change in final uses. Each (i, j) element of the inverse indicates by how much the output of sector i increases if final demand for output of sector j increased by one unit. If we multiply the matrix of direct requirements of imported inputs A^M and the Leontief inverse matrix $\left[I - A^D\right]^{-1}$, we obtain the matrix of direct and indirect requirements of imported inputs $A^M \left[I - A^D\right]^{-1}$. In general terms, and as shown by Dietzenbacher *et al.* (2005), the element (i, j) of the matrix $A^M \left[I - A^D\right]^{-1}$ gives the total imports of product i required to satisfy one unit of final demand for sector j. Hence, the sum of the elements in the j^{th} column of the matrix measures the imported inputs from all sectors generated by one unit final demand for output of sector j.[2] In our case, the final demand item considered are total exports, so the sum of j^{th} column of this matrix gives the total imported inputs per unit of exports of sector j, *i.e.*, the VS share or VS intensity of sector j.

In this article the data used for Portugal comes from national accounts for the years 1980, 1986, 1990, 1995, 1999 and 2002. The 1995 and 1999 I-O tables were released by the Department of Foresight and Planning and International Affairs (*DPP*) based on data from Statistics Portugal (*INE*), while the remaining tables are from *INE*. It is also important to notice that, as in Reis and Rua (2006), the import-use matrix for 2002 maintains the import structure of 1999. This fact limits the significance of the results obtained for this last year, but the problem is minimized if the 1980-2002 evolution is considered. All I-O tables are available at current basic prices, and hence not affected by taxes. Neverthe-

(2) Reis and Rua (2006) name this sum as the total backward leakage of sector *j*.

less, from 1995 to 1999 the classification of the sectors changed from ESA79 to ESA95 and the methodology for the allocation of the financial intermediation services indirectly measured (FISIM) was altered. Therefore, in order to assure a minimum comparison basis across the period, we used the adjustments explained in Reis and Rua (2006) and end up with 29 sectors/products arranged according to the 2-digits NACE rev.2 breakdown level. We broadly focus the analysis on the Portuguese manufacturing industry excluding the energy sector, which further reduces the number of sectors considered to 13.[3] Nevertheless, in Section 3, we briefly provide evidence on the non-significance of VS in the services sector and on the impact of the energy sector in Portuguese VS.

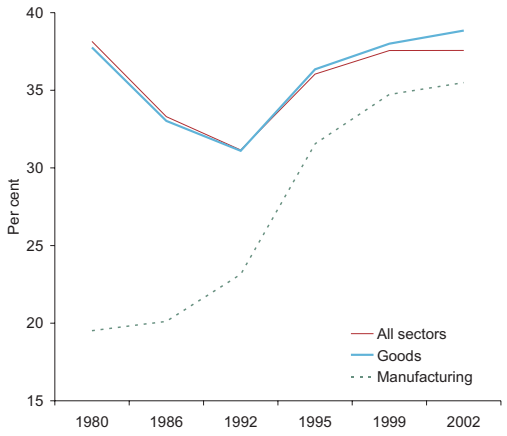
Hummels *et al.* (2001) stressed that the relatively aggregate sectoral data from the I-O tables can lead to measurement biases of the true level of VS. If, within a sector, there is a positive (negative) correlation between exports and the imported inputs to gross-output ratio, this VS calculations will be downward (upward) biased. Supposing that, within one sector, the exported goods do not make use of imported intermediates while non-exported goods do, then the measure would consider some VS in the sector when it does not really exist. On the contrary, if the correlation between exports and the imported gross-output ratio is positive, this VS measure understates the importance of the phenomenon.

3. VERTICAL SPECIALIZATION IN PORTUGAL

The computation of the VS index presented in equation (5) for the Portuguese economy reveals an increase in the importance of these activities, in particular since the mid-nineties (Chart 3). Nevertheless, the results differ depending on the set of sectors considered. When all 29 goods and services sectors are included, the measure of VS is higher than when the analysis is restricted to the 13 manufacturing sectors (the detailed results according to each sectoral classification are included in Appendix A). In addition, the path of the VS measure in these two situations is also different, especially before 1992. Considering the 29 sectors, the VS measure decreases from 38.1 per cent in 1980 to 31.2 per cent in 1992, increasing afterwards to 37.6 per cent in 2002. When the analysis is restricted to the

Chart 3

VERTICAL SPECIALIZATION IN PORTUGAL
As a share of total exports



Sources: DPP, *INE* and authors' calculations.

(3) Hummels *et al.* (2001) and other authors refer that results change substantially when the energy sector is included. This fact derives from its importance as an imported intermediate for most sectors and from the sharp changes in energy prices.

manufacturing industry, it increases from 19.5 per cent to 23.1 per cent from 1980 to 1992, rising sharply afterwards to 35.5 per cent in 2002. Furthermore, the consideration of the 16 sectors associated with the production of goods gives results very similar to the ones obtained with all 29 goods and services sectors. Two main qualifications are worth underlining in this exercise. Firstly, the difference between restricting to the manufacturing industry or to the total goods sector is associated with the "Fuel and mining" sector. Imports of this sector are important inputs in almost all other sectors and Portugal is a net importer of energetic products. In addition, energy prices have fluctuated significantly in the last decades. High energy prices explain the high VS share in 1980 and subsequent falling prices explain the reduction in the VS share in 1986 and 1992. Secondly, VS activities in Portugal do not appear significant in the 13 services sectors, as illustrated by the small difference between the VS measure of all 29 sectors and the VS measure of the goods sector. One exception is the transportation sector, where some VS activities seem relevant, especially in the first period.

The VS measure obtained for Portugal taking the goods sector can be compared with what has been computed for other economies (Table 1). Chen *et al.* (2005) report results for some OECD countries and Minondo and Rubert (2002) study the case of Spain. VS trade in Portugal appears to be more important than in the other countries considered, with the exception of the Netherlands. This fact is probably related to the relatively smaller size of the economy and to its high degree of openness, which favour VS trade, and to the high share of energy imports in Portugal. To avoid biasing the analysis with the effect of the energy sector from here on we focus on the Portuguese manufacturing industry (13 sectors).

One interesting calculation suggested by Hummels *et al.* (2001) is to identify how much does VS trade account for the growth of the total exports to gross output ratio. That is given by:

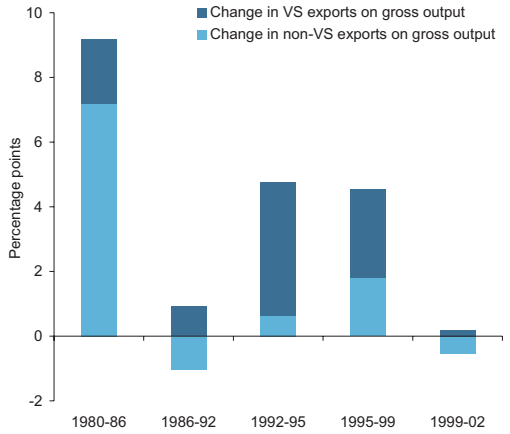
$$\Delta\left(\frac{X_t}{Y_t}\right) = \Delta\left(\frac{VS_t}{Y_t}\right) - \Delta\left(\frac{X_t - VS_t}{Y_t}\right) \qquad (6)$$

where Y_t stands for gross output in period t.

Chart 4

CONTRIBUTIONS TO THE CHANGE OF THE EXPORT-GROSS OUTPUT RATIO

Portuguese manufacturing industry



Sources: DPP, *INE* and authors' calculations.

Table1

VERTICAL SPECIALIZATION OF DIFFERENT COUNTRIES

Vertical specialization exports as share of total exports of goods

	Australia	Canada	Denmark	France	Germany	Italy	Japan	Netherlands	Portugal	Spain	UK	US
1980			33.6	26.1			18.7		37.8	26.4		
1981		23.1						44.6				
1982												8.8
1983												
1984											24.1	
1985			33.5	26.7		26.9	13.5			31.0		9.3
1986	11.5	27.8			19.8			36.9	33.0			
1987												
1988					19.0							
1989	11.2											
1990		27.0	29.5	23.9	19.6		11.0			25.6	25.9	10.8
1991												
1992						22.5			31.1			
1993												
1994										29.0		
1995	15.7			27.1	22.4		9.5	39.2	36.3			
1996							10.5	39.7				
1997			28.2				11.3	41.3				12.3
1998								40.7			27.2	
1999									38.0			
2000												
2001												
2002									38.8			

Sources: Chen *et al*. (2005), Minondo and Rupert (2002) for Spain and authors' calculations for Portugal.

From 1980 to 2002, export-gross output ratio in the Portuguese manufacturing industry increased by 18.0 percentage points (p.p.) and VS exports as a percentage of gross output increased by 9.9 p.p. in the same period, thus accounting for 55.2 per cent of the change in the total export-gross output ratio. In particular, the increase in the total manufacturing exports to gross output ratio in the nineties was mostly due to the rise of VS exports (Chart 4).

3.1. Sectoral vertical specialization in Portugal

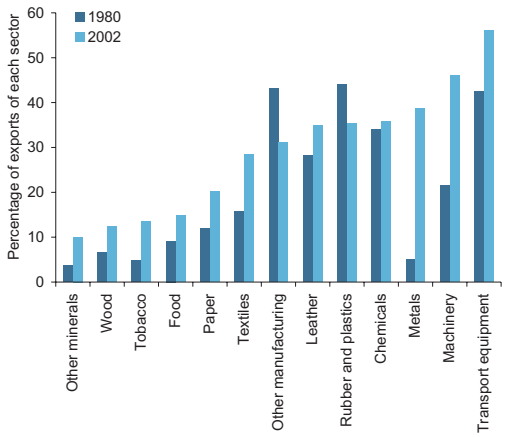
In this section, we analyse the reliance of exports of each manufacturing sector on imported intermediates. Recall that the sum of the elements of column j of the $A^M \left[I - A^D \right]^{-1}$ matrix tells us the intermediate imports of all products that are (directly and indirectly) required to obtain one unit of exports of sector j, that is the VS of sector j as a percentage of exports of the sector.

Between 1980 and 2002, the majority of Portuguese manufacturing sectors showed a growing propensity to use imported inputs in the production of exports (Chart 5). The only two exceptions are "Rubber and plastics" and "Other manufacturing". The most striking increase in VS intensity occurred in the "Metals" sector, increasing from 5.1 per cent in 1980 to 38.7 per cent of the sector's exports in 2002. The VS export share in the "Transport equipment" and "Machinery" sectors also increased strongly. In the more recent period, substantial differences in terms of import content exist between sectors. In 2002, the extent of VS was particularly high in the "Transport equipment" sector, amounting to 56.1 per cent of the sector's exports, well above the average for the manufacturing industry. Due to its highly standardized production process, this is a sector in which VS opportunities tend to be exploited (see Breda *et al.* (2007) for similar results in other countries). The same happens in the Portuguese "Machinery" sector that records an import content of exports of 46.0 per cent in 2002. A second group of industries that displays a high import content of exports includes those that heavily use primary goods, like "Metals", "Chemicals" and also "Rubber and plastics".

Chart 5

VS INTENSITY OF EACH PORTUGUESE MANUFACTURING SECTOR

Total import content of exports of each sector

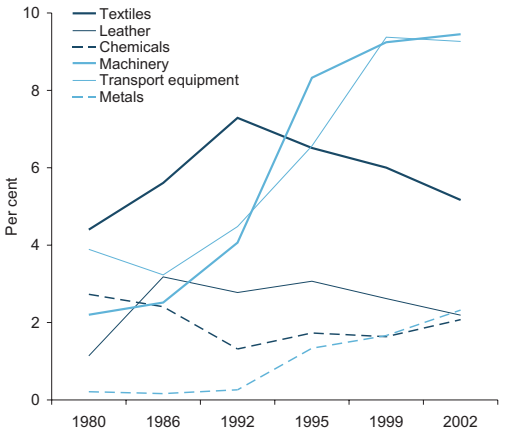


Sources: DPP, *INE* and authors' calculations.

Chart 6

SECTORAL VERTICAL SPECIALIZATION IN PORTUGAL

As a share of total manufacturing exports



Sources: DPP, *INE* and authors' calculations.

The contribution of each sector to total Portuguese VS share of manufacturing exports depends not only on each sector's VS intensity but also on the share of each sector in total exports as shown in equation (3). Chart 6 includes the main sectoral contributions to the Portuguese VS share and the detailed results for each sector are included in Appendix A. The higher contributions in 2002 are given by the "Machinery" and "Transport Equipment" sectors, whose intermediate imports reach, in each case, values above 9 per cent of total Portuguese manufacturing exports. The path of the "Machinery" sector is particularly striking, with its contribution rising 7.3 p.p. from 1980 to 2002. This increase is mainly concentrated between 1992 and 1995. The "Transport Equipment" sector also gives an important contribution in terms of VS in the most recent period, with the increases occurring mainly between 1992 and 1999 and coinciding with the settlement in Portugal of large FDI projects in the automobile sector, whose production is directed to exports and where the import content in output is significant. Conversely, the VS contribution of the "Textiles" sector increased until 1992 but lost some ground in recent periods, reaching values close to 5 per cent of total Portuguese manufacturing exports in 2002.

The contribution of each sector to the change in total VS share can be further detailed using a shift-share analysis to disentangle the contributions coming from changes in each sector's VS intensity and from changes in each sector's share in total exports. This intensive (more VS in the sector) - extensive (higher share of the sector in total exports) breakdown is given by:

$$\Delta \frac{VS_{k,t}}{X_{k,t}} = \sum_j \left[\Delta \frac{VS_{j,t}}{X_{j,t}} \times 0.5 \times \left(\omega_{k,j,t} + \omega_{k,j,t-1} \right) + \Delta \omega_{k,j,t} \times 0.5 \times \left(\frac{VS_{j,t}}{X_{j,t}} + \frac{VS_{j,t-1}}{X_{j,t-1}} \right) \right] \qquad (7)$$

where $VS_{k,t}$ and $X_{k,t}$ stand for total VS and total exports of country k in period t, respectively, and $VS_{j,t}$ and $X_{j,t}$ are the equivalent notions but focusing on sector j. Finally, $\omega_{k,j,t}$ is the share of sector j in total exports of country k in period t.

The breakdown results for the change in the VS share from 1980 to 2002 are presented in Table 2 and Appendix B includes the detailed sectoral contributions for each year. Taking all manufacturing sectors, the contribution of changes in VS intensity represents 73 per cent of the total increase in the VS

Table 2

CONTRIBUTIONS TO THE CHANGE IN PORTUGUESE VS SHARE OF TOTAL MANUFACTURING EXPORTS

Change from 1980 to 2002, in percentage points

	Contribution of change in		Total
	Sector VS intensity	Sector share of total exports	
Food	0.5	-0.5	0.0
Tobacco	0.0	0.0	0.0
Textiles	3.0	-2.2	0.8
Leather	0.3	0.7	1.1
Wood	0.4	-0.6	-0.1
Paper	0.5	-0.2	0.2
Chemicals	0.1	-0.8	-0.7
Rubber and plastics	-0.2	0.9	0.7
Other minerals	0.2	0.1	0.3
Metals	1.7	0.4	2.1
Machinery	3.8	3.5	7.3
Transport equipment	1.8	3.6	5.4
Other manufacturing	-0.4	-0.6	-1.1
Total	11.7	4.3	16.0

Sources: DPP, *INE* and authors' calculations.

measure from 1980 to 2002. The highest sectoral contributions to the total increase in the Portuguese VS share in manufacturing exports came from the "Machinery" and "Transport equipment" sectors. The significant contribution of these two sectors is both attributable to increased VS intensity and to increased shares in total exports. In the "Machinery" sector, the two partial contributions are balanced, but in "Transport equipment" the increase in the share of the sector in total exports is the dominant effect. Interestingly, in the "Textiles" sector, there is a high positive effect of VS intensity and a negative contribution coming from a decrease in the share of this sector in total Portuguese manufacturing exports.

3.2. The geographic links of Portuguese vertical specialization

One interesting dimension to explore is the geographical orientation of Portuguese VS activities. In this article we selected the five main trade partners of Portugal (Spain, Germany, France, UK and US) and the Intra-EU15 and Extra-EU15 blocks. The computation of the share of VS in total Portuguese exports to each of these destinations requires the strong assumption that all products in each sector are homogeneous, so the results should be interpreted carefully. In fact, the differences in the VS results for the main trade partners reflect essentially the different product composition of Portuguese exports by destination, given that the sectoral import content coefficients are the same for all countries.

In each period, the sectoral VS level for each partner is obtained by the product of the VS intensity of each sector and total exports of that sector to the specified partner. That is:

$$VS_{c,j} = \frac{VS_j}{X_j} X_{c,j} \tag{8}$$

where VS_j and X_j stand, as previously, for VS level and exports of sector j and $X_{c,j}$ are the exports of sector j to partner c.

Again, the sectoral results for each partner can be added up to get a total VS level with each partner and the results are easier to interpret if the VS share in total exports to each partner is computed. The VS share of total exports of country k to partner c is given by:

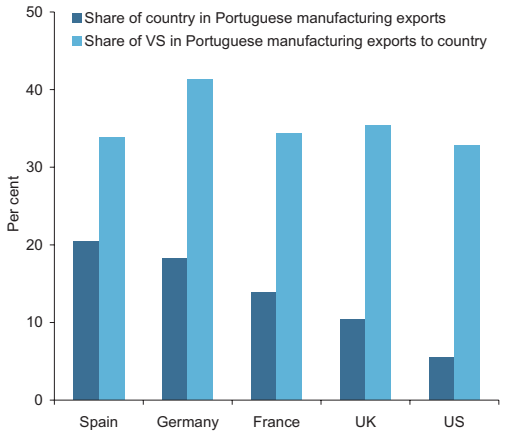
$$\frac{VS_{k,c}}{X_{k,c}} = \frac{\sum_{j=1}^{n} VS_{c,j}}{\sum_{j=1}^{n} X_{c,j}} \tag{9}$$

The share of Portuguese VS manufacturing exports to each destination was computed for 2002 using nominal international trade data from *INE*. The Portuguese export data is available in a bilateral basis and with a detailed product breakdown, which was aggregated to match the I-O data sectoral classification. The results show that Germany, the second major destination of Portuguese manufacturing exports in 2002, is the country where Portuguese VS based trade is more important (Chart 7). In fact, 41.3 per cent of the value of Portuguese exports to Germany in 2002 is associated with imported intermediates. In the cases of Spain, France, UK, US, as well as the Intra-EU15 and Extra-EU15 blocks, the values are around 35 per cent in 2002.

The sectoral breakdown reveals some interesting differences in terms of Portuguese VS exports to these trade partners in 2002 (Table 3). In the case of Germany, VS activities are mainly concentrated in the "Machinery" and "Transport equipment" sectors, which account together for 70.6 per cent of total VS exports to Germany. On the contrary, VS trade with Spain is more dispersed, with sectors like "Metals", "Textiles" and "Chemicals" representing together 38.2 per cent of total. This result points to a broader VS pattern with Spain. In the case of VS trade with US, the striking point is the strong rele-

Chart 7

VERTICAL SPECIALIZATION IN PORTUGUESE MANUFACTURING EXPORTS TO MAIN TRADE PARTNERS, 2002



Sources: DPP, *INE* and authors' calculations.

Table 3

SECTORAL COMPOSITION OF PORTUGUESE MANUFACTURING VS EXPORTS TO SELECTED COUNTRIES/AREAS

Percentage share of each sector in total VS to country/area, 2002

	Spain	Germany	France	UK	US	Intra-EU15	Extra-EU15
Food	4.1	0.5	2.5	2.2	2.8	2.3	4.5
Tobacco	0.0	0.0	0.0	0.1	0.0	0.1	0.0
Textiles	13.2	9.2	18.1	24.2	19.1	15.1	14.5
Leather	1.4	7.6	9.6	10.9	4.8	6.6	4.3
Wood	1.8	0.7	2.3	0.6	4.1	1.3	3.2
Paper	3.4	2.1	2.5	2.3	1.5	2.9	2.8
Chemicals	8.7	2.0	2.2	4.9	4.4	5.2	7.4
Rubber and plastics	4.8	2.6	3.6	1.9	1.3	3.2	3.0
Other minerals	1.5	0.4	1.3	1.1	1.6	1.0	1.4
Metals	16.4	3.3	4.0	3.9	6.2	6.6	6.3
Machinery	18.0	36.3	22.4	19.8	44.7	24.5	36.4
Transport equipment	23.9	34.4	26.6	27.1	8.4	28.7	13.5
Other manufacturing	3.0	1.0	4.9	1.0	1.1	2.5	2.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: DPP, *INE* and authors' calculations.

vance of the "Machinery" sector, the highest of all countries considered. On the contrary, the share of "Transport equipment" in VS exports to the US is the lowest of the five countries, indicating that Portuguese direct exports of this sector are not primarily destined to the US. Regarding VS exports to the UK, the "Textiles" and "Leather" sectors make up 35.1 per cent of total, the highest share of the countries selected, which highlights the relevance of the UK as a destination of Portuguese exports of these sectors.

4. CONCLUDING REMARKS

Over the last decades, the nature of trade has changed, as countries increasingly specialize in producing particular stages of a good, rather than making a complete good from start to finish. In this study, we follow Hummels *et al.* (2001) to measure vertical specialization in terms of the total imported intermediate content of exports, considering a multiple-stage input-output circulation among Portuguese industries. We use data from Portuguese Input-Output matrices in 1980, 1986, 1992, 1995, 1999 and 2002 to quantify the total (direct and indirect) import content of Portuguese exports. We conclude that vertical specialization activities in Portugal are important in the manufacturing industry, but not in the services sector. In the Portuguese manufacturing industry, vertical specialization based trade has been steadily increasing and it accounts for 35.5 per cent of total exports in 2002, up from 19.5 per cent in 1980, which is a relatively high figure compared to other OECD countries. Our empirical results also indicate that vertical specialization in trade plays an important role in explaining the increase in Portuguese manufacturing export share of gross output. Around 55 per cent of the growth in total manufacturing exports to gross output ratio between 1980 and 2002 is attributable to the increase in Portuguese vertical specialization.

Two groups of industries show especially high import content of exports in 2002, standing above the manufacturing industry average. The first group includes some technology intensive industries with standardized production processes, like the “Transport equipment” and “Machinery” sectors. In particular, vertical specialization in the “Transport equipment” sector exceeds 55 per cent of the sector’s exports in 2002. The second group of sectors with significant shares of vertical specialization trade are more basic industries, like the “Metals” and “Chemicals” sectors.

The increase in the share of vertical specialization in total Portuguese manufacturing exports between 1980 and 2002 was split into two parts using a shift-share analysis. The first part accounts for the change in the intensity of vertical specialization of each sector and the second for the change in the sectoral composition of exports. The increase in the intensity of sectoral vertical specialization explains 73 per cent of the total change. The manufacturing sectors providing the highest contributions to the growth of the Portuguese vertical specialization measure were the “Machinery” and “Transport equipment” sectors. The contribution of the “Machinery” sector is especially strong and is mainly concentrated between 1992 and 1995. This contribution results both from an increased vertical specialization intensity in the sector and from an increased share of the ‘’Machinery" sector in total exports. In the ‘’Transport equipment" sector, the increase in the share of the sector in total exports is the dominant effect. The stronger contributions of this sector occur mainly between 1992 and 1999 and coincide with the location in Portugal of large FDI projects in the automobile sector, whose production is export-oriented and has a high import content. Conversely, the contribution of the ‘’Textiles" sector increased until 1992 but declined afterwards, reflecting a negative effect coming from the decrease in the share of this sector in total Portuguese exports.

We complemented the input-output analysis with data from international trade to get some indications on the geographic orientation of Portuguese vertical specialization in 2002. We found that vertical specialization activities are especially relevant in Portuguese trade with Germany. Vertical specialization exports to Germany are mainly concentrated in the “Machinery” and “Transport equipment” sectors. In contrast, Portuguese vertical specialization exports to Spain are more widespread across sectors.

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Appendix A

VERTICAL SPECIALIZATION AS A SHARE OF TOTAL PORTUGUESE EXPORTS (DIFFERENT SETS OF SECTORS CONSIDERED)

Contribution of each sector in percentage points

	All sectors (29 sectors)						Goods (16 sectors)						Manufacturing (13 sectors)					
	1980	1986	1992	1995	1999	2002	1980	1986	1992	1995	1999	2002	1980	1986	1992	1995	1999	2002
Agriculture	0.35	0.15	0.26	0.09	0.10	0.15	0.38	0.15	0.26	0.09	0.10	0.14						
Fishing	0.02	0.03	0.04	0.01	0.01	0.02	0.02	0.03	0.04	0.01	0.01	0.02						
Fuel and mining	6.04	3.70	3.18	2.74	1.42	1.48	6.97	4.08	3.48	3.01	1.57	1.71						
Food	2.59	1.35	0.96	1.61	1.58	1.65	2.87	1.36	0.99	1.60	1.58	1.70	0.98	0.38	0.41	0.80	0.94	0.99
Tobacco	0.01	0.00	0.00	0.00	0.02	0.09	0.01	0.00	0.00	0.00	0.02	0.09	0.00	0.00	0.00	0.00	0.00	0.05
Textiles	6.71	7.57	7.74	7.00	6.23	5.10	7.27	7.83	8.12	7.30	6.54	5.44	4.40	5.61	7.29	6.51	6.00	5.17
Leather	1.01	2.84	2.46	2.76	2.38	1.95	1.15	3.13	2.63	2.94	2.56	2.13	1.14	3.18	2.78	3.07	2.62	2.19
Wood	1.72	1.24	1.31	0.86	0.95	1.06	1.81	1.21	1.30	0.84	0.95	1.08	0.72	0.59	0.65	0.33	0.41	0.58
Paper	1.24	1.25	0.86	1.32	1.05	1.08	1.23	1.20	0.74	1.20	0.94	1.09	0.79	0.73	0.64	1.10	0.89	1.04
Chemicals	3.38	3.62	1.54	1.74	1.72	2.15	3.78	3.85	1.62	1.81	1.75	2.31	2.73	2.41	1.32	1.73	1.64	2.08
Rubber and plastics	0.36	0.38	0.51	0.65	0.90	1.05	0.41	0.41	0.56	0.68	0.93	1.14	0.43	0.41	0.59	0.70	0.93	1.14
Other minerals	0.64	0.52	0.53	0.85	0.75	0.81	0.66	0.49	0.48	0.79	0.69	0.77	0.10	0.14	0.21	0.50	0.43	0.38
Metals	1.17	0.92	1.07	1.29	1.62	2.08	1.33	1.00	1.06	1.33	1.69	2.26	0.21	0.16	0.26	1.34	1.66	2.32
Machinery	3.17	3.26	4.12	7.30	8.30	8.21	3.59	3.52	4.55	7.90	8.96	9.14	2.20	2.52	4.07	8.33	9.24	9.45
Transport equipment	3.55	3.52	4.24	5.72	8.17	7.84	4.13	3.91	4.73	6.24	9.10	8.96	3.89	3.23	4.48	6.56	9.37	9.26
Other manufacturing	1.84	0.78	0.48	0.60	0.61	0.82	2.13	0.86	0.53	0.61	0.62	0.88	1.92	0.74	0.45	0.59	0.60	0.85
Electricity, gas and water	0.04	0.00	0.03	0.04	0.09	0.01												
Construction	0.00	0.00	0.00	0.00	0.00	0.00												
Trade	0.30	0.24	0.07	0.07	0.20	0.14												
Hotels and restaurants	0.01	0.00	0.06	0.08	0.12	0.21												
Transportation	3.94	1.90	0.91	0.80	0.85	0.96												
Communications	0.00	0.01	0.06	0.14	0.07	0.13												
Financial intermediation	0.01	0.01	0.02	0.06	0.07	0.07												
Real estate	0.00	0.00	0.00	0.00	0.00	0.00												
Renting and business activities	0.04	0.02	0.66	0.26	0.32	0.43												
Education	0.00	0.00	0.00	0.00	0.00	0.00												
Health	0.00	0.00	0.00	0.00	0.00	0.00												
Public administration	0.00	0.00	0.00	0.00	0.00	0.00												
Other services	0.00	0.00	0.01	0.05	0.04	0.05												
Total	38.1	33.3	31.2	36.0	37.6	37.6	37.8	33.0	31.1	36.3	38.0	38.8	19.5	20.1	23.1	31.6	34.7	35.5

Sources: DPP, *INE* and authors' calculations.

Appendix B

CONTRIBUTIONS TO THE CHANGE IN PORTUGUESE VERTICAL SPECIALIZATION SHARE OF TOTAL MANUFACTURING EXPORTS

Contribution of each sector in percentage points

	Contribution of change in sector's VS intensity						Contribution of change in sector's share of total exports						Total contribution					
	1980-86	1986-92	1992-95	1995-99	1999-02	1980-02	1980-86	1986-92	1992-95	1995-99	1999-02	1980-02	1980-86	1986-92	1992-95	1995-99	1999-02	1980-02
Food	-0.33	0.12	0.23	0.23	0.03	0.49	-0.27	-0.09	0.16	-0.09	0.03	-0.49	-0.60	0.03	0.39	0.14	0.06	0.01
Tobacco	0.00	0.00	0.00	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.02	0.03	0.00	0.00	0.00	0.00	0.04	0.05
Textiles	0.43	1.80	0.95	0.46	0.09	2.95	0.77	-0.12	-1.72	-0.97	-0.93	-2.19	1.21	1.68	-0.78	-0.51	-0.84	0.77
Leather	0.62	-0.90	0.70	0.01	-0.08	0.35	1.42	0.49	-0.41	-0.45	-0.35	0.70	2.04	-0.40	0.29	-0.45	-0.43	1.05
Wood	0.11	0.13	-0.15	0.09	0.16	0.44	-0.24	-0.07	-0.17	0.00	0.01	-0.57	-0.12	0.06	-0.33	0.09	0.17	-0.13
Paper	-0.10	0.08	0.30	0.10	0.08	0.48	0.04	-0.17	0.16	-0.31	0.07	-0.23	-0.06	-0.09	0.46	-0.21	0.15	0.25
Chemicals	-0.62	-0.03	0.40	-0.02	0.10	0.12	0.30	-1.06	0.01	-0.08	0.34	-0.78	-0.32	-1.09	0.41	-0.09	0.44	-0.65
Rubber and plastics	-0.05	-0.01	-0.02	-0.01	-0.04	-0.19	0.04	0.18	0.13	0.25	0.24	0.89	-0.02	0.17	0.11	0.23	0.21	0.71
Other minerals	0.04	0.02	0.21	0.00	-0.04	0.20	0.01	0.04	0.07	-0.07	-0.01	0.07	0.04	0.07	0.29	-0.07	-0.05	0.28
Metals	0.00	0.04	1.14	0.00	0.28	1.71	-0.05	0.06	-0.06	0.32	0.38	0.40	-0.05	0.10	1.07	0.33	0.66	2.11
Machinery	0.33	0.60	2.71	-0.12	-0.10	3.77	-0.02	0.95	1.56	1.04	0.30	3.48	0.32	1.55	4.26	0.92	0.21	7.25
Transport equipment	-0.58	0.63	1.12	0.49	0.11	1.76	-0.07	0.62	0.96	2.33	-0.22	3.62	-0.66	1.25	2.08	2.81	-0.11	5.37
Other manufacturing	-0.22	-0.16	-0.02	0.00	0.10	-0.43	-0.95	-0.13	0.16	0.00	0.15	-0.63	-1.17	-0.29	0.14	0.00	0.25	-1.07
Total	-0.37	2.34	7.58	1.23	0.73	11.67	0.97	0.69	0.84	1.95	0.04	4.31	0.60	3.03	8.41	3.18	0.77	15.98

Sources: DPP, *INE* and authors' calculations.

IMPACT OF THE RECENT REFORM OF THE PORTUGUESE PUBLIC EMPLOYEES' PENSION SYSTEM*

*Maria Manuel Campos***

*Manuel Coutinho Pereira***

1. INTRODUCTION

The convergence of the public employees' pension system, the Caixa Geral de Aposentações (CGA), to the rules applicable to private sector employees started in 1993. It was then established that the pensions of the CGA contributors enrolled since September 1993 should be computed using to the formula that applies to the General Social Security System (GSSS). More recently, the convergence has been accelerated and was extended to public employees registered in the CGA before September 1993. In fact, the public employees' retirement requirements and pension formulas were subjected to a substantial revision, given the need to bring sustainable foundations to the social security system. The revision came into force in January 2006 (it was later complemented by subsequent legislation in 2007 and 2008).[1]

The purpose of this study is to analyse the effects of the reform of the *Estatuto da Aposentação* (the Retirement Statute for CGA contributors) on the time-profile of retirements, initial old-age pensions, and CGA pension-related expenditure (from 2006 until the system closes, as it will, given that the enrolment of new public employees in the CGA ceased in December 2005). More specifically, the idea is to quantify the impact of three factors: the rise in the age and career-length required to qualify for a full pension; the change in the formulas used to calculate the initial pensions, including the introduction of a sustainability factor; and the revision or elimination of special regimes applicable to some CGA contributors.

In order to do so, it was used the «2005 Public Administration Human Resources Database», made available by the *Direcção Geral da Administração Pública* (DGAP). This dates from the specific point when the new legislation came into force (December 2005). On the basis of the information regarding age, years of service, and professional category, it is simulated for each public employee the retirement year, both under the current and the previous version of the *Estatuto da Aposentação*. Then the initial old-age pensions (including the applicable sustainability factor, based on average life expectancy in the retirement year) and the CGA pension-related expenditure are estimated. It was assumed that retirement only occurs when contributors qualify for receiving a full pension (or when they reach the age limit). Therefore, the more recent change in the *Estatuto da Aposentação* that reduced the minimum career-length required for retirement is not relevant for this exercise, since it implies receiving a partial pension.

* This article summarizes the research presented in Campos and Pereira (2008). See this reference for further details, in particular, concerning the database, retirement conditions, formulas for calculation of pensions, and results referring to the special CGA regimes. The opinions expressed in the article represent the views of the authors and do not necessarily reflect those of the Banco de Portugal

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(1) Law No. 60/2005 of December 29, Law No. 52/2007 of August 31, and Law No. 11/2008 of February 20.

This study does not aim to predict the profile of retirements of CGA contributors. In fact, in the past an important number of contributors retired before completing all the conditions required to be entitled to a full pension, or on the basis of other reasons, such as disability. Moreover, some CGA contributors are not public employees.[2] There is also no attempt to carry out a welfare exercise regarding the employees affected by the legislative reform.

The article is structured as follows. Section 2 briefly outlines the database and the modifications introduced to ensure its suitability for this study's purpose. Section 3 illustrates the methodology, highlighting the modifications to the retirement conditions and pension formulas introduced by the new legislation. It also describes the procedure used to calculate a career advancement profile for each professional category, based on the estimated relationship between service length and wage in December 2005. In section 4 the results of the simulation are discussed. Finally, section 5 presents the main conclusions.

2. THE 2005 PUBLIC ADMINISTRATION HUMAN RESOURCES DATABASE

This database comprises information dated from December 2005, including variables that allow to classify public employees in a variety of categories. In terms of central government, it does not include military personnel and data on judges are incomplete. Furthermore, it does not cover the regional government employees of the *Região Autónoma dos Açores* (RAA) and the information on local government workers is only partial.

In order to undertake the simulation exercise, an attempt was made to obtain a proxy to the unknown data (except for military personnel, which was excluded from this study). The "1999 Public Administration Human Resources Database" was used to obtain data on local government workers and judges[3]. The information for the RAA was obtained from the *Ficheiro Central de Pessoal do Governo Regional dos Açores* (also dated from December 2005), made available by the DGAP.

The information for the different sub-sectors (central, regional and local government) was put together into a single database and then was treated. In particular, observations assumed to be errors were eliminated. Moreover, it was detected the existence of employees occupying more than one position in the Public Administration and, by consequence, with more than one observation in the database. In these cases the observation corresponding to the longer career-length reported was selected.

It should be stressed that the reform of the *Estatuto da Aposentação* did not affect the workers who met the requirements for obtaining a full pension by 31 December 2005. These were not taken into account in the exercise. Additionally, as the simulation is only applicable to Public Administration employees enrolled in the CGA, it was necessary to separate them from those registered in the GSSS. Since there is no information in the database about which of the two entities the worker belongs to, it was considered, as an approximation, that the enrolment in the CGA corresponds to the labour relationships resulting from appointments, administrative fixed-term contracts and administrative fixed-term teaching contracts. The simulation exercise was implemented for this group, consisting of 612 thousand individuals.[4]

(2) Note also that although the database covers almost all CGA contributors working for general government entities, it does not exactly match it (see below).

(3) To determine which of these employees were still working in 2005 a preliminary exercise was undertaken in order to simulate the retirement year (starting in 2000), in terms of the legislation then in force. Information on the number of employees registered in the CGA between 2000 and 2005 was also taken into account.

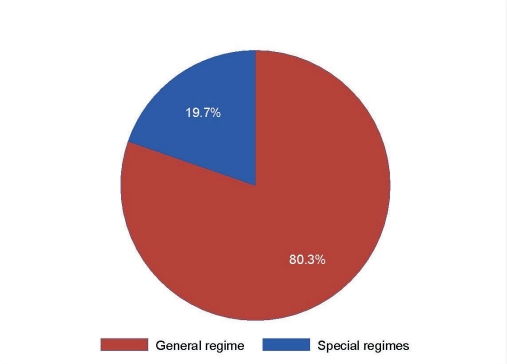
(4) This group, in addition to the individuals who already met the requirements for obtaining a full pension in 2005, adds up to roughly 617 thousand employees. The number of CGA contributors working in the Public Administration (including military personnel, not considered in this study) was approximately 660 thousand at the end of 2005.

Moreover, it is relevant to distinguish the individuals belonging to the so-called general CGA regime from the ones enrolled in the special regimes. The distinction was made by reference to the reported professional category (Chart 1). The special regimes considered in the exercise are those applicable to security force members (GNR and PSP)[5], primary education and kindergarten teachers, and nurses. These cover the majority of the public employees enrolled in the CGA but not included in its general regime (see Chart 2 for the contributors' distribution by these professional categories).

Finally, it is also important to establish the contributors' enrolment date, specifically whether it occurred prior to September 1993, since this determines a different formula for pension calculation. The career-length reported by the majority of the individuals included in the simulation exercise (59 per cent) implies a registration date prior to September 1993.

Chart 1

PUBLIC EMPLOYEES ENROLLED IN THE GENERAL AND SPECIAL CGA REGIMES

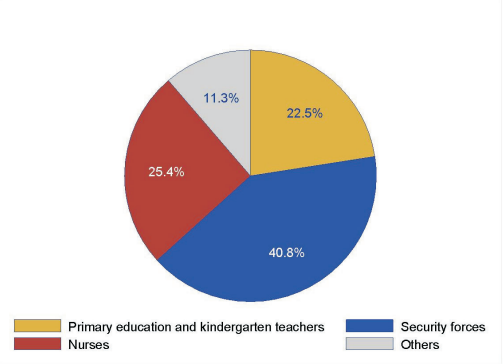


Source: Authors' calculations.

Chart 2

PUBLIC EMPLOYEES ENROLLED IN THE MAIN SPECIAL CGA REGIMES

Distribution by professional category



Source: Authors' calculations.

3. SIMULATION EXERCISE METHODOLOGY

3.1. Simulation of the annual number of retirements

Part of the effects of the revision of the *Estatuto da Aposentação* refers to the postponement of retirement. Hence, a first step was to simulate the annual number of retirements under the legislation in force until December 2005 and since January 2006.

Following the reform, for every CGA contributor, the minimum age required to retire with a penalty-free pension rises gradually from 60 to 65 years, at a 6 months per year rate, during a transitional period that goes from 2006 to 2015 (see Table 1.1.1, in Appendix 1).[6] For the employees whose enrolment date is prior to September 1993, the number of years of service corresponding to a full contributory career also rises at a 6 month per year rate, from 36 to 40 years, between 2006 and 2013 (Table 1.1.2 in Appendix 1). Regarding the contributors enrolled since September 1993, a career-length of 40 years

(5) *Guarda Nacional Republicana* and *Polícia de Segurança Pública*, respectively.

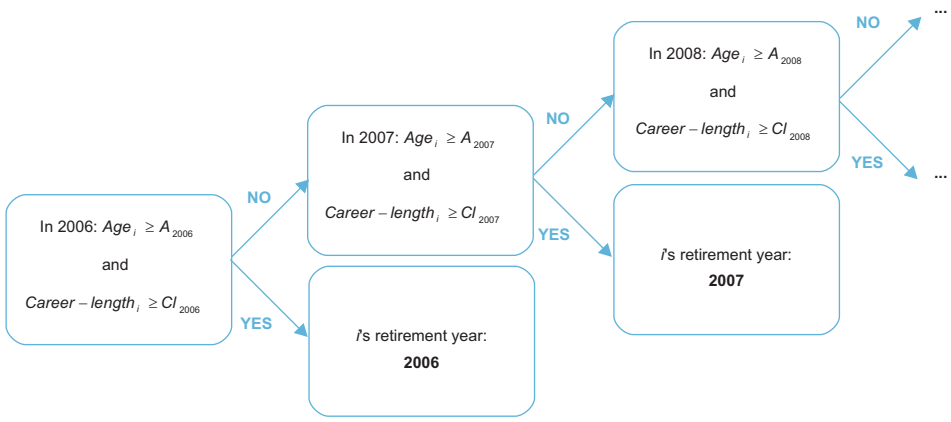
(6) There is the possibility of reducing this minimum age limit, benefiting contributors with a relatively longer length of service.

remains the minimum required to warrant a full pension, since the GSSS pension computing rules were already applicable to them before the legislative reform.

It should be stressed that individual preferences play an important role in the choice of the retirement moment within the legal framework. The factors influencing this choice are subjective, hence considering them in a simulation is difficult. In the performed exercise it is therefore assumed that public employees retire when they fulfil all the requirements to receive a full pension or reach the age limit (70 years, for general CGA regime contributors). As mentioned, there are public employees that belong to special regimes and may retire on the basis of different conditions than those applicable in the general CGA regime. For further details about these conditions, see section 4.2.

In order to simulate the profile of retirements, it was prepared an algorithm based on the legal retirement conditions for the general and the special CGA regimes. Diagram 1 exemplifies this algorithm.

Diagram 1



in which:

Age_i = age of individual *i* in a given year.

$Career\text{-}length_i$ = career-length of individual *i* in a given year.

A_t = Minimum age required to qualify for a penalty-free pension in year *t*.

Cl_t = Minimum career-length required to qualify for a full pension in year *t*.

3.2. Simulation of the initial old-age pensions

3.2.1. Pension calculation

- Public employees enrolled until 31 August 1993

Prior to 31 December 2005 the pension computing formula applicable to employees enrolled before September 1993 was defined in the *Estatuto da Aposentação* then in force. The initial pension amount was given by the product of the wage received in the last position held, by the number of years of service (with an upper limit of 36 years) and a 2.5% implicit pension accrual rate (corresponding to the ratio between 90 per cent of the salary and 36 years).

The reform of the *Estatuto da Aposentação* set down a new formula. The initial pension amount corresponds now to the sum of two components, multiplied by a sustainability factor.[7] The first component is given by the product of the monthly wage in the last position held, by a pension accrual rate that varies as a function of the career-length equivalent to a full contributory career (that rises gradually from 36 to 40 years), and the years of service completed up to 31 December 2005. The second component corresponds to the product of the years of service completed since 1 January 2006, up to the limit required to be entitled to a full pension, by the average wage over that period, and an accrual rate. This rate was 2% for the employees retired by 31 December 2007 and this rule is still in force for retirements taking place after that date, as long as the individuals have less than 20 years of contributions. Otherwise, the accrual rate is a function of the reference compensation. It varies between 2% and 2.3%, in line with a regressive bracket mechanism indexed to the mandatory minimum wage (or the IAS)[8], as indicated in Table 1.3.1 in appendix.

- Public employees enrolled since 1 September 1993

For public employees registered since September 1993, pensions are computed, as previously, using the formulas applicable in the GSSS. These formulas were revised for the last time in 2007. For contributors whose enrolment took place between 1 September 1993 and 31 December 2001 and who retire by December 2016, the pension is the weighted average of two components.[9] The first one corresponds to the product of the average wage over the best 10 out of the last 15 contributory years, by a 2% pension accrual rate, and the number of years of service, up to the limit of 40. The second component is given by the number of years of service, up to the limit of 40, multiplied by the average wage over the total contributory career and the applicable accrual rate (which is equal to 2% for the employees with 20 years of contributions or less; otherwise it is determined in line with the bracket mechanism described). The weights correspond to the proportion of the years of service completed until and since 31 December 2006 in the total.[10]

For contributors enrolled until 31 December 2001 but who retire from 1 January 2017 onwards, the formula is the same. However, in this case, the first weight refers to the service completed up to 31 December 2001 and the second to the subsequent contributory years.

Finally, for CGA members enrolled since 1 January 2002 initial pensions correspond to the product of the number of years of service (up to the limit of 40), by the average wage over the whole career, and an annual pension accrual rate determined as explained above. The sustainability factor is also applicable to this amount.

3.2.2. Computation of the reference compensation

In order to simulate the amount of the initial pensions, it is necessary to know all the variables in the formulas presented in the previous sub-section. The length of service and age required to be eligible for a full pension are determined by law, while the age and number of contributory years at retirement are an output of the simulation exercise. However, there is no information on the actual wages received throughout the contributory career, and thus it is not possible to compute directly the different values of

(7) The sustainability factor is applicable to the pensions paid from 2008 onwards and is given by the ratio between average life expectancy at 65 years in 2006 and average life expectancy at 65 in the year before the pension is paid for the first time.

(8) *Indexante dos apoios sociais*.

(9) In the legal framework there are exceptions to this formula. However, since in the database there are no employees in such conditions, the respective formulas are not presented. For greater detail, see Decree-Law No. 187/2007 of May 10, or Campos and Pereira (2008).

(10) In the exercise, for the determination of the weights, it was considered a maximum length of service of 40 years. Hence, for employees with a full career-length, the second weight corresponds to 40 years minus the years of service completed up to 2006.

the reference compensation. As an alternative, the salary earned in each contributory year was estimated using regressions of the wage on the service length in December 2005, for the various professional categories[11]. Given that in the initial and the final years of each career it is typically difficult to estimate an accurate profile, the first four years, as well as the ones beyond the 36th, were aggregated. Thus, the estimated coefficients capture the difference between the average earnings over the first four years and in each of the following years, until the end of the contributory career. Then the progression profile resulting from this estimation procedure was smoothed and, in addition, it was assumed that the salary remained constant upon reaching the respective maximum or, at the latest, by the 36th year (see Campos and Pereira (2008) for the results).

The wage progression profiles reflect the relationship between earnings and seniority that was observed in 2005, meaning that the pensions simulated are also at 2005 prices.[12] Note that, even in real terms, the relationship between wages and years of service estimated for 2005 is different from the relationships that prevailed in the past and will prevail in future, since real wages change frequently. This effect should be reinforced by the ongoing revision of the public administration pay schedule. However, it should be stressed that discrepancies vis-à-vis the 2005 wage level and/or progression profile have a similar impact on the simulated pensions, in terms of both the previous and the current legal frameworks. As the results presented always refer to the differential effect of the legislative reform, the procedure followed should provide a good approximation.

4. RESULTS

4.1. Impact on the profile of retirements and initial pension for the general CGA regime

4.1.1. Time-profile of retirements[13]

In the exercise performed, a first step was the comparison between the profile of retirements resulting from the legislation in force before and after December 2005 (Charts 3 and 4). The most obvious result is a shift to the right in the flows referring to the public employees enrolled before September 1993. Such an effect becomes progressively stronger during the transition to the new rules, and it stabilizes at the end of that period, in 2014-2015. While a rise in retirements is projected for the years subsequent to 2006 under both versions of legislation, this is less marked under the new one (Chart 4). Such rise in the number of new retirees reflects the large number of workers admitted to Public Administration entities in the period following the April 25, 1974, Revolution. In Chart 4, the increase in the flow spreads until about 2018, while in Chart 3 it ends in 2014.

Another consequence of the revision of the *Estatuto da Aposentação* is the elimination of the break in the number of new retirees between 2029 and 2033 that would have happened if there had not been a reform (Chart 3). This break would have resulted from the existence of different career-length requirements in the previous legislation, depending on registration date. Indeed, in terms of the legislation in

(11) The following categories were considered: administrative staff, administrative court staff, auxiliary staff, craft workers, doctors, judges, medical support staff, nurses, other court staff, professionals, other professionals, prison guards, security forces – higher ranks, security forces – lower ranks, teachers, technical staff, university teachers, others – with university degree, and others – without university degree.

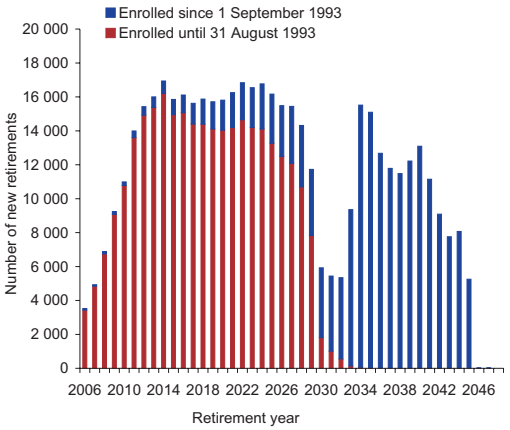
(12) Every financial variable in this exercise is expressed at 2005 prices. In particular, the annual wages used to calculate the reference compensation were not updated in line with retirement year's prices (as foreseen in the legislation).

(13) The CGA has made available the figures referring to retirements in 2006 and 2007. As mentioned, the population of CGA members is broader than the one considered in this study and there is a substantial number of early and disability-based retirements. Even correcting for these factors, the simulation underestimates (by about 25 per cent) the actual flows for the two-year period. Presumably this stems from the fact that the service length reported in the database by some employees may fall short of the relevant years of service (because it does not comprise, for instance, military service or the time served in entities later incorporated into Public Administration). This phenomenon does not jeopardize an evaluation of the effects of the legislative reform.

Chart 3

PROFILE OF RETIREMENTS – LEGISLATION IN FORCE UNTIL DECEMBER 2005

CGA general regime

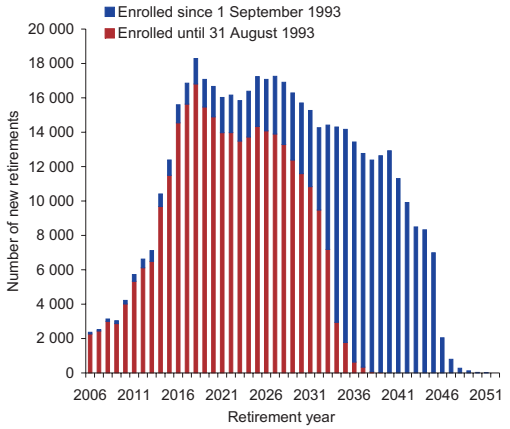


Source: Authors' calculations.

Chart 4

PROFILE OF RETIREMENTS – LEGISLATION IN FORCE SINCE JANUARY 2006

CGA general regime



Source: Authors' calculations.

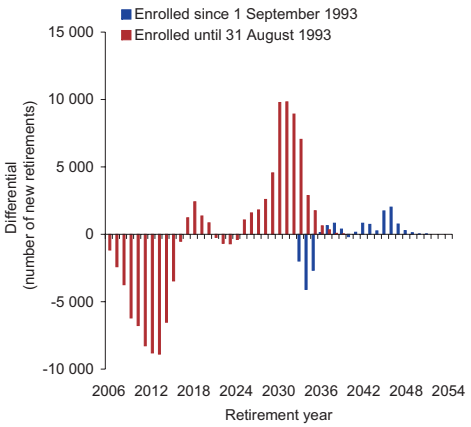
force until 2005, the CGA contributors enrolled since September 1993 needed 40 years of service to qualify for a full pension, rather than 36. Hence, in the projection performed under the previous legislation most of the employees registered before September 1993 would already have retired by 2029, while those registered afterwards would not have fulfilled 40 years of service before 2033.[14]

Chart 5 shows the difference between the flows of retirements, before and after the revision of the *Estatuto da Aposentação* (computed from the preceding charts). It is noticeable that the shift to the

Chart 5

PROFILE OF RETIREMENTS – IMPACT OF THE REFORM OF THE *ESTATUTO DA APOSENTAÇÃO*

CGA general regime



Source: Authors' calculations.

(14) The number of public employees enrolled since September 1993 who retire before 2033 is quite small and refers, with no exception, to individuals who reach the age limit.

right in the profile of retirements for employees enrolled before September 1993 generates a non-negligible decrease in the number of new retirees in the 10 years following the introduction of the new legislation. This decrease is then offset in the decade subsequent to 2025. Finally, for the individuals registered in the CGA since September 1993, the legislative reform consists only in a rise in the minimum age required for receiving a penalty-free pension, from 60 to 65 years. Therefore, although there is a similar change in the profile of retirements, its magnitude is much smaller.

4.1.2. Retirement moment and initial pensions[15]

- Public employees enrolled until 31 August 1993

Chart 6 shows the average delay in the retirement year and variation in the pension amount as a consequence of the revision of the *Estatuto da Aposentação*, for employees whose registration date is prior to September 1993. The retirees are grouped by retirement year in terms of the previous legislation.

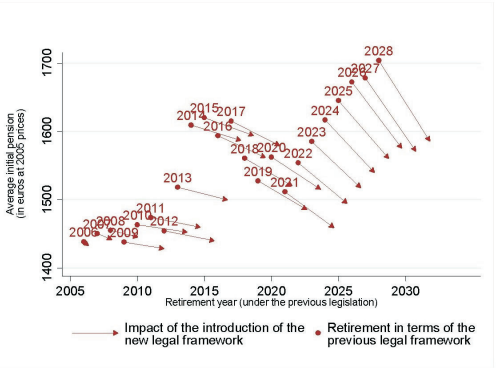
Chart 6 demonstrates that the reform of the *Estatuto da Aposentação* results, in general, in the postponement of retirement for the general CGA regime employees enrolled until August 1993. On average, the delay corresponds to 3.5 years and increases gradually during the transitional period, stabilizing around 4 years from 2015 on. No employees retire earlier than they would have under the previous legislation and most of them (87 per cent) serve more time in Public Administration. Most of those work 4 or 5 more years in order to fulfil the new requirements (Chart 7). The remaining employees retire when reaching the age limit; hence, for them the retirement year remains unchanged.

As far as the pension amount is concerned, the simulation leads to the conclusion that the average initial pension for contributors enrolled until 31 August 1993 tends to be lower when calculated under the

Chart 6

IMPACT OF THE REFORM OF THE *ESTATUTO DA APOSENTAÇÃO*

CGA general regime, employees enrolled until August 1993



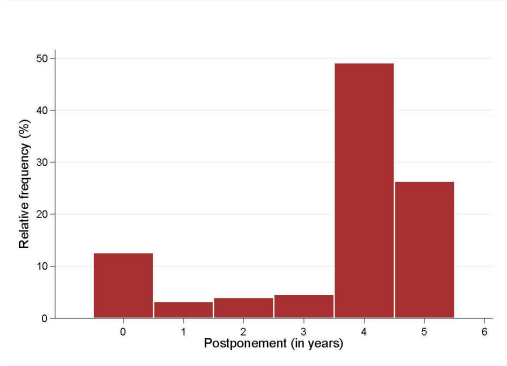
Source: Authors' calculations.
Note: The horizontal shift represents the average postponement of the retirement moment, whilst the vertical one measures the variation in the average initial pension.

(15) This section does not take into account the sustainability factor. The impact of its introduction will be analysed later, in Section 4.3.

Chart 7

POSTPONEMENT OF RETIREMENT

CGA general regime, employees enrolled until August 1993

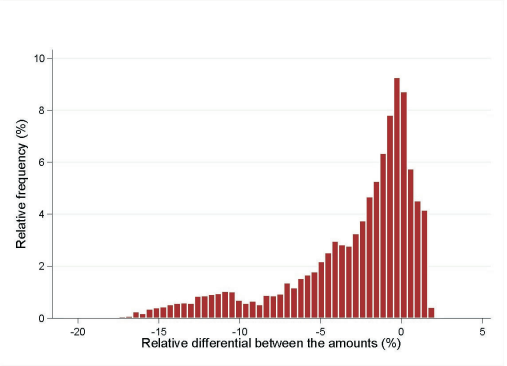


Source: Authors' calculations.

Chart 8

RELATIVE DIFFERENTIAL BETWEEN THE INITIAL PENSIONS COMPUTED UNDER THE PREVIOUS AND THE CURRENT LEGISLATION

CGA general regime, employees enrolled until August 1993



Source: Authors' calculations.

revised legislation. The average decrease becomes more noticeable the further from 2005 the retirement takes place. This happens because the weight of the second component in total pension increases over time, and a comparatively larger proportion of the pension is based on the average earnings of the whole career. Nonetheless, the effects of the reform of the *Estatuto da Aposentação* are relatively heterogeneous. Indeed, even though initial pensions in general decrease, this does not happen for approximately 20 per cent of the employees. Such an effect is not shown in Chart 6, but is clearly seen in Chart 8.

In order to explain how the legislative reform influences the initial pension, a breakdown of its variation in terms of the contribution of the relevant variables was undertaken.[16] The formula applicable before the legislative reform was rewritten as the sum of two components, following the rationale underlying the new rules. The first component concerns the length of service up to December 2005, whilst the second refers to the subsequent service. The annual pension accrual rates are equal to 2.5% and the reference compensations correspond to the monthly wage in the last position held, in both components.

The difference between the initial pension computed in terms of the previous and current legislation (P^P and P^N, respectively) can be presented as:

$$d_P = P^N - P^P = \underbrace{(P_1^N - P_1^N)}_{d_{P1}} + \underbrace{\underbrace{(P_2^N - P_2^N)}_{d_{r2} + d_{RC2} + d_{C2}}}_{d_{P2}}$$

where:

P_1^i and P_2^i (i=P,N) refer to the two components of the initial pension, corresponding to the years of service until and since December 2005;

(16) The breakdowns mentioned in this and in next sub-sections are presented with greater detail in Appendix 2. They rely on the assumption that the individuals retire with a full pension, thus excluding the ones who retire when they reach the age limit.

d_{P_1} represents the differential explained by the first component, due to the difference between the implicit pension accrual rates (the other elements do not change);

d_{P_2} is the differential explained by the second component, which can be split into:

d_{r_2}, referring to the impact of the change in the accrual rate applicable;

d_{RC_2}, corresponding to the effect of the change in the reference compensation;

d_{C2}, reflecting the impact of the change in the length of service corresponding to a full contributory career.

Chart 9 presents this breakdown (with the individuals grouped by the retirement year under the previous farmework).

The changes in the calculation of the reference compensation tend to result in a lower pension. Indeed, since 1 January 2006, there are two reference compensations, one for each of the pension's components. For the first component, the wage received in the last position held remains relevant and it does not change.[17] For the second, it is relevant the average wage over the best years subsequent to 2005 (considering the service length necessary to build up a full contributory career). This average wage tends to be lower than the last salary received, which was the reference under the formula previously in force.

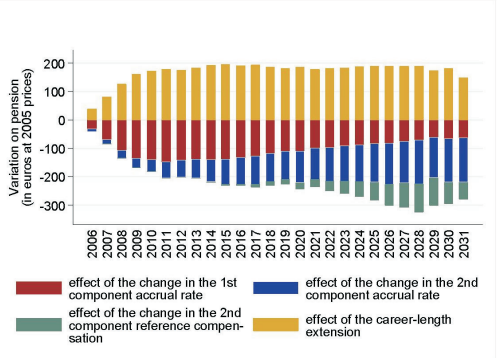
As for the impact of the changes in the pension accrual rates, this is always negative. In fact, the applicable rate under the previous legislation was 2.5%, whilst the ones introduced by the revision of the *Estatuto da Aposentação* are lower.[18]

It is worth noting that the impacts related to the first component become less relevant as the retirement year moves away from 2005, as they affect a smaller proportion of the overall pension. The opposite

Chart 9

BREAKDOWN OF THE AVERAGE CHANGE IN INITIAL PENSIONS

CGA general regime, employees enrolled until August 1993



Source: Authors' calculations.

(17) Since it was assumed that from the 36th year of the contributory career onwards wages remained constant, the wage in the last position held is the same, both in terms of the current and the previous legislation.

(18) The first component accrual rate corresponds to the ratio between 0.9 and the years of service equivalent to a full career, which rise from 36 to 40 (Table 1.1.2, in Appendix 1). The second component rate varies between 2% and 2.3%.

holds for the impacts related to the second component. This phenomenon explains why the difference between the pensions computed in line with the current and the previous legislation increases as retirement draws further from 2005 (as suggested in Chart 6).

Finally, the variation in the career-length has a positive influence on pension amounts. As previously shown in Chart 7, most public employees will extend their service period to fulfil the new requirements. For most of them, the impact of such an extension is more than offset by that of the other factors working in the opposite direction, and the pension diminishes when computed in terms of the new formula. Nevertheless, in some cases, the career-length extension, combined with the new annual rates, may result in global accrual rates that are higher than the previous maximum.[19] When this happens, the pension computed under the new version of the *Estatuto da Aposentação* may be higher than the amount resulting from the previous formula, even though the reference compensation and the annual pension accrual rates decrease. These conditions are observed for about 20 per cent of CGA contributors whose enrolment took place until 31 August 1993.

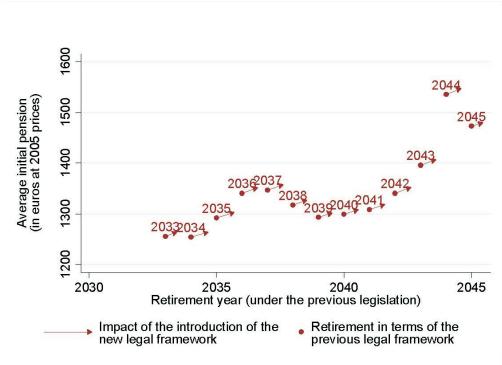
- Public employees enrolled since 1 September 1993

In Chart 10 it is noticeable that the revision of the *Estatuto da Aposentação* has a more limited effect for the public employees enrolled in the general CGA regime since September 1993. In this case, the only modification was the rise in the minimum age for penalty-free retirement, from 60 to 65 years. This rise in the age requirement tends to imply the extension of the contributory career and a consequential delay in retirement. However, it was observed that such a delay amounts to less than 6 months on average, whilst the minimum age goes up by 5 years. This discrepancy is justified by the existence of a large number of contributors who would retire with more than 60 years of age, even under the previous

Chart 10

IMPACT OF THE REFORM OF THE *ESTATUTO DA APOSENTAÇÃO*

CGA general regime, employees enrolled since September 1993



Source: Authors' calculations.
Note: The horizontal shift represents the average postponement of the retirement moment, whilst the vertical one measures the variation in the average initial pension.

(19) The global accrual rate is the product between the annual pension accrual rate and the relevant number of years of service. In the previous legislation it was equal to 90 per cent (2.5% multiplied by 36). In the new legal framework, it is determined by the sum of the product between the first component rate and the career-length up to December 2005 and the product between the second component rate and the subsequent years of service.

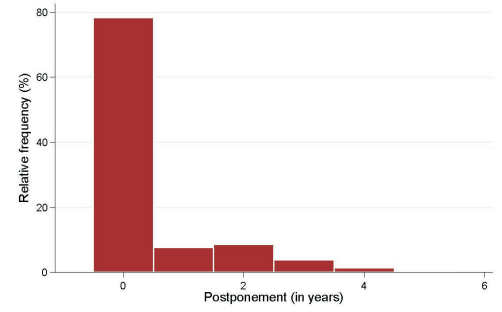
legal framework, in order to fulfil the 40-year career-length requirement. Therefore, for these employees, the postponement of the retirement moment is not very significant.

Additionally, since the formula for computing initial pensions has remained unchanged, the impact on pensions is minor (notice, however, that it is now positive due to the increase in the reference remuneration, as it will be seen). Indeed, for about 80 per cent of the contributors enrolled since September 1993, the introduction of the new legislation has a nil or almost nil effect on career-length and pension amounts. For the others, there is an observable extension of the career-length and an increase in the old-age pensions (Charts 11 and 12).

Chart 11

POSTPONEMENT OF RETIREMENT

CGA general regime, employees enrolled since September 1993

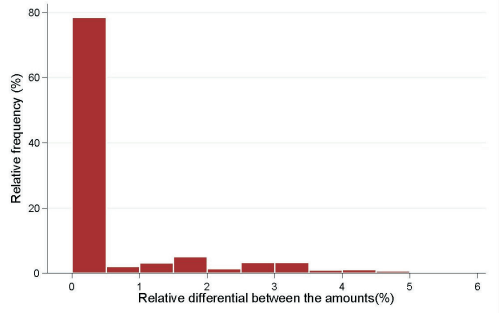


Source: Authors' calculations.

Chart 12

RELATIVE DIFFERENTIAL BETWEEN THE INITIAL PENSIONS COMPUTED UNDER THE PREVIOUS AND THE CURRENT LEGISLATION

CGA general regime, employees enrolled since September 1993



Source: Authors' calculations.

In order to analyse these results, a breakdown of the change in pensions was undertaken. This is similar to the one previously mentioned for the contributors registered until August 1993. In this case, as some individuals extend their career-length, the wages taken into account to compute the reference compensations may differ, as well as the second component accrual rate. For the employees enrolled between September 1993 and December 2001, the difference between the initial pension computed in terms of the previous and the current legal framework (P^P and P^N, respectively) can be represented as follows (see Appendix 2):

$$d_P = P^N - P^P = \underbrace{(P_1^N - P_1^P)}_{d_{P_1}} + \underbrace{(P_2^N - P_2^P)}_{d_{r_2} + d_{RC_2} \; d_{P_2}},$$

where:

P_1^i and P_2^i (i=P,N) refer to the two components of the initial pension, corresponding to the years of service until and since December 2001;[20]

d_{P_1} is the differential explained by the first component, due to the change in the reference compensation;

(20) Since retirement with a full pension is assumed, the breakdown is not applicable to contributors who retire by December 2016. Thus, the years of service up to December 2001 are the relevant ones for the first component.

d_{P_2} is the differential explained by the second component, which can be split into:

d_{r_2}, referring to the change in the applicable pension accrual rate;

d_{RC_2}, corresponding to the change in the reference compensation.

For the employees whose registration occurred since January 2002, the computing formula has also remained unchanged. However, the reform of the *Estatuto da Aposentação* may as well result in variations in the reference compensation and, by consequence, in the annual accrual rate. In this case:

$$d_p = P^N - P^P = d_r + d_{RC},$$

in which:

d_r is the impact of the change in the pension accrual rate;

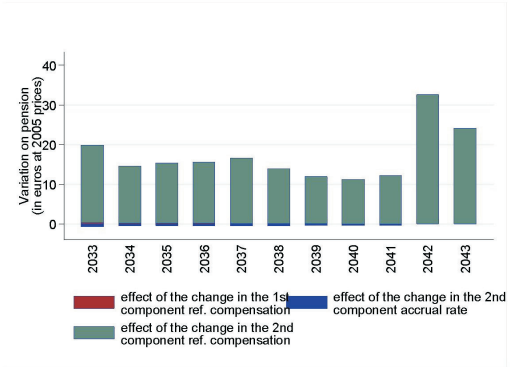
d_{RC} is the impact of the change in the reference compensation.

Charts 13 and 14 show that, for employees enrolled since September 1993, the difference between the pensions computed under the revised legislation and the previous one is almost exclusively explained by the change in the reference compensation. Given that employees extend their career in order to fulfil the age requirement (as shown in Chart 11), the average wage over the best 10 out of the last 15 years and the average wage over the whole career tend to be higher. This outcome has a positive impact on the pension amount. In its turn, such variation in the reference compensation tends to bring down the accrual rates for the second component (for those enrolled until December 2001) and the overall pension (for those registered afterwards). This effect is nonetheless small relative to that of the increase in reference compensation.

Chart 13

BREAKDOWN OF THE AVERAGE CHANGE IN INITIAL PENSIONS

CGA general regime, employees enrolled between September 1993 and December 2001

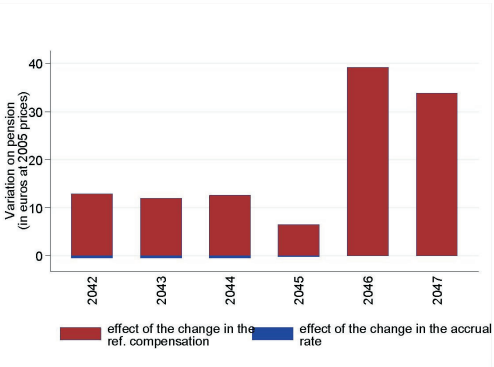


Source: Authors' calculations.

Chart 14

BREAKDOWN OF THE AVERAGE CHANGE IN INITIAL PENSIONS

CGA general regime, employees enrolled since January 2002



Source: Authors' calculations.

4.2. Impact on the time-profile of retirements and the initial pension for employees of the CGA special regimes[21]

This section presents the impact of the change in the retirement conditions and pension formulas for the employees belonging to the most representative CGA special regimes: primary education and kindergarten teachers, nurses, and security force employees. For the primary education and kindergarten teachers, the career-length and minimum age required to warrant a full pension rise progressively from 30 to 40 years (with the resulting gradual elimination of the implicit bonus)[22] and from 55 to 65 years, respectively. Moreover, it was also stipulated an alternative that will remain in force until 2010, allowing retirement with full pension at 52 years of age and 32 years of career-length (as long as the contributor had 13 years of teaching service in October 1989). In 2005 the maximum age until which these employees can remain in service was also raised from 65 to 70 years. For nurses, revision of the retirement conditions consisted in a gradual rise in the minimum age, from 57 to 65 years, and in the career-length required for a full pension, from 35 to 40 years. Finally, for security force personnel (GNR and PSP) the legislative changes were the increase in the years of service required for receiving a full pension, from 36 to 40, and the reduction in the bonus applied in career-length computation, from 25 to 15 per cent of the actual period of service. Additionally, access to the pre-retirement situation[23] is now possible only upon reaching 55 years of age – besides 36 years of service.

Note that for the employees of the special regimes enrolled since September 1993 pensions were already computed using the formula stipulated for the GSSS. Nonetheless, the legislation did not specify how that rule would be implemented in detail. In the exercise a career-length requirement of 40 years was assumed, but proportionately reduced in line with the bonus that the legislation implicitly or explicitly foresaw for each professional group.

For the majority of the employees enrolled in the special regimes, the reform of the retirement conditions generates a greater postponement in retirement than for the general CGA regime. Indeed, there was a reduction or extinction of the bonuses applied in the career-length computation, besides the rise in the minimum years of service and/or age. On average, depending on whether the enrolment occurred respectively before and after 1 September 1993, the time served is extended by 7.3 and 7.1 years for primary education and kindergarten teachers, 5.5 and 1.7 years for nurses, and 3.8 and 1.8 years for security force personnel (note that the corresponding values for the general CGA regime are 3.5 and 0.4 years). The public employees whose retirement moment remains unchanged, despite the legislative reform, are basically primary education and kindergarten teachers covered by the mentioned alternative in force until 2010, security force employees that fulfilled the requirements to access pre-retirement by 2005, and contributors who retire upon reaching the age limit (when the latter has not changed by the reform).

In order to explain the variation in the initial pensions, breakdowns following the same rationale as for the general CGA regime were undertaken. For more than half of the employees enrolled until August 1993, initial pensions increase (being that proportion higher than for the members of the general CGA regime). In fact, in the special regimes, besides the direct positive effect of the career-length extension

(21) For further details, see Appendix 1 and Campos and Pereira (2008).

(22) In the legislation in force prior to 2005 that defined the retirement conditions for primary education and kindergarten teachers and nurses there was no explicit reference to a bonus in the determination of the length of service. However, there was an implicit one, since those employees could retire with a full pension without having 36 years of service, as required for the contributors of the general CGA regime. This also applies to the transitional periods instituted by Decree-Law No. 229/2005 of December 29.

(23) Pre-retirement is a situation similar to being in the reserves, in which employees are not on active duty. Retirement with a full pension is guaranteed for the individuals who spend 5 years in pre-retirement.

(including via de reduction of the bonus) on the pension amount, there may also occur an indirect effect. It results from the increase in the relevant number of years of service that may raise the reference compensation associated to the last wage. This effect is particularly relevant for higher ranks of the security forces, for which the estimated wage progression profile shows salary gains at the end of the contributory career. For the individuals whose pension decreases when computed in terms of the new legislation, the predominant effects arise from the reduction in the accrual rates and the reference compensation corresponding to the years of service since 2005.

The impacts on the initial pensions for the individuals enrolled since September 1993 are also heterogeneous. However, for most of them the pension amount increases. This effect is explained by the extension of the period of service, brought about by the rise in the minimum age for retirement and the reduction or extinction of the bonuses. Indeed, with the increase in the actual years of service, the wages taken into account to compute reference compensations are typically higher. Finally for a small percentage of the employees registered since September 1993, the pension amount is lower when calculated in terms of the more recent legislation. In particular, these are individuals who retire when reaching the age limit, thus in the same year in both versions of legislation. For the employees in these conditions, the actual career-length and the other relevant variables do not change. Nevertheless, pension decreases, given the revision in the bonuses applied to the years they served.

4.3. The impact of the introduction of a sustainability factor on the initial pension

Since January 2008 pensions awarded to CGA contributors are given by the statutory pension (resulting from the formulas already presented) multiplied by a sustainability factor. The factor is equal to the ratio between average life expectancy at age of 65 in 2006 and in the year before the one in which the pension is paid for the first time. It should be stressed that the legislation allows contributors to play down the impact of the sustainability factor[24], but this option is disregarded in the simulation exercise. As before, it is assumed that individuals retire as soon as they fulfil the requirements to warrant a full pension, therefore accepting the penalty imposed by the sustainability factor.

The figures for the average life expectancy at the age of 65 were taken from the mortality tables underlying the exercise presented in Pinheiro and Cunha (2007). They allow the computation of the sustainability factor applicable to the amount of the statutory pension for each year, from 2008 onwards. It is noticeable that the factor's relevance increases as the retirement year gets further from 2008, since, according to the projections, life expectancy rises over time.

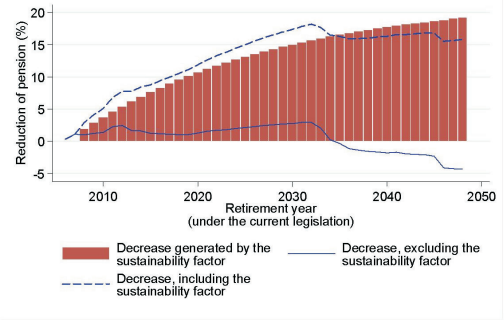
Chart 15 presents the reduction in the pensions awarded each year (the retirees are grouped by retirement year under the current legislation), as a consequence of the introduction of the sustainability factor. From now on, all public employees registered in the CGA are analysed as a whole, whatever the enrolment date or the applicable regime. A decrease in the average initial pension, approximately until 2034, results from the implementation of the new legislation, when the sustainability factor is not considered. From that year on, the opposite occurs, as the pensions awarded to employees registered since September 1993 - which tend to be higher under the new legal framework - become predominant as shown in Chart 10.

As expected, the introduction of the sustainability factor has a negative impact on the initial pension of all CGA members that becomes more marked as life expectancy increases over time. This impact converges to about 20 per cent, and clearly surpasses the one arising from the other legislative changes in

(24) Specifically, by means of the extension of the professional life beyond the minimum requirements for receiving a full pension or the voluntary contribution to a public or private capitalization scheme, in order to complement the pension amount.

Chart 15

RELATIVE IMPACT OF THE LEGISLATIVE REFORM ON THE AVERAGE INITIAL PENSION



Source: Authors' calculations.

force since January 2006. Taking into account the overall effect of the changes in the computing formulas and retirement conditions, there is a reduction in the average initial pension all through the period.

4.4. The impact of the reform on pension-related expenditure

In order to estimate the overall savings deriving from the reform of the *Estatuto da Aposentação*, pension outlays for the retirees considered in this study were simulated, using both the previous and the current legislation. The number of years during which each individual receives an old-age pension was computed on the basis of life expectancy at retirement according to gender and age (using Pinheiro and Cunha's projections). Taking into account the legislation in force up to December 2005, the retirees receive their pension for 23 years on average. Considering the rules in force since January 2006, this figure decreases to 21 years. Pension-related expenditure was calculated for each year, from 2007 until the system's predictable closure. Then these annual values were accumulated (note that they are at 2005 constant prices - see sub-section 3.2.2).[25] Chart 16 presents the savings that derive from the introduction of the new legal framework, both in annual and cumulative terms, excluding the impact of the sustainability factor. In order to provide a relative measure of the respective magnitudes, the amounts were divided by the 2005 GDP.[26]

The reform brings about a decline in pension-related expenditure, and the resulting saving reaches its maximum between 2015 and 2030. From 2040 onwards, expenditure slightly increases, mostly reflecting the fact that pensions computed in line with the more recent rules will have been, on average, higher since the previous decade (as shown in Chart 15). The saving obtained is predominantly explained by the decline in the number of years during which the retirees receive their pensions.

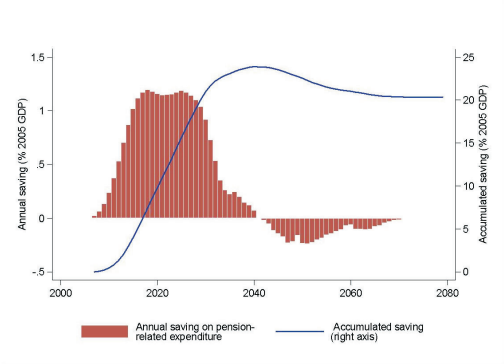
In Chart 17 it is noticeable that the introduction of the sustainability factor sharpens the decline in annual pension-related expenditure, which now lasts over the whole period, instead of ceasing in 2040.

(25) It was assumed that the pensions (at 2005 prices) remain constant once they begin to be paid.

(26) The value so obtained is different from the one that would result from dividing each year's saving, expressed at that year's prices, by the respective GDP. This difference depends, particularly, on the discrepancy between the nominal variation in the compensations underlying the pension calculation and the nominal variation in GDP, occurring throughout the time horizon considered relatively to 2005.

Chart 16

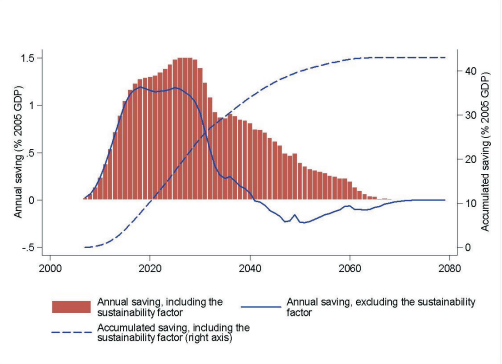
ANNUAL SAVING ON THE PENSION-RELATED EXPENDITURE RESULTING FROM THE REFORM (EXCLUDING THE SUSTAINABILITY FACTOR)



Source: Authors' calculations.

Chart 17

ANNUAL SAVING ON THE PENSION-RELATED EXPENDITURE RESULTING FROM THE REFORM (INCLUDING THE SUSTAINABILITY FACTOR)



Source: Authors' calculations.

5. CONCLUDING REMARKS

This article attempts to evaluate the effects of the recent revision of the *Estatuto da Aposentação*. Firstly, the profile of retirements and the initial old-age pensions were simulated, both in line with the previous legislation and the current one, in force since January 2006 (using the «2005 Public Administration Human Resources Database»). Secondly, the impact of the sustainability factor on the initial pensions was taken into account and the effect of the legislative reform on CGA expenditure was gauged.

As expected, the reform of the *Estatuto da Aposentação* results in the postponement of retirement (with a full pension) for most of the general CGA regime contributors. This effect is particularly marked for employees enrolled until August 1993. For the employees enrolled in the special CGA regimes, the moment of retirement tends to be more affected as a result of the reduction or gradual extinction of the bonuses applying to the computation of the career-length.

In terms of the initial pension amount, the legislative reform has more heterogeneous impacts. For most of the contributors enrolled until August 1993, the revision of the retirement conditions and computing formulas has negative effects on pensions. However, in some cases, the extension of career-length (including or not a bonus) determines a higher initial pension, compared with the amount that would be obtained in terms of the previous legislation. For the majority of the employees of the general CGA regime enrolled since September 1993 the effects are approximately nil. For about 20 per cent of the contributors pension slightly rises, as a consequence of the increase in the reference compensation, in line with the extension of career-length (in this case, in order to fulfil the new minimum age required to obtain a penalty-free pension). For most contributors of the special regimes, the reduction or extinction of the bonuses results in a relatively stronger rise in actual career-length and, consequentially, in the reference compensations. This effect tends to cause an increase in the pension computed under the legal framework in force since January 2006.

The decline in the number of years during which retirees receive their old-age pension, in addition to the introduction of the sustainability factor, generates a non-negligible decrease in pension-related expenditure, throughout the period, until the system closes.

To sum up, the reform of the *Estatuto da Aposentação* results in an extension of the time served and in a reduction in pension-related expenditure that are in line with the rationale for its implementation. In practice, the delay in the moment of retirement and the saving may be less marked than the simulation results suggest, since, as mentioned, a significant number of employees retire before fulfilling the requirements assumed. As for the sustainability factor, it should be remembered that its impact at the individual level may be played down through the alternatives legally set out for that purpose. These were not considered in this exercise. Moreover, the profile of retirements is likely to be very influenced in the coming years by the recent change to the *Estatuto da Aposentação*, which has shortened the minimum career-length required for retirement (with a partial pension).

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Appendix 1 – Retirement conditions and pension calculation rules under the new legal framework

1.1. Retirement conditions for the CGA general regime

Table 1.1.1

RETIREMENT AGE

Age	Transitional period
60.5 years	January 1, 2006 - December 31, 2006
61 years	January 1, 2007 - December 31, 2007
61.5 years	January 1, 2008 - December 31, 2008
62 years	January 1, 2009 - December 31, 2009
62.5 years	January 1, 2010 - December 31, 2010
63 years	January 1, 2011 - December 31, 2011
63.5 years	January 1, 2012 - December 31, 2012
64 years	January 1, 2013 - December 31, 2013
64.5 years	January 1, 2014 - December 31, 2014
65 years	From January 1, 2015 onwards

Source: Law No. 60/2005.

Table 1.1.2

CAREER-LENGTH EQUIVALENT TO A FULL CONTRIBUTORY CAREER

Career-length	Transitional period
36.5 years	January 1, 2006 - December 31, 2006
37 years	January 1, 2007 - December 31, 2007
37.5 years	January 1, 2008 - December 31, 2008
38 years	January 1, 2009 - December 31, 2009
38.5 years	January 1, 2010 - December 31, 2010
39 years	January 1, 2011 - December 31, 2011
39.5 years	January 1, 2012 - December 31, 2012
40 years	From January 1, 2013 onwards

Source: Law No. 60/2005.
Note: Also applicable to the security force personnel.

1.2. Retirement conditions for some of the CGA special regimes

Table 1.2.1

RETIREMENT AGE: PRIMARY EDUCATION AND KINDERGARTEN TEACHERS

Age	Transitional Period
55.5 years	January 1, 2006 - December 31, 2006
56 years	January 1, 2007 - December 31, 2007
56.5 years	January 1, 2008 - December 31, 2008
57 years	January 1, 2009 - December 31, 2009
57.5 years	January 1, 2010 - December 31, 2010
58 years	January 1, 2011 - December 31, 2011
58.5 years	January 1, 2012 - December 31, 2012
59 years	January 1, 2013 - December 31, 2013
59.5 years	January 1, 2014 - December 31, 2014
60 years	January 1, 2006 - December 31, 2015
60.25 years	January 1, 2007 - December 31, 2016
61 years	January 1, 2008 - December 31, 2017
61.75 years	January 1, 2009 - December 31, 2018
62.5 years	January 1, 2010 - December 31, 2019
63.25 years	January 1, 2011 - December 31, 2020
64 years	January 1, 2012 - December 31, 2021
65 years	From January 1, 2022 onwards

Source: Decree-Law No. 229/2005.

Table 1.2.2

CAREER-LENGTH EQUIVALENT TO A FULL CONTRIBUTORY CAREER: PRIMARY EDUCATION AND KINDERGARTEN TEACHERS

Career- length	Transitional Period
30.5 years	January 1, 2006 - December 31, 2006
31 years	January 1, 2007 - December 31, 2007
31.5 years	January 1, 2008 - December 31, 2008
32 years	January 1, 2009 - December 31, 2009
32.5 years	January 1, 2010 - December 31, 2010
33 years	January 1, 2011 - December 31, 2011
33.5 years	January 1, 2012 - December 31, 2012
34 years	January 1, 2013 - December 31, 2013
34.5 years	January 1, 2014 - December 31, 2014
35.25 years	January 1, 2015 - December 31, 2015
36 years	January 1, 2016 - December 31, 2016
36.5 years	January 1, 2017 - December 31, 2017
37 years	January 1, 2018 - December 31, 2018
37.5 years	January 1, 2019 - December 31, 2019
38 years	January 1, 2020 - December 31, 2020
38.5 years	January 1, 2021 - December 31, 2021
40 years	From January 1, 2022 onwards

Source: Decree-Law No. 229/2005.

Table 1.2.3

RETIREMENT AGE: NURSES

Age	Transitional Period		
57.5 years	January 1, 2006	-	December 31, 2006
58 years	January 1, 2007	-	December 31, 2007
58.5 years	January 1, 2008	-	December 31, 2008
59 years	January 1, 2009	-	December 31, 2009
59.5 years	January 1, 2010	-	December 31, 2010
60 years	January 1, 2011	-	December 31, 2011
60.5 years	January 1, 2012	-	December 31, 2012
61 years	January 1, 2013	-	December 31, 2013
61.5 years	January 1, 2014	-	December 31, 2014
62.25 years	January 1, 2015	-	December 31, 2015
63 years	January 1, 2016	-	December 31, 2016
63.75 years	January 1, 2017	-	December 31, 2017
64.5 years	January 1, 2018	-	December 31, 2018
65 years	From January 1, 2019 onwards		

Source: Decree-Law No. 229/2005.

Table 1.2.4

CAREER-LENGTH EQUIVALENT TO A FULL CONTRIBUTORY CAREER: NURSES

Career-length	Transitional Period		
35.5 years	January 1, 2006	-	December 31, 2006
36 years	January 1, 2007	-	December 31, 2007
36.5 years	January 1, 2008	-	December 31, 2008
37 years	January 1, 2009	-	December 31, 2009
37.5 years	January 1, 2010	-	December 31, 2010
38 years	January 1, 2011	-	December 31, 2011
38.5 years	January 1, 2012	-	December 31, 2012
39 years	January 1, 2013	-	December 31, 2013
39.5 years	January 1, 2014	-	December 31, 2014
40 years	From January 1, 2015 onwards		

Source: Decree-Law No. 229/2005.

1.3. Pension accrual rate

Table 1.3.1

DEFINITION OF THE REFERENCE COMPONENTS INDEXED TO THE IAS (OR THE MANDATORY MINIMUM WAGE, WHEN APPLICABLE)

Components	Reference compensation	Annual accrual rate of pension
1st Component	Until 1.1 x IAS	2.30%
2nd Component	Between 1.1x IAS and 2 x IAS	2.25%
3rd Component	Between 2x IAS and 4 x IAS	2.20%
4th Component	Between 4 x IAS and 8 x IAS	2.10%
5th Component	Higher than 8 x IAS	2.00%

Source: Decree-Law No. 187/2007.

Appendix 2 – Breakdown of the impact of the reform on pensions

2.1. Public employees enrolled until August 1993

- Pension in terms of the previous legislation:

$$P^P = RC_L \times C^P \times \frac{0.9}{36} = RC_L \times C^P \times r^P = \underbrace{r^P \times RC_L \times C1}_{P_1^P} + \underbrace{r^P \times RC_L \times C2^P}_{P_2^P},$$

where:

RC_L is the reference compensation, corresponding to the monthly wage in the last position held.

C^P is the length of service required to warrant a full pension, which is equal to 36 years.

$C1$ is the length of service up to December 2005.

$C2^P$ is the length of service since January 2006 required to build up a full contributory career (36 years).

r^P is the annual pension accrual rate implicit in both components, which is given by $\frac{0.9}{36} = 2.5\%$.

- Pension in terms of the current legislation:

$$P^N = \frac{RC_L \times 0.9 \times C1}{C^N} + RC_A \times r_2^N \times C2^N = \underbrace{RC_L \times r_1^N \times C1}_{P_1^N} + \underbrace{RC_A \times r_2^N \times C2^N}_{P_2^N},$$

where:

RC_L is the first component reference compensation, corresponding to the monthly wage in the last position held.[28]

r_1^N is the annual pension accrual rate applicable to the first component, which is given by $\frac{0.9}{C^N}$.

$C1$ is the length of service up to December 2005 (which does not change with the legal reform).

RC_A is the second component reference compensation, corresponding to the average wage over the best $C2^N$ contributory years since January 2006.

r_2^N is the annual pension accrual rate applicable to the second component, which is linked to reference compensation and career-length.

C^N is the length of service required to warrant a full pension, which varies between 36.5 and 40 years (see Table 1.1.2).

$C2^N$ is the length of service since January 2006 required to build up a full contributory career (C^N).

- Differential between the amounts:

(27) Assuming retirement with full pension only.

(28) Since it was assumed that, from the 36th year of the contributory career onwards the wage remained constant, the wage in the last position held is the same, in terms of both the current and the previous legislation.

$d_P = P^N - P^P = \underbrace{(P_1^N - P_1^P)}_{d_{P_1}} + \underbrace{(P_2^N - P_2^P)}_{d_{P_2}}$, where:

$d_{P_1} = P_1^N - P_1^P = (r_1^N \times RC_L \times C1) - (r^P \times RC_L \times C1) = (RC_L \times C1) \cdot (r_1^N - r^P)$;

$d_{P_2} = P_2^N - P_2^P$, which can be broken down into:

1. $d_{r_2} = (r_2^N \times RC_A \times C2^N) - (r^P \times RC_A \times C2^N) = (RC_A \times C2^N) \cdot (r_2^N - r^P)$;

2. $d_{RC_2} = (r^P \times RC_A \times C2^N) - (r^P \times RC_L \times C2^N) = (r^P \times C2^N) \cdot (RC_A - RC_L)$;

3. $d_{C2} = (r^P \times RC_L \times C2^N) - (r^P \times RC_L \times C2^P) = (r^P \times RC_L) \cdot (C2^N - C2^P)$.

2.2. Public employees enrolled between September 1993 and December 2001

- Pension in terms of the previous legislation[29]

$$P^P = \frac{C1 \times (RC_{A_1}^P \times r_1 \times C) + C2 \times (RC_{A_2}^P \times r_2^P \times C)}{C} = \underbrace{(RC_{A_1}^P \times r_1 \times C1)}_{P_1^P} + \underbrace{(RC_{A_2}^P \times r_2^P \times C2)}_{P_2^P}$$

where:

$RC_{A_1}^P$ is the first component reference compensation, corresponding to the average wage over the best 10 out of the last 15 contributory years.

r_1 is the annual pension accrual rate applicable to the first component, which is equal to 2% (it did not change with the legal reform).

$C1$ is the length of service up to December 2001.

$RC_{A_2}^P$ is the second component reference compensation, corresponding to the average wage over the best 40 years of the contributory career.

r_2^P is the annual pension accrual rate applicable to the second component, which is linked to reference compensation and career-length.

$C2$ is the length of service since January 2002 required to build up a full contributory career (C).

C is the length of service required to warrant a full pension, which corresponds to 40 years (both in terms of the new and the previous legal framework).

- Pension in terms of the current legislation:

$$P^N = \underbrace{(RC_{A_1}^N \times r_1 \times C1)}_{P_1^N} + \underbrace{(RC_{A_2}^N \times r_2^N \times C2)}_{P_2^N}$$

in which the variables have the same meaning as before, but refer to the values that result from the current version of the *Estatuto da Aposentação*.

- Differential between the amounts:

$$d_P = P^N - P^P = \underbrace{(P_1^N - P_1^P)}_{d_{P_1}} + \underbrace{(P_2^N - P_2^P)}_{d_{P_2}}, \text{ where}$$

$d_{P_1} = P_1^N - P_1^P = (RC_{A_1}^N \times r_1 \times C1) - (RC_{A_1}^P \times r_1 \times C1) = (r_1 \times C1) \cdot (RC_{A_1}^N - RC_{A_1}^P)$;

(29) As mentioned in the text, when computing each component's weights it was assumed a maximum career-length of 40 years. Moreover, since only retirement with full pension is considered, the breakdown does not apply to contributors who retire prior to 2017.

$d_{P_2} = P_2^N - P_2^P$ which can be broken down into:

1. $d_{r_2} = (RC_{A_2}^N \times r_2^N \times C2) - (RC_{A_2}^N \times r_2^P \times C2) = (RC_{A_2}^N \times C2) \cdot (r_2^N - r_2^P)$;

2. $d_{RC_2} = (RC_{A_2}^N \times r_2^P \times C2) - (RC_{A_2}^P \times r_2^P \times C2) = (r_2^P \times C2) \cdot (RC_{A_2}^N \times RC_{A_2}^P)$.

2.3. Public employees enrolled since January 2002

- Pension in terms of the previous legislation:

$$P^P = RC_A^P \times r^P \times C, \text{ where:}$$

RC_A^P is the reference compensation, corresponding to the average wage over the best 40 years of the contributory career.

r^P is the annual pension accrual rate, which is linked to reference compensation and career-length.

C is the length of service required to warrant a full pension, which corresponds to 40 years (in terms of both the current and the previous legal framework).

- Pension in terms of the current legislation:

$$P^N = RC_A^N \times r^N \times C,$$

in which the variables have the same meaning as before, but refer to the values that result from the current version of the *Estatuto da Aposentação*.

- Differential between the amounts:

$$d_P = P^N - P^P = \underbrace{(RC_A^N \times r^N \times C)}_{d_{P_1}} - \underbrace{(RC_A^P \times r^P \times C)}_{d_{P_2}},$$

that can be broken down into:

1. $d_{P_1} = (RC_A^N \times r^N \times C) - (RC_A^P \times r^N \times C) = (r^N \times C) \cdot (RC_A^N - RC_A^P)$;

2. $d_{P_2} = (RC_A^P \times r^N \times C) - (RC_A^P \times r^P \times C) = (RC_A^P \times C) \cdot (r^N - r^P)$.

QUARTERLY SERIES FOR THE PORTUGUESE ECONOMY

Updating 1977-2007

QUARTERLY SERIES FOR THE PORTUGUESE ECONOMY: 1977-2007

This section publishes an update of the quarterly series for the Portuguese economy, similarly to previous years. The series now presented are based on the annual figures published in the 2007 Annual Report of Banco de Portugal and on the quarterly indicators made available in May 2008.

As mentioned in previous issues, the inclusion of a new year and the usual statistical revisions of the most recent data, implied changes to the quarterly series that, in some cases, do not only affect the recent years, due to the sensitivity of the quarterly interpolation parameters to revisions of both annual series and quarterly indicators. It is worth mentioning, however, that these revisions are, in most cases, negligible, reflecting the absence of significant changes of the methodology presented in detail in the article "Quarterly series for the Portuguese economy: 1977-2003" of *Economic Bulletin*-June 2004.

Quarterly series for the 1977-2007 period are presented in the tables below, with a similar breakdown as in previous publications. An electronic version of the series is available on the Banco de Portugal's website, at *www.bportugal.pt/publish/bolecon/docs*.

MAIN EXPENDITURE COMPONENTS

	1977				1978				1979			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Private consumption (residents)	576.5	614.0	649.8	674.0	706.3	734.1	779.1	829.7	857.4	905.6	970.8	1062.4
Public consumption	121.2	123.6	128.4	135.7	145.6	155.3	164.8	174.1	183.0	194.3	208.0	224.4
GFCF	263.0	297.0	304.4	313.5	301.2	323.5	344.1	378.6	428.9	482.9	525.9	532.6
Change in inventories	27.7	30.5	36.1	44.5	55.7	56.2	46.1	25.4	-6.0	-15.8	-4.1	29.2
Exports of goods and services	135.9	149.1	156.1	168.3	179.4	194.3	219.3	256.3	288.3	332.3	373.3	409.5
Goods	88.1	96.4	100.3	105.9	112.0	123.2	136.6	163.4	182.6	210.0	234.6	259.3
Services	47.8	52.7	55.9	62.3	67.4	71.1	82.7	92.9	105.7	122.4	138.7	150.1
Imports of goods and services	226.7	266.7	276.3	297.1	302.5	306.0	334.2	358.6	384.8	436.4	506.5	563.1
Goods	194.9	229.7	237.2	255.4	258.5	260.5	284.6	305.4	326.8	371.6	426.9	474.9
Services	31.7	37.0	39.1	41.7	44.0	45.4	49.6	53.2	58.1	64.8	79.6	88.2
GDP	897.7	947.5	998.5	1038.8	1085.6	1157.5	1219.2	1305.4	1366.8	1462.9	1567.4	1695.0
Previous year prices (EUR million)												
Private consumption (residents)					653.1	652.0	660.3	668.7	783.9	793.4	806.7	821.8
Public consumption					130.6	132.6	134.6	136.7	166.4	169.5	173.0	176.9
GFCF					273.8	279.3	279.8	288.1	370.7	394.6	407.7	388.4
Change in inventories					52.3	54.3	46.5	28.7	1.2	-11.9	-10.5	5.4
Exports of goods and services					162.8	167.5	178.8	196.5	251.9	275.2	291.6	298.7
Goods					100.9	105.3	109.8	122.4	157.2	170.9	179.7	185.0
Services					61.8	62.1	69.0	74.0	94.7	104.3	111.9	113.7
Imports of goods and services					273.7	266.4	266.3	271.4	327.1	345.2	368.4	381.0
Goods					235.0	228.7	227.9	232.5	277.3	292.6	308.0	318.7
Services					38.7	37.7	38.4	39.0	49.8	52.7	60.4	62.3
GDP					998.8	1019.1	1033.6	1047.3	1246.9	1275.4	1300.0	1310.2
Chain-linked volume (reference year 2000)												
Private consumption (residents)					7707.1	7693.7	7792.5	7891.3	7990.9	8088.3	8224.0	8378.2
Public consumption					2159.8	2191.7	2225.3	2260.7	2297.8	2340.6	2389.2	2443.5
GFCF					2964.4	3023.9	3029.7	3119.5	3339.1	3554.5	3672.5	3498.9
Exports of goods and services					1349.9	1388.8	1482.6	1629.4	1735.5	1895.5	2008.4	2057.4
Goods					743.7	776.0	808.8	902.1	948.9	1031.4	1084.7	1116.7
Services					689.6	693.0	769.5	825.6	898.0	988.6	1060.4	1077.5
Imports of goods and services					1769.4	1722.1	1721.4	1754.4	1751.5	1848.6	1972.5	2040.0
Goods					1429.4	1390.9	1386.2	1413.9	1405.7	1482.9	1561.1	1615.3
Services					347.0	338.3	344.1	349.1	356.8	377.6	432.9	446.6
GDP					13712.5	13991.4	14190.7	14378.5	14716.3	15053.3	15343.4	15463.5
Deflator (2000=1)												
Private consumption (residents)					0.0916	0.0954	0.1000	0.1051	0.1073	0.1120	0.1180	0.1268
Public consumption					0.0674	0.0709	0.0741	0.0770	0.0797	0.0830	0.0871	0.0918
GFCF					0.1016	0.1070	0.1136	0.1214	0.1285	0.1359	0.1432	0.1522
Exports of goods and services					0.1329	0.1399	0.1479	0.1573	0.1661	0.1753	0.1859	0.1990
Goods					0.1506	0.1588	0.1690	0.1811	0.1925	0.2036	0.2163	0.2322
Services					0.0978	0.1026	0.1075	0.1125	0.1177	0.1238	0.1308	0.1394
Imports of goods and services					0.1710	0.1777	0.1941	0.2044	0.2197	0.2361	0.2568	0.2760
Goods					0.1808	0.1873	0.2053	0.2160	0.2325	0.2506	0.2735	0.2940
Services					0.1269	0.1343	0.1441	0.1524	0.1628	0.1717	0.1838	0.1975
GDP					0.0792	0.0827	0.0859	0.0908	0.0929	0.0972	0.1022	0.1096

MAIN EXPENDITURE COMPONENTS

	1980				1981				1982			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Private consumption (residents)	1142.0	1225.2	1289.5	1348.3	1427.1	1500.8	1594.1	1678.9	1753.5	1843.0	1910.1	1981.9
Public consumption	243.7	262.3	280.0	296.6	312.1	328.0	344.1	360.5	377.1	396.8	419.7	446.0
GFCF	530.4	538.8	559.3	611.0	702.3	760.3	814.0	831.0	874.2	904.3	927.5	945.8
Change in inventories	84.0	117.8	130.4	122.0	92.5	77.2	76.1	89.3	116.7	128.0	123.1	102.0
Exports of goods and services	450.0	462.5	477.9	480.5	497.4	524.6	536.6	554.4	565.5	598.8	672.6	712.5
Goods	285.3	292.5	294.3	296.6	302.8	318.1	329.3	340.9	360.6	385.3	450.6	477.4
Services	164.6	170.0	183.5	183.8	194.6	206.6	207.3	213.5	205.0	213.5	222.0	235.1
Imports of goods and services	628.5	682.7	729.1	772.5	816.1	931.4	942.2	952.7	1020.8	1097.7	1151.1	1140.2
Goods	518.5	567.0	599.8	635.1	666.4	769.5	780.8	785.9	856.0	921.1	973.6	962.4
Services	110.0	115.8	129.3	137.3	149.7	162.0	161.3	166.8	164.8	176.6	177.4	177.8
GDP	1821.5	1923.8	2007.9	2085.9	2215.3	2259.5	2422.7	2561.5	2666.2	2773.1	2901.8	3048.1
Previous year prices (EUR million)												
Private consumption (residents)	1005.9	1029.5	1045.8	1054.0	1274.7	1285.9	1291.8	1299.1	1580.0	1594.6	1597.8	1595.4
Public consumption	214.0	218.7	222.8	226.5	281.9	285.2	287.9	290.0	342.5	345.1	348.4	352.6
GFCF	462.2	438.1	445.5	464.6	618.3	635.9	666.5	675.1	798.8	786.4	777.6	764.1
Change in inventories	35.7	56.8	68.6	71.1	64.3	65.7	75.4	93.4	119.7	125.2	110.1	74.2
Exports of goods and services	388.2	386.1	387.2	373.7	455.1	459.4	457.0	460.9	516.7	529.7	549.1	578.6
Goods	244.9	242.6	238.5	230.2	278.8	279.8	284.1	288.7	332.6	344.2	369.3	392.7
Services	143.3	143.5	148.7	143.5	176.3	179.6	172.8	172.2	184.1	185.5	179.9	185.9
Imports of goods and services	546.5	559.5	578.2	583.6	724.9	732.6	754.0	771.6	966.8	970.5	954.5	948.1
Goods	451.3	462.3	473.6	478.1	595.0	601.2	625.1	640.4	815.1	818.6	810.6	805.0
Services	95.1	97.2	104.6	105.5	129.9	131.4	129.0	131.2	151.7	151.8	143.9	143.1
GDP	1559.6	1569.7	1591.8	1606.2	1969.4	1999.5	2024.7	2046.9	2390.9	2410.5	2428.6	2416.8
Chain-linked volume (reference year 2000)												
Private consumption (residents)	8659.6	8863.1	9003.5	9073.6	9066.9	9146.4	9188.6	9240.3	9336.4	9422.9	9441.6	9427.6
Public consumption	2503.6	2557.9	2606.5	2649.3	2686.4	2717.9	2743.9	2764.4	2779.3	2800.4	2827.8	2861.4
GFCF	3299.6	3127.5	3180.4	3316.4	3568.0	3670.0	3846.6	3896.1	3851.0	3790.9	3748.6	3683.4
Exports of goods and services	2129.1	2117.3	2123.4	2049.3	2048.1	2067.4	2056.6	2074.2	2016.5	2067.0	2143.1	2257.9
Goods	1155.1	1144.4	1125.0	1085.7	1075.8	1079.8	1096.5	1114.0	1124.8	1163.8	1248.7	1328.0
Services	1116.0	1116.9	1157.5	1117.2	1132.2	1153.0	1109.8	1105.9	1008.1	1015.7	985.1	1017.8
Imports of goods and services	2200.1	2252.4	2327.8	2349.7	2352.8	2377.9	2447.4	2504.7	2570.3	2579.9	2537.4	2520.4
Goods	1710.7	1752.2	1794.9	1812.0	1812.8	1831.6	1904.4	1951.2	2036.0	2044.8	2024.7	2010.7
Services	528.2	539.4	580.8	586.0	589.3	596.5	585.3	595.5	561.3	561.6	532.2	529.3
GDP	15507.9	15608.6	15827.8	15970.6	15805.5	16047.4	16249.4	16428.2	16310.8	16444.7	16568.4	16487.9
Deflator (2000=1)												
Private consumption (residents)	0.1319	0.1382	0.1432	0.1486	0.1574	0.1641	0.1735	0.1817	0.1878	0.1956	0.2023	0.2102
Public consumption	0.0973	0.1025	0.1074	0.1120	0.1162	0.1207	0.1254	0.1304	0.1357	0.1417	0.1484	0.1559
GFCF	0.1607	0.1723	0.1759	0.1842	0.1968	0.2072	0.2116	0.2133	0.2270	0.2386	0.2474	0.2568
Exports of goods and services	0.2113	0.2184	0.2250	0.2345	0.2429	0.2538	0.2609	0.2673	0.2805	0.2897	0.3138	0.3156
Goods	0.2470	0.2556	0.2616	0.2732	0.2815	0.2946	0.3003	0.3061	0.3206	0.3310	0.3608	0.3595
Services	0.1475	0.1522	0.1585	0.1646	0.1719	0.1792	0.1868	0.1930	0.2033	0.2102	0.2253	0.2310
Imports of goods and services	0.2857	0.3031	0.3132	0.3288	0.3469	0.3917	0.3850	0.3804	0.3972	0.4255	0.4537	0.4524
Goods	0.3031	0.3236	0.3342	0.3505	0.3676	0.4201	0.4100	0.4028	0.4204	0.4504	0.4809	0.4786
Services	0.2082	0.2146	0.2226	0.2344	0.2540	0.2715	0.2757	0.2801	0.2936	0.3145	0.3334	0.3360
GDP	0.1175	0.1233	0.1269	0.1306	0.1402	0.1408	0.1491	0.1559	0.1635	0.1686	0.1751	0.1849

MAIN EXPENDITURE COMPONENTS

	1983				1984				1985			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Private consumption (residents)	2130.5	2244.4	2409.7	2587.1	2695.7	2858.1	3048.2	3114.5	3257.9	3376.3	3463.3	3625.5
Public consumption	476.1	505.1	532.8	558.8	582.8	611.4	645.1	684.4	729.7	775.2	820.9	866.7
GFCF	1028.9	1091.1	1178.9	1164.9	1099.9	1191.3	1240.0	1328.4	1338.3	1362.3	1418.2	1495.7
Change in inventories	64.8	35.1	12.8	-2.1	-9.5	-12.0	-9.8	-2.7	9.3	16.8	20.0	18.8
Exports of goods and services	790.8	874.0	999.2	1102.0	1206.3	1321.9	1445.2	1551.0	1692.4	1760.1	1776.5	1834.8
Goods	530.7	597.6	687.0	761.5	840.1	917.3	1011.6	1080.9	1170.4	1227.6	1236.4	1267.4
Services	260.1	276.4	312.3	340.5	366.2	404.6	433.6	470.1	522.0	532.6	540.1	567.5
Imports of goods and services	1172.5	1221.2	1361.2	1476.0	1534.3	1616.0	1752.7	1818.3	1916.7	1942.1	1905.7	2003.0
Goods	979.9	1024.3	1143.4	1247.7	1284.5	1355.8	1470.4	1522.4	1601.4	1610.9	1583.5	1661.6
Services	192.6	196.9	217.7	228.3	249.8	260.1	282.3	295.9	315.3	331.2	322.2	341.4
GDP	3318.5	3528.5	3772.2	3934.8	4040.9	4354.7	4616.1	4857.3	5110.9	5348.6	5593.2	5838.5
Previous year prices (EUR million)												
Private consumption (residents)	1873.1	1864.7	1858.4	1842.6	2312.8	2307.5	2315.8	2313.3	2911.5	2923.3	2932.9	2976.3
Public consumption	422.1	425.9	427.7	427.5	517.6	517.5	519.7	524.4	645.2	654.1	663.4	672.9
GFCF	917.3	922.3	913.3	833.7	975.6	1005.1	990.2	997.7	1201.2	1188.4	1207.6	1225.4
Change in inventories	17.7	-21.0	-41.9	-44.9	-30.1	-21.0	-17.5	-19.7	-27.6	-25.6	-13.6	8.4
Exports of goods and services	719.9	740.2	766.4	794.4	1020.8	1068.5	1104.3	1140.2	1506.1	1515.8	1507.0	1526.9
Goods	490.6	509.0	528.3	549.7	703.7	732.5	761.7	783.9	1042.2	1060.4	1054.2	1065.6
Services	229.3	231.2	238.1	244.6	317.1	336.0	342.6	356.3	463.8	455.3	452.9	461.3
Imports of goods and services	1078.5	1039.2	1026.2	986.7	1260.6	1267.3	1304.5	1305.8	1728.2	1753.5	1744.3	1810.7
Goods	911.8	878.0	863.8	829.6	1046.9	1053.5	1081.2	1082.5	1446.8	1468.2	1472.2	1528.2
Services	166.8	161.1	162.4	157.1	213.7	213.8	223.3	223.3	281.4	285.3	272.1	282.5
GDP	2871.6	2892.9	2897.7	2866.6	3536.2	3610.3	3607.9	3650.1	4508.1	4502.5	4553.1	4599.2
Chain-linked volume (reference year 2000)												
Private consumption (residents)	9412.1	9370.1	9338.1	9258.7	9224.6	9203.3	9236.4	9226.4	9167.2	9204.3	9234.7	9371.1
Public consumption	2901.1	2927.3	2939.7	2938.4	2923.5	2922.3	2935.1	2961.6	3001.9	3043.6	3086.6	3131.0
GFCF	3786.4	3807.0	3770.2	3441.6	3235.9	3333.8	3284.1	3309.2	3253.5	3219.0	3270.9	3319.2
Exports of goods and services	2396.0	2463.3	2550.5	2643.6	2725.0	2852.4	2947.9	3043.9	3154.1	3174.3	3156.1	3197.8
Goods	1426.1	1479.5	1535.5	1597.9	1649.2	1716.6	1785.2	1837.3	1891.9	1924.9	1913.6	1934.4
Services	1054.5	1063.2	1095.2	1125.0	1156.6	1225.8	1249.5	1299.6	1366.0	1340.9	1333.6	1358.5
Imports of goods and services	2496.6	2405.4	2375.5	2284.0	2304.2	2316.5	2384.5	2386.8	2414.9	2450.3	2437.3	2530.2
Goods	1993.0	1919.3	1888.1	1813.4	1813.5	1824.9	1872.8	1875.1	1897.0	1925.1	1930.3	2003.8
Services	522.8	505.1	509.2	492.5	519.1	519.3	542.5	542.4	549.2	556.8	531.0	551.3
GDP	16593.2	16716.6	16744.2	16564.5	16186.1	16525.4	16514.5	16707.5	16634.2	16613.5	16800.1	16970.3
Deflator (2000=1)												
Private consumption (residents)	0.2264	0.2395	0.2581	0.2794	0.2922	0.3106	0.3300	0.3376	0.3554	0.3668	0.3750	0.3869
Public consumption	0.1641	0.1726	0.1812	0.1902	0.1994	0.2092	0.2198	0.2311	0.2431	0.2547	0.2659	0.2768
GFCF	0.2717	0.2866	0.3127	0.3385	0.3399	0.3573	0.3776	0.4014	0.4114	0.4232	0.4336	0.4506
Exports of goods and services	0.3300	0.3548	0.3918	0.4169	0.4427	0.4634	0.4902	0.5095	0.5366	0.5545	0.5629	0.5738
Goods	0.3721	0.4039	0.4474	0.4766	0.5094	0.5343	0.5666	0.5883	0.6186	0.6377	0.6461	0.6552
Services	0.2467	0.2600	0.2851	0.3027	0.3166	0.3301	0.3471	0.3617	0.3821	0.3972	0.4050	0.4177
Imports of goods and services	0.4696	0.5077	0.5730	0.6462	0.6659	0.6976	0.7350	0.7618	0.7937	0.7926	0.7819	0.7917
Goods	0.4917	0.5337	0.6056	0.6881	0.7083	0.7429	0.7851	0.8119	0.8442	0.8368	0.8203	0.8293
Services	0.3684	0.3898	0.4276	0.4635	0.4811	0.5009	0.5203	0.5455	0.5742	0.5948	0.6068	0.6192
GDP	0.2000	0.2111	0.2253	0.2375	0.2497	0.2635	0.2795	0.2907	0.3073	0.3219	0.3329	0.3440

MAIN EXPENDITURE COMPONENTS

	1986				1987				1988			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Private consumption (residents)	3825.9	4073.5	4208.7	4411.8	4526.5	4770.0	4894.8	5096.4	5477.1	5761.8	6059.2	6416.5
Public consumption	912.7	955.1	993.5	1027.8	1057.7	1096.8	1145.9	1205.4	1276.3	1349.7	1425.5	1503.9
GFCF	1469.7	1597.0	1668.1	1821.8	1934.0	2100.5	2191.7	2379.9	2529.4	2707.6	2863.6	2978.9
Change in inventories	13.2	18.8	35.8	64.1	103.7	134.4	156.2	169.1	173.1	163.0	138.8	100.6
Exports of goods and services	1864.0	1943.3	2035.9	2167.1	2254.3	2417.2	2511.0	2631.8	2735.9	2781.5	2978.2	3154.1
Goods	1265.2	1330.9	1379.2	1468.1	1527.1	1611.1	1681.5	1766.2	1848.8	1910.7	2041.1	2150.4
Services	598.8	612.3	656.8	699.0	727.2	806.0	829.5	865.6	887.1	870.8	937.1	1003.7
Imports of goods and services	1989.3	2018.8	2075.0	2334.6	2494.0	2706.4	2951.2	3158.1	3420.9	3523.9	3845.5	3925.5
Goods	1671.0	1667.7	1728.2	1946.2	2095.0	2268.9	2494.6	2668.2	2893.5	2984.3	3265.6	3299.7
Services	318.3	351.2	346.8	388.4	399.0	437.5	456.6	489.9	527.5	539.6	579.9	625.8
GDP	6096.2	6568.9	6867.0	7158.1	7382.2	7812.5	7948.5	8324.5	8771.0	9239.7	9619.8	10228.4
Previous year prices (EUR million)												
Private consumption (residents)	3529.6	3648.5	3692.5	3793.3	4306.2	4441.3	4459.1	4530.8	5141.5	5250.6	5322.6	5460.2
Public consumption	827.0	837.1	845.4	852.0	991.3	1001.4	1016.0	1035.2	1179.9	1206.3	1232.6	1258.8
GFCF	1395.4	1440.3	1492.1	1555.0	1839.3	1944.7	2020.0	2107.6	2384.3	2494.1	2525.9	2604.0
Change in inventories	40.3	71.8	102.9	133.6	164.0	181.3	185.7	177.0	155.2	135.4	117.5	101.5
Exports of goods and services	1811.4	1856.4	1929.8	1999.8	2164.2	2253.7	2276.6	2300.3	2526.3	2554.7	2683.2	2818.4
Goods	1248.4	1291.4	1333.0	1378.5	1471.7	1500.9	1519.4	1531.4	1699.5	1759.8	1847.5	1947.4
Services	563.0	565.0	596.8	621.2	692.5	752.8	757.2	768.8	826.8	794.9	835.7	871.1
Imports of goods and services	2075.9	2219.8	2348.6	2556.7	2451.6	2599.5	2736.7	2881.5	3248.3	3393.3	3512.9	3599.6
Goods	1767.2	1889.4	2023.8	2200.0	2070.8	2192.2	2319.0	2435.0	2743.8	2883.0	2973.6	3032.1
Services	308.7	330.5	324.9	356.7	380.8	407.3	417.7	446.5	504.5	510.2	539.2	567.5
GDP	5527.7	5634.1	5714.0	5777.0	7013.3	7222.9	7220.7	7269.4	8139.0	8247.8	8369.0	8643.4
Chain-linked volume (reference year 2000)												
Private consumption (residents)	9510.7	9831.1	9949.6	10221.4	10299.7	10622.8	10665.4	10836.8	11309.1	11549.0	11707.3	12010.2
Public consumption	3176.6	3215.5	3247.5	3272.8	3291.2	3324.7	3373.4	3437.2	3516.0	3594.6	3673.0	3751.1
GFCF	3246.6	3350.9	3471.5	3617.8	3839.5	4059.5	4216.7	4399.7	4575.6	4786.2	4847.4	4997.1
Exports of goods and services	3252.1	3332.8	3464.6	3590.3	3685.2	3837.6	3876.5	3916.9	3942.5	3986.8	4187.4	4398.4
Goods	1952.1	2019.3	2084.4	2155.6	2220.0	2264.1	2292.0	2310.2	2344.7	2427.8	2548.9	2686.6
Services	1405.9	1410.8	1490.2	1551.3	1580.4	1718.0	1728.1	1754.6	1736.7	1669.8	1755.4	1829.7
Imports of goods and services	2627.9	2810.0	2973.1	3236.4	3392.2	3596.9	3786.7	3987.1	4240.1	4429.3	4585.4	4698.7
Goods	2122.7	2269.4	2430.9	2642.5	2795.0	2958.8	3129.9	3286.5	3505.2	3683.0	3798.7	3873.4
Services	515.7	552.0	542.6	595.8	598.0	639.7	656.0	701.2	734.3	742.6	784.8	826.0
GDP	16922.6	17248.4	17493.1	17685.9	18223.0	18767.5	18761.8	18888.3	19305.5	19563.6	19851.1	20501.9
Deflator (2000=1)												
Private consumption (residents)	0.4023	0.4143	0.4230	0.4316	0.4395	0.4490	0.4589	0.4703	0.4843	0.4989	0.5176	0.5343
Public consumption	0.2873	0.2970	0.3059	0.3141	0.3214	0.3299	0.3397	0.3507	0.3630	0.3755	0.3881	0.4009
GFCF	0.4527	0.4766	0.4805	0.5036	0.5037	0.5174	0.5198	0.5409	0.5528	0.5657	0.5908	0.5961
Exports of goods and services	0.5732	0.5831	0.5876	0.6036	0.6117	0.6299	0.6478	0.6719	0.6939	0.6977	0.7112	0.7171
Goods	0.6481	0.6591	0.6617	0.6811	0.6879	0.7116	0.7337	0.7645	0.7885	0.7870	0.8008	0.8004
Services	0.4260	0.4340	0.4407	0.4506	0.4601	0.4692	0.4800	0.4933	0.5108	0.5215	0.5339	0.5486
Imports of goods and services	0.7570	0.7184	0.6979	0.7213	0.7352	0.7524	0.7794	0.7921	0.8068	0.7956	0.8386	0.8355
Goods	0.7872	0.7348	0.7110	0.7365	0.7496	0.7668	0.7970	0.8119	0.8255	0.8103	0.8597	0.8519
Services	0.6172	0.6362	0.6391	0.6518	0.6671	0.6840	0.6960	0.6987	0.7184	0.7266	0.7389	0.7577
GDP	0.3602	0.3808	0.3926	0.4047	0.4051	0.4163	0.4237	0.4407	0.4543	0.4723	0.4846	0.4989

MAIN EXPENDITURE COMPONENTS

	1989				1990				1991			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Private consumption (residents)	6528.4	6711.2	6991.5	7195.9	7589.6	7993.0	8404.3	8802.1	9265.2	9722.9	10129.9	10431.1
Public consumption	1584.8	1665.5	1745.8	1825.3	1903.7	2003.2	2125.8	2273.7	2449.3	2603.1	2732.1	2833.6
GFCF	3017.3	3105.4	3214.3	3352.2	3451.0	3584.5	3703.1	3803.0	3849.9	3930.8	4113.2	4244.5
Change in inventories	48.2	43.0	84.9	173.9	310.0	367.9	347.6	248.9	72.1	-45.6	-104.2	-103.7
Exports of goods and services	3418.7	3531.9	3756.9	3976.1	4186.6	4319.8	4348.8	4442.2	4343.3	4459.0	4501.6	4527.0
Goods	2343.7	2459.2	2589.6	2742.2	2866.9	2944.2	2970.3	2951.9	2916.8	2912.4	2980.2	3029.6
Services	1075.0	1072.7	1167.3	1233.9	1319.7	1375.6	1378.4	1490.2	1426.6	1546.6	1521.4	1497.4
Imports of goods and services	4087.6	4182.7	4422.4	4603.8	5032.9	4951.8	5250.1	5473.5	5450.4	5510.4	5756.7	5762.8
Goods	3492.2	3508.3	3708.1	3888.9	4225.5	4144.3	4359.4	4606.1	4585.4	4590.0	4730.2	4761.0
Services	595.4	674.4	714.2	714.8	807.5	807.5	890.7	867.5	865.0	920.4	1026.5	1001.9
GDP	10509.7	10874.3	11370.9	11919.7	12408.1	13316.7	13679.4	14096.4	14529.3	15159.7	15615.9	16169.8
Previous year prices (EUR million)												
Private consumption (residents)	6062.1	6107.9	6205.0	6294.8	7173.3	7345.7	7529.5	7673.5	8682.8	8911.1	9106.9	9210.4
Public consumption	1463.5	1488.7	1509.5	1525.8	1751.7	1778.9	1819.8	1874.4	2233.5	2289.9	2324.1	2336.1
GFCF	2810.0	2845.4	2835.0	2911.5	3260.8	3345.2	3386.1	3457.1	3682.6	3709.2	3803.7	3883.9
Change in inventories	87.4	103.5	149.9	226.5	333.3	381.4	370.8	301.5	173.5	89.2	48.5	51.5
Exports of goods and services	3252.8	3303.3	3475.4	3624.2	4046.0	4134.3	4116.7	4164.6	4237.4	4355.8	4360.7	4406.7
Goods	2244.6	2321.6	2428.2	2534.1	2792.8	2857.3	2870.2	2858.0	2901.9	2933.2	2987.8	3065.7
Services	1008.3	981.7	1047.3	1090.1	1253.2	1277.0	1246.5	1306.6	1335.5	1422.5	1372.9	1341.0
Imports of goods and services	3816.6	3921.1	4055.2	4201.7	4832.5	4972.2	5164.0	5212.0	5366.0	5521.3	5746.3	5868.9
Goods	3252.5	3297.3	3407.3	3562.0	4055.5	4204.9	4332.8	4411.8	4529.4	4641.4	4768.9	4915.8
Services	564.1	623.7	647.9	639.7	777.0	767.2	831.2	800.3	836.6	879.9	977.4	953.1
GDP	9859.1	9927.7	10119.6	10381.1	11732.7	12013.4	12059.0	12259.1	13643.9	13833.8	13897.6	14019.7
Chain-linked volume (reference year 2000)												
Private consumption (residents)	11905.9	11995.9	12186.7	12363.0	12672.1	12976.8	13301.3	13555.8	13904.0	14269.6	14583.2	14748.9
Public consumption	3828.9	3895.0	3949.4	3992.0	4022.8	4085.2	4179.1	4304.5	4461.4	4574.0	4642.3	4666.3
GFCF	4871.0	4932.4	4914.4	5047.0	5079.2	5210.5	5274.3	5384.8	5305.2	5343.5	5479.6	5595.1
Exports of goods and services	4611.4	4682.9	4927.0	5137.8	5334.4	5450.8	5427.6	5490.7	5316.8	5465.3	5471.5	5529.2
Goods	2825.3	2922.2	3056.4	3189.7	3305.0	3381.3	3396.6	3382.2	3330.2	3366.1	3428.8	3518.1
Services	1906.0	1855.8	1979.7	2060.6	2149.5	2190.4	2138.0	2241.1	2092.8	2229.1	2151.4	2101.4
Imports of goods and services	4656.3	4783.8	4947.4	5126.1	5452.0	5609.5	5826.0	5880.1	5899.6	6070.3	6317.7	6452.6
Goods	3884.4	3937.9	4069.3	4253.9	4485.6	4650.8	4792.3	4879.6	4914.3	5035.8	5174.1	5333.6
Services	766.3	847.4	880.2	869.1	968.2	956.1	1035.7	997.2	981.5	1032.2	1146.6	1118.1
GDP	20630.9	20774.3	21175.9	21723.0	22140.4	22670.0	22756.1	23133.8	23130.7	23452.7	23560.8	23767.8
Deflator (2000=1)												
Private consumption (residents)	0.5483	0.5595	0.5737	0.5821	0.5989	0.6159	0.6318	0.6493	0.6664	0.6814	0.6946	0.7072
Public consumption	0.4139	0.4276	0.4420	0.4573	0.4732	0.4904	0.5087	0.5282	0.5490	0.5691	0.5885	0.6073
GFCF	0.6194	0.6296	0.6540	0.6642	0.6794	0.6879	0.7021	0.7062	0.7257	0.7356	0.7506	0.7586
Exports of goods and services	0.7414	0.7542	0.7625	0.7739	0.7848	0.7925	0.8012	0.8090	0.8169	0.8159	0.8227	0.8187
Goods	0.8296	0.8416	0.8473	0.8597	0.8674	0.8707	0.8745	0.8728	0.8759	0.8652	0.8692	0.8611
Services	0.5640	0.5780	0.5897	0.5988	0.6140	0.6280	0.6447	0.6650	0.6817	0.6938	0.7072	0.7126
Imports of goods and services	0.8779	0.8743	0.8939	0.8981	0.9231	0.8827	0.9012	0.9308	0.9239	0.9078	0.9112	0.8931
Goods	0.8990	0.8909	0.9113	0.9142	0.9420	0.8911	0.9097	0.9439	0.9331	0.9115	0.9142	0.8926
Services	0.7770	0.7958	0.8114	0.8225	0.8340	0.8446	0.8600	0.8699	0.8813	0.8917	0.8952	0.8960
GDP	0.5094	0.5234	0.5370	0.5487	0.5604	0.5874	0.6011	0.6093	0.6281	0.6464	0.6628	0.6803

MAIN EXPENDITURE COMPONENTS

	1992				1993				1994			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Private consumption (residents)	10710.1	11167.3	11371.1	11628.6	11811.0	11916.4	12216.7	12468.1	12614.1	12921.5	13105.0	13384.3
Public consumption	2905.0	2975.4	3044.9	3114.1	3183.2	3246.7	3304.9	3357.6	3405.0	3460.4	3524.2	3596.4
GFCF	4491.6	4573.1	4618.4	4538.3	4332.3	4413.9	4182.3	4199.0	4294.2	4395.9	4373.9	4840.1
Change in inventories	-44.0	-20.6	-33.5	-82.6	-168.1	-194.3	-161.3	-69.1	82.3	184.9	238.7	243.7
Exports of goods and services	4621.8	4627.3	4524.5	4429.1	4410.0	4419.6	4720.0	4863.1	4884.9	5164.9	5336.3	5587.3
Goods	3131.5	3162.3	3093.9	3058.1	3048.5	3100.1	3269.1	3402.8	3526.0	3759.5	3974.5	4200.5
Services	1490.3	1465.0	1430.7	1371.0	1361.5	1319.5	1450.9	1460.4	1358.9	1405.4	1361.8	1386.8
Imports of goods and services	5931.5	5933.0	5977.3	5863.8	5921.4	5804.4	5988.0	6268.9	6310.2	6500.0	6786.7	7207.9
Goods	4933.5	4954.4	4923.2	4858.8	4715.5	4682.0	4808.4	4994.0	5237.3	5418.9	5712.1	5944.1
Services	998.1	978.6	1054.1	1005.0	1205.8	1122.4	1179.5	1274.9	1072.9	1081.1	1074.6	1263.8
GDP	16753.0	17389.4	17548.2	17763.7	17647.1	17998.0	18274.6	18549.8	18970.2	19627.8	19791.5	20443.9
Previous year prices (EUR million)												
Private consumption (residents)	10248.4	10416.8	10471.0	10611.3	11457.5	11427.4	11507.3	11516.8	12066.8	12192.9	12207.5	12303.6
Public consumption	2689.2	2681.0	2676.5	2675.6	3007.3	3015.1	3027.7	3045.2	3320.3	3341.6	3360.0	3375.7
GFCF	4373.7	4431.7	4428.0	4296.5	4266.9	4270.3	4011.7	3934.5	4172.0	4256.8	4240.6	4626.9
Change in inventories	98.2	121.5	121.3	97.8	50.8	24.4	18.6	33.4	68.9	97.7	119.9	135.5
Exports of goods and services	4611.8	4606.5	4560.2	4478.1	4419.4	4383.4	4550.6	4644.4	4748.6	4922.0	5076.3	5230.3
Goods	3148.9	3202.6	3194.1	3167.2	3086.1	3095.6	3165.9	3278.2	3444.3	3589.7	3789.7	3936.8
Services	1462.9	1404.0	1366.1	1310.9	1333.3	1287.9	1384.7	1366.2	1304.3	1332.3	1286.6	1293.4
Imports of goods and services	6084.9	6230.9	6378.7	6308.0	6069.3	5880.1	5879.5	6060.7	6119.3	6309.6	6621.7	6979.3
Goods	5077.3	5226.0	5291.7	5245.7	4834.8	4735.5	4734.2	4832.8	5077.2	5263.7	5570.8	5740.8
Services	1007.6	1005.0	1087.0	1062.3	1234.5	1144.6	1145.3	1227.9	1042.1	1045.8	1050.9	1238.5
GDP	15936.5	16026.7	15878.3	15851.2	17132.4	17240.5	17236.5	17113.5	18257.1	18501.4	18382.6	18692.7
Chain-linked volume (reference year 2000)												
Private consumption (residents)	14901.5	15146.4	15225.2	15429.2	15497.7	15457.1	15565.2	15577.9	15477.9	15639.7	15658.5	15781.7
Public consumption	4645.9	4631.8	4623.9	4622.4	4627.0	4639.1	4658.5	4685.3	4719.6	4749.8	4776.0	4798.3
GFCF	5887.4	5965.4	5960.3	5783.3	5525.5	5530.0	5195.1	5095.1	5199.5	5305.2	5285.0	5766.5
Exports of goods and services	5633.9	5627.5	5570.9	5470.6	5414.8	5370.8	5575.7	5690.6	5687.1	5894.9	6079.6	6264.1
Goods	3628.8	3690.6	3680.9	3649.9	3632.8	3643.9	3726.7	3858.9	3992.8	4161.4	4393.2	4563.8
Services	2093.5	2009.1	1955.0	1876.0	1837.3	1774.8	1908.2	1882.8	1726.6	1763.8	1703.3	1712.3
Imports of goods and services	6696.6	6857.3	7020.0	6942.2	7044.8	6825.3	6824.6	7034.9	7075.4	7295.4	7656.2	8069.7
Goods	5564.5	5727.5	5799.5	5749.1	5614.2	5498.8	5497.4	5611.8	5876.4	6092.3	6447.7	6644.4
Services	1130.4	1127.4	1219.4	1191.7	1428.2	1324.2	1325.0	1420.6	1198.0	1202.2	1208.0	1423.7
GDP	24345.4	24483.2	24256.6	24215.1	24001.3	24152.7	24147.1	23974.8	24254.6	24579.2	24421.4	24833.3
Deflator (2000=1)												
Private consumption (residents)	0.7187	0.7373	0.7469	0.7537	0.7621	0.7709	0.7849	0.8004	0.8150	0.8262	0.8369	0.8481
Public consumption	0.6253	0.6424	0.6585	0.6737	0.6880	0.6999	0.7094	0.7166	0.7215	0.7285	0.7379	0.7495
GFCF	0.7629	0.7666	0.7748	0.7847	0.7841	0.7982	0.8050	0.8241	0.8259	0.8286	0.8276	0.8393
Exports of goods and services	0.8203	0.8223	0.8122	0.8096	0.8144	0.8229	0.8465	0.8546	0.8589	0.8762	0.8777	0.8920
Goods	0.8629	0.8568	0.8405	0.8379	0.8392	0.8508	0.8772	0.8818	0.8831	0.9034	0.9047	0.9204
Services	0.7119	0.7292	0.7318	0.7308	0.7410	0.7435	0.7603	0.7756	0.7870	0.7968	0.7995	0.8099
Imports of goods and services	0.8858	0.8652	0.8515	0.8447	0.8405	0.8504	0.8774	0.8911	0.8918	0.8910	0.8864	0.8932
Goods	0.8866	0.8650	0.8489	0.8451	0.8399	0.8515	0.8747	0.8899	0.8912	0.8895	0.8859	0.8946
Services	0.8830	0.8680	0.8644	0.8433	0.8443	0.8476	0.8902	0.8974	0.8956	0.8992	0.8895	0.8877
GDP	0.6881	0.7103	0.7234	0.7336	0.7353	0.7452	0.7568	0.7737	0.7821	0.7986	0.8104	0.8232

MAIN EXPENDITURE COMPONENTS

	1995				1996				1997			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Private consumption (residents)	13641.2	13963.0	13917.8	14090.5	14438.4	14575.1	14914.0	15105.6	15411.8	15498.9	15917.8	16124.6
Public consumption	3676.9	3758.4	3841.1	3923.3	4002.0	4076.9	4151.2	4224.8	4294.8	4377.0	4474.8	4586.2
GFCF	4690.5	4821.8	4786.8	4859.5	4874.7	5039.0	5361.5	5565.8	5902.5	6085.8	6329.3	6374.3
Change in inventories	179.3	164.9	152.9	142.4	133.1	122.4	112.1	103.1	96.3	91.6	90.3	95.3
Exports of goods and services	5999.1	5926.4	6040.9	6390.1	6388.5	6405.6	6306.9	6404.8	6490.7	6958.8	7074.3	7457.4
Goods	4475.7	4400.6	4488.1	4830.8	4884.2	4921.1	4817.8	4860.0	4942.2	5273.2	5356.2	5657.8
Services	1523.3	1525.8	1552.8	1559.3	1504.3	1484.5	1489.1	1544.8	1548.5	1685.6	1718.1	1799.6
Imports of goods and services	7441.9	7507.6	7276.3	7572.2	7733.4	7797.2	7983.8	8283.4	8410.6	8711.1	9193.8	9518.9
Goods	6200.5	6289.1	6057.4	6291.9	6491.0	6525.2	6691.0	6953.4	7106.5	7358.9	7757.8	7982.2
Services	1241.4	1218.5	1218.9	1280.3	1242.4	1272.0	1292.8	1330.0	1304.1	1352.2	1436.0	1536.7
GDP	20744.9	21127.0	21463.2	21833.7	22103.4	22421.8	22862.0	23120.9	23785.6	24301.1	24692.7	25118.8
Previous year prices (EUR million)												
Private consumption (residents)	13151.5	13336.0	13217.4	13279.9	14173.9	14210.3	14451.0	14527.6	15099.6	15143.1	15429.4	15524.4
Public consumption	3537.4	3559.4	3590.1	3629.4	3904.3	3941.2	3964.1	3973.0	4141.4	4161.6	4203.6	4267.4
GFCF	4593.8	4692.9	4621.2	4651.0	4761.0	4921.7	5183.6	5371.7	5750.2	5905.9	6034.9	6125.9
Change in inventories	144.4	146.8	142.7	132.1	116.3	101.5	89.2	79.4	88.0	82.2	80.3	84.5
Exports of goods and services	5810.3	5652.1	5812.1	6165.5	6332.3	6469.9	6482.0	6496.9	6434.4	6787.0	6780.3	7076.6
Goods	4340.1	4178.6	4278.9	4646.5	4864.5	5029.2	5044.8	5002.3	4917.0	5164.8	5143.5	5404.6
Services	1470.2	1473.6	1533.2	1519.0	1467.7	1440.8	1437.2	1494.7	1517.4	1622.2	1636.8	1672.0
Imports of goods and services	7330.2	7415.1	7184.0	7428.7	7598.8	7630.8	7905.8	8189.2	8321.9	8572.3	8824.3	9191.2
Goods	6084.3	6195.8	5969.9	6146.3	6368.2	6385.0	6655.4	6917.2	7040.8	7279.8	7447.4	7755.3
Services	1245.9	1219.3	1214.1	1282.4	1230.6	1245.8	1250.4	1272.0	1281.0	1292.5	1376.9	1435.9
GDP	19907.2	19972.2	20199.5	20429.2	21688.9	22013.8	22264.1	22259.4	23191.7	23507.4	23704.2	23887.6
Chain-linked volume (reference year 2000)												
Private consumption (residents)	15814.1	16035.9	15893.4	15968.6	16238.2	16279.9	16555.7	16643.4	16809.2	16857.6	17176.4	17282.1
Public consumption	4816.6	4846.6	4888.3	4941.9	5007.2	5054.5	5083.9	5095.3	5094.3	5119.1	5170.8	5249.2
GFCF	5530.9	5650.2	5563.8	5599.7	5552.7	5740.1	6045.6	6265.0	6512.4	6688.7	6834.8	6937.8
Exports of goods and services	6628.1	6447.7	6630.2	7033.3	6951.8	7102.9	7116.2	7132.6	7140.2	7531.4	7524.0	7852.8
Goods	4803.5	4624.7	4735.8	5142.6	5161.7	5336.4	5353.0	5307.8	5339.9	5609.0	5585.9	5869.4
Services	1841.7	1845.9	1920.6	1902.8	1789.2	1756.4	1752.1	1822.1	1793.8	1917.6	1934.9	1976.5
Imports of goods and services	8230.5	8325.7	8066.3	8341.0	8406.1	8441.4	8745.7	9059.2	9069.0	9341.9	9616.5	10016.3
Goods	6833.8	6958.9	6705.3	6903.4	7025.2	7043.7	7342.0	7630.8	7669.7	7930.0	8112.5	8447.9
Services	1395.6	1365.8	1359.9	1436.4	1379.2	1396.2	1401.4	1425.5	1397.0	1409.5	1501.6	1565.9
GDP	24769.5	24850.4	25133.2	25419.0	25509.6	25891.7	26186.1	26180.6	26589.4	26951.4	27177.0	27387.3
Deflator (2000=1)												
Private consumption (residents)	0.8626	0.8707	0.8757	0.8824	0.8892	0.8953	0.9008	0.9076	0.9169	0.9194	0.9267	0.9330
Public consumption	0.7634	0.7755	0.7858	0.7939	0.7993	0.8066	0.8165	0.8292	0.8431	0.8550	0.8654	0.8737
GFCF	0.8481	0.8534	0.8604	0.8678	0.8779	0.8779	0.8869	0.8884	0.9064	0.9099	0.9260	0.9188
Exports of goods and services	0.9051	0.9191	0.9111	0.9085	0.9190	0.9018	0.8863	0.8980	0.9090	0.9240	0.9402	0.9497
Goods	0.9318	0.9515	0.9477	0.9394	0.9462	0.9222	0.9000	0.9156	0.9255	0.9401	0.9589	0.9639
Services	0.8272	0.8266	0.8085	0.8195	0.8408	0.8452	0.8499	0.8478	0.8633	0.8790	0.8879	0.9105
Imports of goods and services	0.9042	0.9017	0.9021	0.9078	0.9200	0.9237	0.9129	0.9144	0.9274	0.9325	0.9560	0.9503
Goods	0.9073	0.9037	0.9034	0.9114	0.9240	0.9264	0.9113	0.9112	0.9266	0.9280	0.9563	0.9449
Services	0.8896	0.8921	0.8963	0.8913	0.9008	0.9110	0.9225	0.9330	0.9335	0.9593	0.9563	0.9813
GDP	0.8375	0.8502	0.8540	0.8590	0.8665	0.8660	0.8731	0.8831	0.8946	0.9017	0.9086	0.9172

MAIN EXPENDITURE COMPONENTS

	1998				1999				2000			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Private consumption (residents)	16417.4	16706.8	17036.5	17477.1	17813.1	18055.9	18327.3	18623.3	19155.6	19324.6	19719.5	19900.5
Public consumption	4703.9	4810.9	4914.6	5018.1	5120.4	5237.9	5373.0	5526.2	5696.7	5848.3	5981.6	6097.0
GFCF	6857.4	6990.5	7087.6	7308.7	7388.7	7520.6	7794.6	7912.9	8330.7	8124.1	8346.6	8301.9
Change in inventories	110.3	140.5	184.2	233.4	274.1	295.1	291.5	265.1	225.1	188.2	169.9	174.2
Exports of goods and services	7562.5	7809.7	7869.1	7601.9	7706.9	7814.4	8027.0	8324.3	8809.2	8745.1	9200.6	9631.9
Goods	5607.7	5795.8	5725.8	5604.7	5639.6	5731.9	5914.6	6059.4	6491.6	6371.9	6809.0	7037.5
Services	1954.8	2013.8	2143.3	1997.3	2067.2	2082.5	2112.4	2264.9	2317.6	2373.2	2391.7	2594.4
Imports of goods and services	9892.6	10147.2	10122.9	10180.5	10377.3	10547.4	11125.1	11450.2	12472.2	11942.3	12411.8	12874.9
Goods	8234.9	8603.5	8598.0	8576.1	8798.3	8980.6	9509.1	9792.2	10680.8	10109.8	10616.9	10992.2
Services	1657.7	1543.7	1524.8	1604.4	1579.0	1566.8	1616.0	1658.0	1791.3	1832.5	1794.9	1882.7
GDP	25758.9	26311.1	26969.1	27458.7	27925.7	28376.7	28688.4	29201.5	29745.1	30287.9	31006.4	31230.8
Previous year prices (EUR million)												
Private consumption (residents)	16173.3	16391.6	16605.4	16930.6	17609.0	17708.5	17873.2	18024.0	18813.9	18765.9	18944.8	18988.6
Public consumption	4603.4	4681.6	4746.4	4797.7	4996.5	5040.3	5084.4	5128.7	5431.9	5479.6	5527.0	5574.4
GFCF	6773.0	6824.5	6887.2	7100.4	7373.4	7400.9	7570.7	7638.2	8106.5	7814.8	7959.6	7801.5
Change in inventories	109.8	141.2	187.7	242.6	287.1	313.2	308.5	275.4	215.4	177.4	159.8	165.5
Exports of goods and services	7455.8	7572.3	7760.1	7562.9	7779.7	7840.0	8009.9	8134.2	8607.9	8327.8	8652.0	8963.2
Goods	5563.2	5676.0	5761.3	5701.1	5729.1	5779.8	5932.6	5989.3	6344.3	6047.7	6366.4	6494.8
Services	1892.6	1896.3	1998.8	1861.8	2050.6	2060.2	2077.3	2144.9	2263.6	2280.1	2285.6	2468.4
Imports of goods and services	9948.5	10198.1	10282.8	10485.0	10688.7	10762.5	11071.3	11303.7	11818.4	11205.2	11299.9	11494.2
Goods	8316.8	8656.8	8749.0	8841.8	9067.2	9152.1	9416.4	9637.5	10112.5	9483.1	9616.8	9771.7
Services	1631.6	1541.3	1533.9	1643.2	1621.6	1610.4	1654.8	1666.3	1705.9	1722.1	1683.1	1722.5
GDP	25166.9	25413.1	25903.9	26149.1	27357.0	27540.4	27775.3	27896.7	29357.3	29360.1	29943.4	29999.1
Chain-linked volume (reference year 2000)												
Private consumption (residents)	17502.1	17738.3	17969.7	18321.6	18622.8	18727.9	18902.1	19061.6	19456.1	19409.1	19594.1	19640.9
Public consumption	5356.3	5447.4	5522.7	5582.4	5628.9	5678.2	5727.9	5777.9	5831.6	5881.3	5930.7	5980.0
GFCF	7399.0	7455.2	7523.6	7756.5	7866.9	7896.2	8077.3	8149.4	8472.2	8167.3	8315.2	8148.6
Exports of goods and services	8006.6	8131.7	8333.4	8121.6	8221.1	8284.8	8464.4	8595.7	9066.2	8769.7	9112.6	9438.2
Goods	5871.1	5990.1	6080.1	6016.6	6037.5	6090.9	6252.0	6311.8	6710.2	6396.5	6733.7	6869.5
Services	2136.7	2141.0	2256.7	2102.0	2183.9	2194.2	2212.3	2284.3	2356.0	2373.2	2379.0	2568.7
Imports of goods and services	10561.8	10826.9	10916.8	11131.4	11508.4	11587.8	11920.3	12170.6	12821.2	12154.0	12257.7	12468.3
Goods	8855.0	9217.0	9315.1	9414.0	9810.6	9902.4	10188.5	10427.6	10998.6	10314.0	10459.4	10627.8
Services	1702.7	1608.4	1600.6	1714.7	1697.3	1685.7	1732.2	1744.1	1822.7	1840.1	1798.3	1840.4
GDP	27790.8	28062.7	28604.6	28875.4	29113.0	29308.2	29558.2	29687.3	30232.2	30260.5	30863.6	30913.9
Deflator (2000=1)												
Private consumption (residents)	0.9380	0.9418	0.9481	0.9539	0.9565	0.9641	0.9696	0.9770	0.9846	0.9956	1.0064	1.0132
Public consumption	0.8782	0.8832	0.8899	0.8989	0.9096	0.9225	0.9380	0.9564	0.9769	0.9944	1.0086	1.0196
GFCF	0.9268	0.9377	0.9420	0.9423	0.9392	0.9524	0.9650	0.9710	0.9833	0.9947	1.0038	1.0188
Exports of goods and services	0.9445	0.9604	0.9443	0.9360	0.9374	0.9432	0.9483	0.9684	0.9716	0.9972	1.0097	1.0205
Goods	0.9551	0.9676	0.9417	0.9315	0.9341	0.9411	0.9460	0.9600	0.9674	0.9962	1.0112	1.0245
Services	0.9149	0.9406	0.9498	0.9502	0.9466	0.9491	0.9548	0.9915	0.9837	1.0000	1.0053	1.0100
Imports of goods and services	0.9366	0.9372	0.9273	0.9146	0.9017	0.9102	0.9333	0.9408	0.9728	0.9826	1.0126	1.0326
Goods	0.9300	0.9334	0.9230	0.9110	0.8968	0.9069	0.9333	0.9391	0.9711	0.9802	1.0151	1.0343
Services	0.9736	0.9598	0.9526	0.9357	0.9303	0.9295	0.9329	0.9506	0.9828	0.9959	0.9981	1.0230
GDP	0.9269	0.9376	0.9428	0.9509	0.9592	0.9682	0.9706	0.9836	0.9839	1.0009	1.0046	1.0102

MAIN EXPENDITURE COMPONENTS

	2001				2002				2003			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Private consumption (residents)	20168.8	20447.0	20510.4	20673.3	21077.8	21260.8	21545.1	21501.3	21692.9	21777.5	22052.7	22298.5
Public consumption	6195.3	6300.3	6411.4	6528.8	6653.2	6756.6	6837.5	6896.3	6936.0	6991.1	7060.0	7141.9
GFCF	8165.6	8546.7	8697.1	8809.0	8594.7	8687.0	8403.0	8156.7	8000.1	7900.0	7945.1	7889.2
Change in inventories	237.4	206.7	312.5	56.5	101.0	74.8	128.9	14.3	-34.7	-20.4	-5.4	41.6
Exports of goods and services	9430.6	9430.7	9112.0	9387.1	9222.6	9593.1	9550.4	9513.3	9761.2	9509.5	9730.3	9788.8
Goods	7004.0	6925.9	6644.8	6772.3	6651.8	7014.7	6933.3	6973.5	7210.5	7003.2	7111.4	7189.3
Services	2426.6	2504.8	2467.2	2614.8	2570.8	2578.4	2617.1	2539.8	2550.7	2506.3	2618.9	2599.5
Imports of goods and services	12696.6	12792.1	12594.6	12235.6	12241.1	12346.6	12409.2	12137.9	12168.5	11548.6	12089.5	12067.2
Goods	10856.8	10902.9	10773.7	10404.0	10397.3	10460.4	10602.7	10324.6	10408.5	9817.7	10331.2	10270.9
Services	1839.8	1889.2	1820.9	1831.5	1843.8	1886.2	1806.5	1813.3	1760.0	1730.9	1758.3	1796.4
GDP	31501.1	32139.2	32448.8	33219.1	33408.2	34025.7	34055.5	33944.1	34187.0	34609.1	34693.2	35092.8
Previous year prices (EUR million)												
Private consumption (residents)	19672.5	19827.6	19791.6	19844.9	20736.3	20746.3	20813.8	20588.7	21195.2	21204.2	21358.8	21446.1
Public consumption	6029.1	6078.5	6128.1	6178.0	6489.0	6524.9	6544.5	6547.8	6784.3	6782.0	6796.5	6828.0
GFCF	8017.9	8368.6	8474.3	8568.8	8510.7	8507.7	8146.4	7861.1	7886.4	7808.3	7876.4	7767.1
Change in inventories	243.1	215.9	332.3	60.9	105.3	79.6	141.0	16.3	-38.4	-22.7	-5.9	44.3
Exports of goods and services	9355.0	9234.6	9086.8	9371.8	9322.0	9578.0	9502.1	9498.6	9815.3	9626.0	9931.9	9971.2
Goods	6942.9	6752.5	6646.1	6806.2	6770.3	7051.6	6977.1	7044.4	7336.4	7172.0	7371.2	7443.3
Services	2412.1	2482.1	2440.7	2565.6	2551.7	2526.4	2525.0	2454.2	2479.0	2454.0	2560.6	2528.0
Imports of goods and services	12467.3	12567.2	12576.4	12533.9	12475.9	12549.8	12617.1	12327.4	12064.0	11872.9	12351.8	12423.3
Goods	10672.6	10725.5	10814.5	10753.7	10652.8	10705.6	10857.8	10577.2	10312.5	10148.5	10610.5	10661.0
Services	1794.8	1841.8	1761.9	1780.2	1823.1	1844.2	1759.2	1750.2	1751.5	1724.3	1741.3	1762.3
GDP	30850.3	31157.9	31236.7	31490.4	32687.4	32886.8	32530.7	32185.1	33578.8	33524.9	33605.9	33633.6
Chain-linked volume (reference year 2000)												
Private consumption (residents)	19672.5	19827.6	19791.6	19844.9	20061.2	20070.9	20136.2	19918.4	19904.8	19913.3	20058.4	20140.4
Public consumption	6029.1	6078.5	6128.1	6178.0	6228.2	6262.7	6281.6	6284.7	6262.8	6260.7	6274.1	6303.2
GFCF	8017.9	8368.6	8474.3	8568.8	8314.5	8311.6	7958.6	7679.9	7518.9	7444.5	7509.5	7405.3
Exports of goods and services	9355.0	9234.6	9086.8	9371.8	9244.1	9498.0	9422.6	9419.2	9738.8	9550.9	9854.4	9893.4
Goods	6942.9	6752.5	6646.1	6806.2	6721.0	7000.2	6926.2	6993.0	7354.2	7189.4	7389.2	7461.4
Services	2412.1	2482.1	2440.7	2565.6	2522.9	2497.9	2496.5	2426.6	2391.8	2367.8	2470.6	2439.1
Imports of goods and services	12467.3	12567.2	12576.4	12533.9	12432.8	12506.4	12573.4	12284.7	12226.7	12033.0	12518.4	12590.8
Goods	10672.6	10725.5	10814.5	10753.7	10659.9	10712.8	10865.1	10584.3	10568.4	10400.4	10873.8	10925.6
Services	1794.8	1841.8	1761.9	1780.2	1773.0	1793.6	1710.9	1702.1	1663.3	1637.5	1653.6	1673.6
GDP	30850.3	31157.9	31236.7	31490.4	31531.4	31723.7	31380.3	31046.9	31161.1	31111.1	31186.2	31211.9
Deflator (2000=1)												
Private consumption (residents)	1.0252	1.0312	1.0363	1.0417	1.0507	1.0593	1.0700	1.0795	1.0898	1.0936	1.0994	1.1072
Public consumption	1.0276	1.0365	1.0462	1.0568	1.0682	1.0789	1.0885	1.0973	1.1075	1.1167	1.1253	1.1331
GFCF	1.0184	1.0213	1.0263	1.0280	1.0337	1.0452	1.0558	1.0621	1.0640	1.0612	1.0580	1.0653
Exports of goods and services	1.0081	1.0212	1.0028	1.0016	0.9977	1.0100	1.0136	1.0100	1.0023	0.9957	0.9874	0.9894
Goods	1.0088	1.0257	0.9998	0.9950	0.9897	1.0021	1.0010	0.9972	0.9805	0.9741	0.9624	0.9635
Services	1.0060	1.0092	1.0108	1.0192	1.0190	1.0322	1.0483	1.0467	1.0664	1.0585	1.0600	1.0658
Imports of goods and services	1.0184	1.0179	1.0015	0.9762	0.9846	0.9872	0.9869	0.9880	0.9952	0.9597	0.9657	0.9584
Goods	1.0173	1.0165	0.9962	0.9675	0.9754	0.9764	0.9758	0.9755	0.9849	0.9440	0.9501	0.9401
Services	1.0251	1.0258	1.0335	1.0288	1.0399	1.0517	1.0559	1.0653	1.0582	1.0570	1.0633	1.0734
GDP	1.0211	1.0315	1.0388	1.0549	1.0595	1.0726	1.0853	1.0933	1.0971	1.1124	1.1125	1.1243

MAIN EXPENDITURE COMPONENTS

	2004				2005				2006			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Private consumption (residents)	22626.7	22948.1	23258.2	23490.0	23791.7	24156.1	24214.0	24545.0	24901.7	25193.9	25441.4	25610.7
Public consumption	7236.4	7354.1	7495.4	7660.8	7850.9	7984.4	8060.5	8078.4	8037.9	8024.7	8038.9	8080.8
GFCF	7989.5	8175.2	8214.9	8201.4	8170.0	8306.1	8258.7	8363.4	8398.5	8550.1	8310.9	8279.5
Change in inventories	100.8	195.2	203.5	238.3	177.9	87.9	160.9	124.6	280.8	-1.4	306.6	254.9
Exports of goods and services	10091.7	10376.8	10182.4	10301.8	10219.1	10548.4	10781.7	11017.9	11523.8	11948.1	12331.8	12550.1
Goods	7354.9	7471.1	7455.3	7532.6	7462.2	7704.8	7892.2	7965.0	8368.4	8699.1	8920.1	9066.8
Services	2736.8	2905.7	2727.1	2769.2	2756.9	2843.6	2889.5	3052.8	3155.4	3249.0	3411.7	3483.3
Imports of goods and services	12518.8	12952.9	13229.1	13512.6	13586.2	13781.7	14107.9	14298.2	15320.6	15026.5	15442.2	15149.9
Goods	10712.0	11090.2	11312.2	11484.5	11624.7	11719.2	12024.0	12039.5	13016.2	12703.9	13136.2	12764.0
Services	1806.8	1862.7	1916.8	2028.1	1961.4	2062.5	2084.0	2258.7	2304.3	2322.6	2306.0	2385.9
GDP	35526.4	36096.5	36125.3	36379.8	36623.3	37301.3	37367.9	37831.0	37822.2	38688.9	38987.5	39626.1
Previous year prices (EUR million)												
Private consumption (residents)	22291.7	22438.0	22606.1	22713.2	23456.7	23656.8	23434.8	23573.6	24375.5	24441.8	24520.0	24569.4
Public consumption	7115.1	7174.0	7241.6	7318.0	7633.7	7685.9	7702.5	7683.5	7943.4	7903.3	7880.1	7874.0
GFCF	7931.6	7994.7	7989.9	7892.3	8098.9	8192.5	7989.7	7999.8	8275.7	8320.6	8044.7	7937.5
Change in inventories	91.6	181.1	193.2	231.8	187.9	89.9	155.2	109.0	222.5	-1.0	214.7	174.7
Exports of goods and services	10107.4	10234.9	9991.5	10006.3	10138.8	10493.3	10537.0	10654.1	11280.8	11538.0	11726.6	11936.4
Goods	7409.0	7382.5	7337.9	7342.9	7401.9	7673.5	7691.6	7679.7	8207.5	8393.9	8428.9	8562.2
Services	2698.4	2852.5	2653.6	2663.4	2737.0	2819.8	2845.4	2974.4	3073.3	3144.1	3297.7	3374.2
Imports of goods and services	12422.8	12699.5	12850.1	13089.3	13419.3	13605.2	13472.8	13536.9	14613.7	14425.9	14605.0	14544.1
Goods	10650.2	10877.8	10987.5	11130.3	11503.2	11603.0	11482.6	11414.5	12385.6	12214.3	12410.9	12253.5
Services	1772.6	1821.7	1862.6	1959.0	1916.1	2002.3	1990.2	2122.4	2228.1	2211.6	2194.0	2290.6
GDP	35114.6	35323.2	35172.1	35072.4	36096.7	36513.2	36346.4	36483.1	37484.3	37776.7	37781.2	37947.9
Chain-linked volume (reference year 2000)												
Private consumption (residents)	20310.6	20443.9	20597.1	20694.7	20845.7	21023.5	20826.2	20949.5	21083.2	21140.5	21208.2	21250.9
Public consumption	6349.1	6401.7	6462.0	6530.2	6606.2	6651.4	6665.8	6649.4	6601.5	6568.2	6549.0	6543.8
GFCF	7467.6	7527.1	7522.6	7430.7	7444.4	7530.4	7344.0	7353.3	7419.1	7459.3	7212.0	7115.9
Exports of goods and services	10172.0	10300.3	10055.3	10070.2	10051.0	10402.4	10445.7	10561.8	10987.6	11238.1	11421.8	11626.2
Goods	7637.6	7610.3	7564.3	7569.5	7542.8	7819.6	7838.1	7825.9	8208.1	8394.5	8429.5	8562.8
Services	2539.3	2684.2	2497.1	2506.3	2512.9	2589.0	2612.4	2730.9	2781.0	2845.1	2984.1	3053.4
Imports of goods and services	12810.7	13096.1	13251.4	13498.0	13533.1	13720.6	13587.1	13651.7	14277.9	14094.4	14269.4	14210.0
Goods	11156.3	11394.7	11509.6	11659.1	11792.4	11894.6	11771.2	11701.4	12320.8	12150.5	12346.0	12189.5
Services	1667.5	1713.7	1752.1	1842.9	1755.4	1834.4	1823.3	1944.5	1959.4	1944.9	1929.5	2014.4
GDP	31589.6	31777.3	31641.4	31551.7	31696.8	32062.5	31916.0	32036.0	32102.0	32352.5	32356.4	32499.1
Deflator (2000=1)												
Private consumption (residents)	1.1140	1.1225	1.1292	1.1351	1.1413	1.1490	1.1627	1.1716	1.1811	1.1917	1.1996	1.2052
Public consumption	1.1398	1.1488	1.1599	1.1731	1.1884	1.2004	1.2092	1.2149	1.2176	1.2218	1.2275	1.2349
GFCF	1.0699	1.0861	1.0920	1.1037	1.0975	1.1030	1.1245	1.1374	1.1320	1.1462	1.1524	1.1635
Exports of goods and services	0.9921	1.0074	1.0126	1.0230	1.0167	1.0140	1.0322	1.0432	1.0488	1.0632	1.0797	1.0795
Goods	0.9630	0.9817	0.9856	0.9951	0.9893	0.9853	1.0069	1.0178	1.0195	1.0363	1.0582	1.0589
Services	1.0778	1.0825	1.0921	1.1049	1.0971	1.0984	1.1061	1.1179	1.1346	1.1420	1.1433	1.1408
Imports of goods and services	0.9772	0.9891	0.9983	1.0011	1.0039	1.0045	1.0383	1.0474	1.0730	1.0661	1.0822	1.0661
Goods	0.9602	0.9733	0.9828	0.9850	0.9858	0.9853	1.0215	1.0289	1.0564	1.0456	1.0640	1.0471
Services	1.0836	1.0870	1.0940	1.1005	1.1173	1.1243	1.1429	1.1616	1.1760	1.1942	1.1951	1.1844
GDP	1.1246	1.1359	1.1417	1.1530	1.1554	1.1634	1.1708	1.1809	1.1782	1.1959	1.2049	1.2193

MAIN EXPENDITURE COMPONENTS

	2007			
	Q1	Q2	Q3	Q4
Current prices (EUR million)				
Private consumption (residents)	25948.8	26296.6	26482.9	26785.2
Public consumption	8150.2	8215.7	8276.8	8333.2
GFCF	8497.6	8671.9	8930.5	9243.3
Change in inventories	184.3	173.2	377.7	372.8
Exports of goods and services	13136.6	13287.4	13344.9	13583.2
Goods	9477.6	9534.9	9468.4	9654.6
Services	3659.0	3752.5	3876.5	3928.7
Imports of goods and services	15870.0	15944.4	16648.3	17019.4
Goods	13448.9	13483.0	14075.2	14418.3
Services	2421.1	2461.4	2573.1	2601.1
GDP	40047.5	40700.4	40764.5	41298.4
Previous year prices (EUR million)				
Private consumption (residents)	25541.3	25646.2	25723.9	25793.0
Public consumption	8033.3	8041.5	8045.0	8043.8
GFCF	8479.2	8557.5	8693.4	8893.4
Change in inventories	175.3	166.0	364.1	360.5
Exports of goods and services	12953.7	13024.0	12970.4	13133.5
Goods	9327.0	9329.6	9166.8	9335.6
Services	3626.7	3694.3	3803.5	3797.9
Imports of goods and services	15899.8	15906.4	16314.7	16508.7
Goods	13484.9	13483.1	13761.9	13968.1
Services	2414.9	2423.3	2552.8	2540.6
GDP	39283.1	39528.8	39481.9	39715.4
Chain-linked volume (reference year 2000)				
Private consumption (residents)	21383.6	21471.5	21536.5	21594.4
Public consumption	6555.6	6562.3	6565.1	6564.2
GFCF	7383.9	7452.0	7570.3	7744.5
Exports of goods and services	12128.5	12194.4	12144.2	12296.9
Goods	8938.7	8941.2	8785.2	8946.9
Services	3180.6	3239.9	3335.7	3330.7
Imports of goods and services	14833.3	14839.5	15220.4	15401.4
Goods	12802.2	12800.4	13065.2	13260.9
Services	2033.8	2040.9	2149.9	2139.6
GDP	32745.9	32950.7	32911.6	33106.3
Deflator (2000=1)				
Private consumption (residents)	1.2135	1.2247	1.2297	1.2404
Public consumption	1.2432	1.2520	1.2607	1.2695
GFCF	1.1508	1.1637	1.1797	1.1935
Exports of goods and services	1.0831	1.0896	1.0989	1.1046
Goods	1.0603	1.0664	1.0778	1.0791
Services	1.1504	1.1582	1.1621	1.1795
Imports of goods and services	1.0699	1.0745	1.0938	1.1051
Goods	1.0505	1.0533	1.0773	1.0873
Services	1.1905	1.2060	1.1968	1.2157
GDP	1.2230	1.2352	1.2386	1.2474

PRIVATE CONSUMPTION (RESIDENTS)

	1977				1978				1979			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Private consumption	576.5	614.0	649.8	674.0	706.3	734.1	779.1	829.7	857.4	905.6	970.8	1062.4
Durables	65.6	72.9	73.5	73.0	78.3	80.5	86.7	87.6	95.9	98.2	110.0	125.2
Non-durables	511.0	541.1	576.3	601.0	628.0	653.6	692.4	742.1	761.5	807.4	860.7	937.2
Previous year prices (EUR million)												
Private consumption					653.1	652.0	660.3	668.7	783.9	793.4	806.7	821.8
Durables					72.5	72.0	75.0	73.7	91.1	88.6	93.0	97.3
Non-durables					580.6	580.0	585.4	595.0	692.7	704.8	713.7	724.6
Chain-linked volume (reference year 2000)												
Private consumption					7707.1	7693.7	7792.5	7891.3	7990.9	8088.3	8224.0	8378.2
Durables					759.7	754.6	785.9	772.8	840.5	817.8	857.9	897.5
Non-durables					6981.1	6973.3	7038.0	7153.6	7178.7	7303.1	7396.2	7508.4
Deflator (2000=1)												
Private consumption					0.0916	0.0954	0.1000	0.1051	0.1073	0.1120	0.1180	0.1268
Durables					0.1031	0.1067	0.1103	0.1134	0.1141	0.1201	0.1283	0.1395
Non-durables					0.0900	0.0937	0.0984	0.1037	0.1061	0.1106	0.1164	0.1248

GROSS FIXED CAPITAL FORMATION

	1977				1978				1979			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Gross fixed capital formation	263.0	297.0	304.4	313.5	301.2	323.5	344.1	378.6	428.9	482.9	525.9	532.6
Machinery and equipment	51.5	68.1	73.6	80.3	78.2	85.8	88.5	85.2	89.0	99.6	112.7	118.1
Transport material	36.7	40.6	41.4	43.6	42.6	45.1	43.0	46.0	44.7	49.0	49.0	53.1
Construction	142.7	148.2	148.6	146.5	140.3	149.0	169.9	204.7	252.4	285.8	311.9	306.4
Others	32.1	40.0	40.8	43.2	40.1	43.5	42.7	42.7	42.9	48.5	52.3	54.9
Previous year prices (EUR million)												
Gross fixed capital formation					273.8	279.3	279.8	288.1	370.7	394.6	407.7	388.4
Machinery and equipment					70.9	75.0	73.6	67.5	79.3	85.7	91.5	88.7
Transport material					36.0	35.3	30.8	30.2	36.2	37.6	35.7	36.8
Construction					131.9	132.8	142.5	159.8	219.2	232.0	240.0	223.3
Others					35.1	36.1	32.9	30.6	36.0	39.2	40.4	39.6
Chain-linked volume (reference year 2000)												
Gross fixed capital formation					2964.4	3023.9	3029.7	3119.5	3339.1	3554.5	3672.5	3498.9
Machinery and equipment					485.5	513.6	504.3	462.3	461.6	499.0	533.0	516.3
Transport material					294.8	289.7	252.8	247.4	222.3	231.0	219.4	225.7
Construction					1878.9	1892.5	2029.8	2277.0	2667.2	2822.9	2919.9	2717.6
Others					441.7	455.1	414.2	385.6	361.0	393.8	405.7	397.6
Deflator (2000=1)												
Gross fixed capital formation					0.1016	0.1070	0.1136	0.1214	0.1285	0.1359	0.1432	0.1522
Machinery and equipment					0.1611	0.1671	0.1754	0.1842	0.1927	0.1995	0.2114	0.2288
Transport material					0.1444	0.1558	0.1703	0.1859	0.2011	0.2121	0.2234	0.2354
Construction					0.0747	0.0787	0.0837	0.0899	0.0946	0.1012	0.1068	0.1128
Others					0.0909	0.0956	0.1031	0.1108	0.1189	0.1233	0.1288	0.1381

PRIVATE CONSUMPTION (RESIDENTS)

	1980				1981				1982			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Private consumption	1142.0	1225.2	1289.5	1348.3	1427.1	1500.8	1594.1	1678.9	1753.5	1843.0	1910.1	1981.9
Durables	144.9	155.9	174.3	179.2	187.8	195.5	198.0	209.3	205.4	224.1	221.0	227.8
Non-durables	997.1	1069.3	1115.2	1169.1	1239.3	1305.4	1396.0	1469.6	1548.1	1618.9	1689.1	1754.1
Previous year prices (EUR million)												
Private consumption	1005.9	1029.5	1045.8	1054.0	1274.7	1285.9	1291.8	1299.1	1580.0	1594.6	1597.8	1595.4
Durables	119.8	122.2	128.6	127.1	165.0	164.5	158.3	160.2	189.3	198.3	189.1	188.8
Non-durables	886.1	907.3	917.2	926.9	1109.7	1121.4	1133.6	1138.9	1390.7	1396.3	1408.7	1406.7
Chain-linked volume (reference year 2000)												
Private consumption	8659.6	8863.1	9003.5	9073.6	9066.9	9146.4	9188.6	9240.3	9336.4	9422.9	9441.6	9427.6
Durables	952.5	971.7	1022.3	1010.2	997.7	995.1	957.2	968.7	938.3	982.9	937.2	935.6
Non-durables	7733.8	7919.2	8005.9	8090.2	8098.2	8183.0	8272.0	8311.1	8447.7	8481.8	8557.0	8544.6
Deflator (2000=1)												
Private consumption	0.1319	0.1382	0.1432	0.1486	0.1574	0.1641	0.1735	0.1817	0.1878	0.1956	0.2023	0.2102
Durables	0.1521	0.1604	0.1705	0.1774	0.1882	0.1964	0.2069	0.2160	0.2189	0.2280	0.2358	0.2435
Non-durables	0.1289	0.1350	0.1393	0.1445	0.1530	0.1595	0.1688	0.1768	0.1833	0.1909	0.1974	0.2053

GROSS FIXED CAPITAL FORMATION

	1980				1981				1982			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Gross fixed capital formation	530.4	538.8	559.3	611.0	702.3	760.3	814.0	831.0	874.2	904.3	927.5	945.8
Machinery and equipment	133.4	144.0	154.2	166.3	183.5	191.2	212.1	211.4	224.3	236.4	240.5	237.7
Transport material	53.8	58.1	64.1	69.9	87.8	92.8	98.0	98.5	94.1	95.5	95.3	96.1
Construction	284.0	272.5	272.9	301.3	344.1	384.5	404.6	422.6	458.3	466.8	485.9	505.4
Others	59.1	64.2	68.1	73.5	86.8	91.8	99.2	98.4	97.4	105.6	105.8	106.6
Previous year prices (EUR million)												
Gross fixed capital formation	462.2	438.1	445.5	464.6	618.3	635.9	666.5	675.1	798.8	786.4	777.6	764.1
Machinery and equipment	114.4	113.9	122.0	128.5	168.4	168.2	184.8	185.4	203.0	200.3	197.7	191.8
Transport material	48.2	48.9	53.0	54.9	76.4	76.4	79.9	82.4	91.0	90.1	88.6	87.8
Construction	246.2	222.3	213.2	222.3	297.8	317.0	321.0	325.6	413.3	404.2	400.8	396.3
Others	53.4	53.0	57.3	59.0	75.6	74.3	80.8	81.7	91.6	91.8	90.5	88.2
Chain-linked volume (reference year 2000)												
Gross fixed capital formation	3299.6	3127.5	3180.4	3316.4	3568.0	3670.0	3846.6	3896.1	3851.0	3790.9	3748.6	3683.4
Machinery and equipment	548.4	545.8	584.6	615.7	646.4	645.8	709.4	711.7	689.9	680.8	671.8	651.8
Transport material	221.0	224.4	243.2	251.6	292.1	291.9	305.5	315.0	290.7	287.6	283.1	280.4
Construction	2369.0	2138.9	2051.4	2138.9	2291.0	2438.5	2469.4	2504.9	2577.6	2521.3	2499.8	2471.9
Others	418.9	415.9	449.6	462.5	498.6	490.1	532.7	538.5	501.3	502.2	495.5	482.7
Deflator (2000=1)												
Gross fixed capital formation	0.1607	0.1723	0.1759	0.1842	0.1968	0.2072	0.2116	0.2133	0.2270	0.2386	0.2474	0.2568
Machinery and equipment	0.2433	0.2638	0.2637	0.2700	0.2839	0.2962	0.2990	0.2970	0.3252	0.3472	0.3580	0.3646
Transport material	0.2433	0.2591	0.2636	0.2779	0.3007	0.3177	0.3207	0.3128	0.3237	0.3321	0.3366	0.3429
Construction	0.1199	0.1274	0.1330	0.1408	0.1502	0.1577	0.1638	0.1687	0.1778	0.1851	0.1944	0.2044
Others	0.1412	0.1543	0.1515	0.1590	0.1742	0.1874	0.1863	0.1828	0.1943	0.2103	0.2135	0.2208

PRIVATE CONSUMPTION (RESIDENTS)

	1983				1984				1985			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Private consumption	2130.5	2244.4	2409.7	2587.1	2695.7	2858.1	3048.2	3114.5	3257.9	3376.3	3463.3	3625.5
Durables	259.2	265.3	278.2	287.5	282.7	299.8	329.7	334.2	352.6	362.3	374.6	393.2
Non-durables	1871.3	1979.1	2131.5	2299.6	2413.0	2558.4	2718.4	2780.3	2905.3	3013.9	3088.7	3232.3
Previous year prices (EUR million)												
Private consumption	1873.1	1864.7	1858.4	1842.6	2312.8	2307.5	2315.8	2313.3	2911.5	2923.3	2932.9	2976.3
Durables	225.5	219.8	215.4	207.9	252.8	255.2	265.5	262.9	310.4	308.0	309.8	316.0
Non-durables	1647.5	1644.9	1643.0	1634.7	2060.0	2052.3	2050.3	2050.3	2601.0	2615.3	2623.1	2660.3
Chain-linked volume (reference year 2000)												
Private consumption	9412.1	9370.1	9338.1	9258.7	9224.6	9203.3	9236.4	9226.4	9167.2	9204.3	9234.7	9371.1
Durables	974.4	949.6	930.5	898.2	870.1	878.3	913.8	905.0	888.5	881.6	886.7	904.4
Non-durables	8482.0	8468.5	8458.5	8415.7	8413.9	8382.4	8374.2	8374.2	8333.4	8378.9	8404.1	8523.2
Deflator (2000=1)												
Private consumption	0.2264	0.2395	0.2581	0.2794	0.2922	0.3106	0.3300	0.3376	0.3554	0.3668	0.3750	0.3869
Durables	0.2660	0.2794	0.2990	0.3201	0.3249	0.3413	0.3608	0.3692	0.3968	0.4110	0.4225	0.4348
Non-durables	0.2206	0.2337	0.2520	0.2733	0.2868	0.3052	0.3246	0.3320	0.3486	0.3597	0.3675	0.3792

GROSS FIXED CAPITAL FORMATION

	1983				1984				1985			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Gross fixed capital formation	1028.9	1091.1	1178.9	1164.9	1099.9	1191.3	1240.0	1328.4	1338.3	1362.3	1418.2	1495.7
Machinery and equipment	252.4	264.5	299.6	286.2	260.9	304.5	314.2	347.8	336.3	330.9	344.2	385.8
Transport material	111.3	113.7	119.9	118.0	99.1	97.3	99.0	105.4	106.8	104.7	114.7	123.2
Construction	545.4	588.7	616.5	634.6	633.8	676.3	711.5	746.4	766.9	797.1	820.1	825.4
Others	119.7	124.2	142.9	126.1	106.1	113.1	115.3	128.8	128.4	129.6	139.3	161.4
Previous year prices (EUR million)												
Gross fixed capital formation	917.3	922.3	913.3	833.7	975.6	1005.1	990.2	997.7	1201.2	1188.4	1207.6	1225.4
Machinery and equipment	231.0	232.3	234.7	197.1	225.2	251.6	243.8	250.2	305.0	300.9	305.2	323.3
Transport material	103.1	100.7	96.2	85.2	87.7	83.5	80.8	80.7	98.2	96.6	103.5	105.6
Construction	476.1	484.5	476.7	470.3	571.5	576.5	575.2	575.4	680.3	673.4	676.5	666.2
Others	107.0	104.8	105.8	81.1	91.2	93.6	90.3	91.5	117.6	117.6	122.3	130.3
Chain-linked volume (reference year 2000)												
Gross fixed capital formation	3786.4	3807.0	3770.2	3441.6	3235.9	3333.8	3284.1	3309.2	3253.5	3219.0	3270.9	3319.2
Machinery and equipment	662.9	666.6	673.4	565.8	524.6	586.0	568.0	582.7	562.0	554.4	562.3	595.6
Transport material	309.0	301.7	288.2	255.2	218.7	208.2	201.5	201.1	203.4	199.9	214.2	218.6
Construction	2502.0	2546.2	2505.2	2471.6	2401.8	2422.8	2417.4	2418.4	2374.1	2350.1	2361.1	2325.1
Others	510.7	499.8	504.5	387.0	338.4	347.0	334.8	339.2	345.0	344.8	358.8	382.2
Deflator (2000=1)												
Gross fixed capital formation	0.2717	0.2866	0.3127	0.3385	0.3399	0.3573	0.3776	0.4014	0.4114	0.4232	0.4336	0.4506
Machinery and equipment	0.3808	0.3968	0.4449	0.5058	0.4973	0.5196	0.5531	0.5969	0.5984	0.5969	0.6121	0.6477
Transport material	0.3603	0.3767	0.4159	0.4625	0.4530	0.4673	0.4912	0.5241	0.5249	0.5236	0.5353	0.5633
Construction	0.2180	0.2312	0.2461	0.2568	0.2639	0.2792	0.2943	0.3086	0.3230	0.3392	0.3473	0.3550
Others	0.2343	0.2485	0.2833	0.3259	0.3137	0.3260	0.3444	0.3798	0.3723	0.3757	0.3881	0.4223

PRIVATE CONSUMPTION (RESIDENTS)

	1986				1987				1988			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Private consumption	3825.9	4073.5	4208.7	4411.8	4526.5	4770.0	4894.8	5096.4	5477.1	5761.8	6059.2	6416.5
Durables	374.8	427.1	455.2	487.6	542.6	602.5	597.1	629.9	745.8	846.4	890.8	988.2
Non-durables	3451.1	3646.4	3753.5	3924.2	3983.9	4167.5	4297.7	4466.5	4731.3	4915.4	5168.4	5428.3
Previous year prices (EUR million)												
Private consumption	3529.6	3648.5	3692.5	3793.3	4306.2	4441.3	4459.1	4530.8	5141.5	5250.6	5322.6	5460.2
Durables	347.7	380.3	392.6	417.3	500.0	537.5	517.4	545.2	682.9	751.0	763.0	823.7
Non-durables	3181.9	3268.2	3299.8	3376.1	3806.3	3903.8	3941.7	3985.5	4458.6	4499.6	4559.6	4636.5
Chain-linked volume (reference year 2000)												
Private consumption	9510.7	9831.1	9949.6	10221.4	10299.7	10622.8	10665.4	10836.8	11309.1	11549.0	11707.3	12010.2
Durables	835.0	913.4	943.0	1002.2	1058.4	1137.9	1095.4	1154.3	1280.0	1407.6	1430.0	1543.9
Non-durables	8744.8	8981.9	9068.9	9278.4	9293.1	9531.3	9623.7	9730.7	10063.1	10155.6	10291.1	10464.7
Deflator (2000=1)												
Private consumption	0.4023	0.4143	0.4230	0.4316	0.4395	0.4490	0.4589	0.4703	0.4843	0.4989	0.5176	0.5343
Durables	0.4489	0.4676	0.4827	0.4866	0.5126	0.5295	0.5451	0.5457	0.5827	0.6013	0.6229	0.6401
Non-durables	0.3946	0.4060	0.4139	0.4229	0.4287	0.4372	0.4466	0.4590	0.4702	0.4840	0.5022	0.5187

GROSS FIXED CAPITAL FORMATION

	1986				1987				1988			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Gross fixed capital formation	1469.7	1597.0	1668.1	1821.8	1934.0	2100.5	2191.7	2379.9	2529.4	2707.6	2863.6	2978.9
Machinery and equipment	371.3	436.6	456.0	517.9	536.7	597.9	642.0	700.5	751.3	799.1	851.1	856.5
Transport material	134.9	153.3	179.7	198.4	230.9	255.5	233.7	274.3	283.1	303.1	313.3	341.5
Construction	808.1	819.0	832.4	875.4	927.2	978.1	1036.6	1094.9	1148.4	1239.0	1302.7	1373.5
Others	155.4	188.1	200.0	230.1	239.2	269.0	279.5	310.2	346.5	366.4	396.5	407.4
Previous year prices (EUR million)												
Gross fixed capital formation	1395.4	1440.3	1492.1	1555.0	1839.3	1944.7	2020.0	2107.6	2384.3	2494.1	2525.9	2604.0
Machinery and equipment	355.1	394.3	412.7	445.6	518.6	570.0	619.1	634.2	709.6	736.4	741.7	752.3
Transport material	129.4	138.6	160.5	166.1	214.0	229.6	209.5	232.4	266.7	282.3	282.3	310.4
Construction	769.0	750.1	751.8	766.8	877.6	895.8	928.0	968.5	1087.8	1140.9	1162.1	1184.2
Others	142.0	157.4	167.2	176.5	229.1	249.3	263.4	272.5	320.2	334.5	339.8	357.1
Chain-linked volume (reference year 2000)												
Gross fixed capital formation	3246.6	3350.9	3471.5	3617.8	3839.5	4059.5	4216.7	4399.7	4575.6	4786.2	4847.4	4997.1
Machinery and equipment	578.0	641.8	671.7	725.3	761.6	837.1	909.3	931.5	985.3	1022.5	1029.9	1044.6
Transport material	240.8	257.9	298.7	309.1	355.4	381.4	347.9	385.9	394.5	417.5	417.5	459.0
Construction	2254.7	2199.3	2204.4	2248.3	2343.9	2392.5	2478.4	2586.7	2641.2	2770.1	2821.7	2875.2
Others	363.7	403.1	428.2	452.1	487.8	530.7	560.8	580.2	629.8	658.0	668.3	702.4
Deflator (2000=1)												
Gross fixed capital formation	0.4527	0.4766	0.4805	0.5036	0.5037	0.5174	0.5198	0.5409	0.5528	0.5657	0.5908	0.5961
Machinery and equipment	0.6424	0.6803	0.6788	0.7140	0.7047	0.7143	0.7060	0.7521	0.7625	0.7815	0.8264	0.8200
Transport material	0.5602	0.5943	0.6017	0.6418	0.6497	0.6699	0.6717	0.7108	0.7177	0.7261	0.7504	0.7440
Construction	0.3584	0.3724	0.3776	0.3894	0.3956	0.4088	0.4182	0.4233	0.4348	0.4473	0.4617	0.4777
Others	0.4272	0.4667	0.4670	0.5088	0.4903	0.5069	0.4984	0.5346	0.5502	0.5569	0.5933	0.5799

PRIVATE CONSUMPTION (RESIDENTS)

	1989				1990				1991			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Private consumption	6528.4	6711.2	6991.5	7195.9	7589.6	7993.0	8404.3	8802.1	9265.2	9722.9	10129.9	10431.1
Durables	979.7	901.0	931.1	956.1	1018.0	1072.5	1141.6	1172.9	1241.6	1303.0	1383.8	1391.5
Non-durables	5548.7	5810.1	6060.4	6239.8	6571.6	6920.5	7262.8	7629.3	8023.5	8419.9	8746.1	9039.6
Previous year prices (EUR million)												
Private consumption	6062.1	6107.9	6205.0	6294.8	7173.3	7345.7	7529.5	7673.5	8682.8	8911.1	9106.9	9210.4
Durables	937.5	860.2	872.0	879.2	989.6	1018.1	1066.6	1077.0	1189.7	1234.4	1302.2	1294.8
Non-durables	5124.6	5247.7	5333.0	5415.6	6183.7	6327.6	6462.9	6596.5	7493.2	7676.7	7804.7	7915.6
Chain-linked volume (reference year 2000)												
Private consumption	11905.9	11995.9	12186.7	12363.0	12672.1	12976.8	13301.3	13555.8	13904.0	14269.6	14583.2	14748.9
Durables	1529.0	1403.0	1422.2	1433.9	1520.2	1564.0	1638.5	1654.5	1722.3	1787.1	1885.3	1874.6
Non-durables	10372.6	10621.8	10794.6	10961.7	11173.5	11433.7	11678.1	11919.5	12197.7	12496.5	12704.8	12885.3
Deflator (2000=1)												
Private consumption	0.5483	0.5595	0.5737	0.5821	0.5989	0.6159	0.6318	0.6493	0.6664	0.6814	0.6946	0.7072
Durables	0.6408	0.6422	0.6547	0.6668	0.6696	0.6857	0.6967	0.7089	0.7209	0.7291	0.7340	0.7423
Non-durables	0.5349	0.5470	0.5614	0.5692	0.5881	0.6053	0.6219	0.6401	0.6578	0.6738	0.6884	0.7015

GROSS FIXED CAPITAL FORMATION

	1989				1990				1991			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Gross fixed capital formation	3017.3	3105.4	3214.3	3352.2	3451.0	3584.5	3703.1	3803.0	3849.9	3930.8	4113.2	4244.5
Machinery and equipment	843.6	885.8	917.8	972.3	1024.4	1037.3	1108.3	1129.1	1164.5	1161.1	1172.9	1177.0
Transport material	319.9	306.4	331.5	362.7	347.8	370.9	348.3	382.5	351.3	384.8	397.0	404.9
Construction	1459.6	1503.3	1537.5	1558.2	1611.0	1699.3	1745.7	1771.5	1806.7	1851.2	1988.4	2105.2
Others	394.2	409.9	427.4	459.0	467.9	477.0	500.8	520.0	527.3	533.6	554.8	557.5
Previous year prices (EUR million)												
Gross fixed capital formation	2810.0	2845.4	2835.0	2911.5	3260.8	3345.2	3386.1	3457.1	3682.6	3709.2	3803.7	3883.9
Machinery and equipment	792.0	826.5	842.2	900.1	1011.8	1037.6	1097.3	1144.4	1126.8	1131.4	1139.8	1142.7
Transport material	300.5	294.4	291.5	311.7	339.2	359.1	332.5	362.0	364.2	393.3	390.6	398.0
Construction	1349.0	1341.8	1322.6	1296.9	1468.3	1499.4	1492.5	1460.6	1665.4	1647.1	1725.4	1791.7
Others	368.4	382.7	378.7	402.8	441.5	449.1	463.9	490.0	526.2	537.5	547.9	551.5
Chain-linked volume (reference year 2000)												
Gross fixed capital formation	4871.0	4932.4	4914.4	5047.0	5079.2	5210.5	5274.3	5384.8	5305.2	5343.5	5479.6	5595.1
Machinery and equipment	992.4	1035.6	1055.2	1127.8	1177.1	1207.2	1276.6	1331.4	1308.5	1313.8	1323.6	1327.0
Transport material	408.9	400.5	396.6	424.1	418.7	443.3	410.4	446.9	432.0	466.6	463.3	472.1
Construction	2959.3	2943.5	2901.5	2845.0	2823.3	2883.0	2869.7	2808.5	2776.9	2746.3	2877.0	2987.5
Others	645.7	670.7	663.7	706.0	701.5	713.6	737.0	778.6	784.6	801.4	816.9	822.3
Deflator (2000=1)												
Gross fixed capital formation	0.6194	0.6296	0.6540	0.6642	0.6794	0.6879	0.7021	0.7062	0.7257	0.7356	0.7506	0.7586
Machinery and equipment	0.8501	0.8554	0.8698	0.8622	0.8702	0.8593	0.8682	0.8480	0.8899	0.8838	0.8862	0.8870
Transport material	0.7823	0.7650	0.8357	0.8553	0.8305	0.8367	0.8487	0.8557	0.8132	0.8248	0.8568	0.8576
Construction	0.4932	0.5107	0.5299	0.5477	0.5706	0.5894	0.6083	0.6308	0.6506	0.6741	0.6911	0.7047
Others	0.6105	0.6112	0.6441	0.6501	0.6669	0.6684	0.6794	0.6678	0.6721	0.6658	0.6792	0.6780

PRIVATE CONSUMPTION (RESIDENTS)

	1992				1993				1994			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Private consumption	10710.1	11167.3	11371.1	11628.6	11811.0	11916.4	12216.7	12468.1	12614.1	12921.5	13105.0	13384.3
Durables	1488.2	1585.7	1536.4	1639.0	1557.5	1513.1	1535.6	1523.8	1571.7	1617.0	1582.8	1692.4
Non-durables	9221.9	9581.6	9834.7	9989.6	10253.5	10403.3	10681.1	10944.3	11042.4	11304.5	11522.2	11691.9
Previous year prices (EUR million)												
Private consumption	10248.4	10416.8	10471.0	10611.3	11457.5	11427.4	11507.3	11516.8	12066.8	12192.9	12207.5	12303.6
Durables	1461.1	1529.1	1461.0	1532.8	1496.1	1430.0	1422.7	1389.8	1501.3	1529.8	1478.1	1555.1
Non-durables	8787.3	8887.7	9010.0	9078.5	9961.3	9997.4	10084.6	10126.9	10565.4	10663.1	10729.4	10748.5
Chain-linked volume (reference year 2000)												
Private consumption	14901.5	15146.4	15225.2	15429.2	15497.7	15457.1	15565.2	15577.9	15477.9	15639.7	15658.5	15781.7
Durables	1996.4	2089.3	1996.4	2094.4	1957.5	1871.0	1861.5	1818.5	1838.9	1873.8	1810.5	1904.8
Non-durables	12909.0	13056.5	13236.0	13336.8	13548.5	13597.6	13716.2	13773.8	13652.4	13778.6	13864.3	13889.0
Deflator (2000=1)												
Private consumption	0.7187	0.7373	0.7469	0.7537	0.7621	0.7709	0.7849	0.8004	0.8150	0.8262	0.8369	0.8481
Durables	0.7454	0.7589	0.7696	0.7826	0.7957	0.8087	0.8250	0.8380	0.8547	0.8630	0.8743	0.8885
Non-durables	0.7144	0.7339	0.7430	0.7490	0.7568	0.7651	0.7787	0.7946	0.8088	0.8204	0.8311	0.8418

GROSS FIXED CAPITAL FORMATION

	1992				1993				1994			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Gross fixed capital formation	4491.6	4573.1	4618.4	4538.3	4332.3	4413.9	4182.3	4199.0	4294.2	4395.9	4373.9	4840.1
Machinery and equipment	1163.7	1157.7	1174.1	1150.0	1096.0	1180.6	1103.4	1110.6	1094.0	1048.4	1007.5	1060.3
Transport material	449.7	457.2	447.6	412.6	389.4	396.6	353.3	365.8	384.9	435.1	387.8	581.4
Construction	2288.8	2370.1	2397.8	2410.2	2327.3	2278.7	2205.5	2185.8	2233.9	2321.3	2411.1	2539.4
Others	589.4	588.0	598.9	565.4	519.6	558.0	520.0	536.7	581.3	591.1	567.5	659.1
Previous year prices (EUR million)												
Gross fixed capital formation	4373.7	4431.7	4428.0	4296.5	4266.9	4270.3	4011.7	3934.5	4172.0	4256.8	4240.6	4626.9
Machinery and equipment	1184.6	1205.0	1235.3	1206.7	1129.8	1180.9	1111.7	1079.7	1043.9	1002.9	983.1	1012.1
Transport material	440.2	437.9	424.2	386.8	392.3	402.8	352.7	347.3	388.8	436.2	387.2	570.5
Construction	2177.9	2213.1	2195.3	2167.6	2227.4	2146.3	2042.0	2007.6	2168.6	2234.6	2298.8	2386.6
Others	571.0	575.7	573.2	535.3	517.3	540.3	505.2	499.8	570.7	583.1	571.5	657.7
Chain-linked volume (reference year 2000)												
Gross fixed capital formation	5887.4	5965.4	5960.3	5783.3	5525.5	5530.0	5195.1	5095.1	5199.5	5305.2	5285.0	5766.5
Machinery and equipment	1335.9	1358.9	1393.1	1360.8	1325.2	1385.1	1303.9	1266.4	1227.5	1179.4	1156.0	1190.1
Transport material	525.0	522.2	505.9	461.3	447.2	459.1	402.1	395.9	440.3	493.9	438.4	646.1
Construction	3199.6	3251.2	3225.0	3184.4	3025.8	2915.7	2774.0	2727.3	2758.0	2842.0	2923.6	3035.3
Others	847.3	854.4	850.7	794.4	739.3	772.1	722.1	714.3	788.2	805.3	789.4	908.3
Deflator (2000=1)												
Gross fixed capital formation	0.7629	0.7666	0.7748	0.7847	0.7841	0.7982	0.8050	0.8241	0.8259	0.8286	0.8276	0.8393
Machinery and equipment	0.8711	0.8519	0.8428	0.8451	0.8271	0.8524	0.8462	0.8770	0.8912	0.8890	0.8715	0.8909
Transport material	0.8565	0.8756	0.8849	0.8945	0.8707	0.8638	0.8787	0.9238	0.8741	0.8808	0.8846	0.8998
Construction	0.7153	0.7290	0.7435	0.7569	0.7692	0.7815	0.7951	0.8015	0.8100	0.8168	0.8247	0.8366
Others	0.6956	0.6883	0.7041	0.7117	0.7028	0.7227	0.7201	0.7514	0.7376	0.7340	0.7190	0.7256

PRIVATE CONSUMPTION (RESIDENTS)

	1995				1996				1997			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Private consumption	13641.2	13963.0	13917.8	14090.5	14438.4	14575.1	14914.0	15105.6	15411.8	15498.9	15917.8	16124.6
Durables	1618.9	1744.1	1705.9	1632.3	1776.1	1772.7	1871.6	1880.4	1944.5	1944.2	2046.9	2055.1
Non-durables	12022.2	12218.9	12211.9	12458.2	12662.3	12802.5	13042.4	13225.2	13467.3	13554.7	13870.9	14069.5
Previous year prices (EUR million)												
Private consumption	13151.5	13336.0	13217.4	13279.9	14173.9	14210.3	14451.0	14527.6	15099.6	15143.1	15429.4	15524.4
Durables	1569.7	1664.4	1616.1	1534.1	1752.1	1738.3	1829.4	1823.0	1914.1	1907.2	2005.0	2003.5
Non-durables	11581.8	11671.6	11601.3	11745.8	12421.8	12471.9	12621.7	12704.6	13185.5	13235.8	13424.3	13520.9
Chain-linked volume (reference year 2000)												
Private consumption	15814.1	16035.9	15893.4	15968.6	16238.2	16279.9	16555.7	16643.4	16809.2	16857.6	17176.4	17282.1
Durables	1803.8	1912.6	1857.1	1762.9	1918.2	1903.1	2002.7	1995.8	2050.1	2042.8	2147.6	2145.9
Non-durables	14028.1	14136.9	14051.7	14226.8	14334.7	14392.6	14565.4	14661.0	14771.2	14827.6	15038.8	15146.9
Deflator (2000=1)												
Private consumption	0.8626	0.8707	0.8757	0.8824	0.8892	0.8953	0.9008	0.9076	0.9169	0.9194	0.9267	0.9330
Durables	0.8975	0.9119	0.9186	0.9259	0.9259	0.9315	0.9345	0.9422	0.9485	0.9517	0.9531	0.9577
Non-durables	0.8570	0.8643	0.8691	0.8757	0.8833	0.8895	0.8954	0.9021	0.9117	0.9142	0.9223	0.9289

GROSS FIXED CAPITAL FORMATION

	1995				1996				1997			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Gross fixed capital formation	4690.5	4821.8	4786.8	4859.5	4874.7	5039.0	5361.5	5565.8	5902.5	6085.8	6329.3	6374.3
Machinery and equipment	1104.1	1128.7	1127.9	1181.0	1199.5	1205.7	1254.2	1275.0	1365.4	1405.5	1467.2	1479.0
Transport material	381.3	451.6	431.8	458.6	462.0	485.6	539.8	541.1	599.1	646.9	687.4	725.7
Construction	2617.2	2645.2	2620.7	2603.6	2581.0	2704.4	2902.8	3063.1	3234.9	3304.0	3410.5	3372.9
Others	588.0	596.3	606.4	616.2	632.2	643.3	664.7	686.6	703.1	729.3	764.1	796.7
Previous year prices (EUR million)												
Gross fixed capital formation	4593.8	4692.9	4621.2	4651.0	4761.0	4921.7	5183.6	5371.7	5750.2	5905.9	6034.9	6125.9
Machinery and equipment	1101.4	1111.4	1114.1	1168.7	1156.8	1145.6	1175.9	1222.8	1340.0	1367.9	1391.4	1470.2
Transport material	366.8	449.5	417.3	432.3	450.9	508.0	552.4	538.9	568.8	643.7	664.6	708.9
Construction	2540.4	2547.5	2512.4	2463.9	2526.0	2637.5	2818.4	2954.4	3157.8	3194.7	3263.6	3207.1
Others	585.2	584.6	577.3	586.0	627.3	630.6	636.9	655.5	683.6	699.6	715.3	739.6
Chain-linked volume (reference year 2000)												
Gross fixed capital formation	5530.9	5650.2	5563.8	5599.7	5552.7	5740.1	6045.6	6265.0	6512.4	6688.7	6834.8	6937.8
Machinery and equipment	1243.4	1254.7	1257.7	1319.4	1292.7	1280.2	1314.0	1366.5	1426.6	1456.3	1481.4	1565.3
Transport material	413.9	507.1	470.9	487.8	491.9	554.2	602.6	587.9	627.1	709.7	732.7	781.5
Construction	3089.1	3097.7	3055.1	2996.1	2947.8	3078.0	3289.0	3447.8	3582.0	3623.8	3702.0	3637.9
Others	802.8	802.0	792.0	803.9	834.1	838.5	846.9	871.7	882.6	903.3	923.5	954.9
Deflator (2000=1)												
Gross fixed capital formation	0.8481	0.8534	0.8604	0.8678	0.8779	0.8779	0.8869	0.8884	0.9064	0.9099	0.9260	0.9188
Machinery and equipment	0.8879	0.8996	0.8968	0.8951	0.9279	0.9418	0.9545	0.9330	0.9571	0.9651	0.9904	0.9449
Transport material	0.9213	0.8904	0.9170	0.9401	0.9394	0.8763	0.8959	0.9204	0.9554	0.9115	0.9382	0.9286
Construction	0.8472	0.8539	0.8578	0.8690	0.8756	0.8786	0.8826	0.8884	0.9031	0.9118	0.9213	0.9271
Others	0.7324	0.7435	0.7657	0.7666	0.7579	0.7672	0.7848	0.7876	0.7966	0.8074	0.8275	0.8343

PRIVATE CONSUMPTION (RESIDENTS)

	1998				1999				2000			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Private consumption	16417.4	16706.8	17036.5	17477.1	17813.1	18055.9	18327.3	18623.3	19155.6	19324.6	19719.5	19900.5
Durables	2192.3	2272.6	2401.8	2509.7	2640.9	2697.3	2674.4	2620.2	2869.3	2751.8	2794.4	2819.2
Non-durables	14225.1	14434.2	14634.7	14967.4	15172.1	15358.6	15652.9	16003.1	16286.3	16572.7	16925.1	17081.3
Previous year prices (EUR million)												
Private consumption	16173.3	16391.6	16605.4	16930.6	17609.0	17708.5	17873.2	18024.0	18813.9	18765.9	18944.8	18988.6
Durables	2181.1	2241.0	2361.5	2463.4	2627.1	2658.1	2634.6	2569.1	2837.0	2708.3	2728.7	2729.4
Non-durables	13992.3	14150.5	14243.9	14467.1	14982.0	15050.3	15238.6	15454.8	15976.9	16057.5	16216.0	16259.3
Chain-linked volume (reference year 2000)												
Private consumption	17502.1	17738.3	17969.7	18321.6	18622.8	18727.9	18902.1	19061.6	19456.1	19409.1	19594.1	19640.9
Durables	2289.1	2352.0	2478.4	2585.4	2719.1	2751.3	2726.9	2659.1	2896.0	2765.7	2786.2	2786.9
Non-durables	15219.9	15392.0	15493.6	15736.4	15902.7	15975.3	16175.1	16404.6	16560.1	16643.4	16807.9	16854.0
Deflator (2000=1)												
Private consumption	0.9380	0.9418	0.9481	0.9539	0.9565	0.9641	0.9696	0.9770	0.9846	0.9956	1.0064	1.0132
Durables	0.9577	0.9662	0.9691	0.9707	0.9713	0.9804	0.9807	0.9854	0.9908	0.9950	1.0029	1.0116
Non-durables	0.9346	0.9378	0.9446	0.9511	0.9541	0.9614	0.9677	0.9755	0.9835	0.9958	1.0070	1.0135

GROSS FIXED CAPITAL FORMATION

	1998				1999				2000			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Gross fixed capital formation	6857.4	6990.5	7087.6	7308.7	7388.7	7520.6	7794.6	7912.9	8330.7	8124.1	8346.6	8301.9
Machinery and equipment	1595.6	1727.1	1725.6	1714.6	1735.5	1787.7	1877.2	1887.9	1949.3	1965.4	2031.5	2019.3
Transport material	745.9	770.0	789.2	872.7	836.8	834.3	909.5	915.4	961.9	892.6	908.7	940.7
Construction	3669.1	3605.9	3650.7	3765.0	3795.3	3824.9	3914.2	3990.9	4269.0	4145.5	4274.5	4223.8
Others	846.8	887.6	922.1	956.4	1021.2	1073.7	1093.7	1118.7	1150.4	1120.5	1131.9	1118.1
Previous year prices (EUR million)												
Gross fixed capital formation	6773.0	6824.5	6887.2	7100.4	7373.4	7400.9	7570.7	7638.2	8106.5	7814.8	7959.6	7801.5
Machinery and equipment	1610.8	1682.9	1680.0	1726.6	1790.7	1809.5	1877.8	1935.8	1904.8	1883.4	1934.0	1898.3
Transport material	744.5	782.3	800.8	854.2	810.8	802.4	861.4	874.7	940.7	870.3	886.1	904.4
Construction	3604.6	3528.1	3561.1	3651.9	3791.4	3783.2	3828.0	3830.2	4150.3	3982.2	4065.0	3970.1
Others	813.1	831.3	845.3	867.7	980.6	1005.9	1003.5	997.5	1110.6	1078.9	1074.5	1028.8
Chain-linked volume (reference year 2000)												
Gross fixed capital formation	7399.0	7455.2	7523.6	7756.5	7866.9	7896.2	8077.3	8149.4	8472.2	8167.3	8315.2	8148.6
Machinery and equipment	1670.7	1745.4	1742.4	1790.8	1840.1	1859.4	1929.6	1989.2	1991.1	1968.6	2021.6	1984.2
Transport material	798.2	838.8	858.6	915.8	870.4	861.4	924.7	939.0	967.5	895.1	911.3	930.1
Construction	3935.6	3852.0	3888.1	3987.2	4042.3	4033.5	4081.4	4083.7	4344.0	4167.4	4250.7	4150.8
Others	995.4	1017.6	1034.8	1062.3	1115.5	1144.3	1141.6	1134.7	1169.6	1136.2	1131.6	1083.4
Deflator (2000=1)												
Gross fixed capital formation	0.9268	0.9377	0.9420	0.9423	0.9392	0.9524	0.9650	0.9710	0.9833	0.9947	1.0038	1.0188
Machinery and equipment	0.9551	0.9895	0.9903	0.9575	0.9432	0.9615	0.9729	0.9491	0.9790	0.9983	1.0049	1.0177
Transport material	0.9345	0.9180	0.9192	0.9530	0.9614	0.9686	0.9835	0.9749	0.9943	0.9973	0.9971	1.0114
Construction	0.9323	0.9361	0.9389	0.9443	0.9389	0.9483	0.9590	0.9773	0.9827	0.9948	1.0056	1.0176
Others	0.8507	0.8723	0.8911	0.9003	0.9155	0.9383	0.9580	0.9858	0.9835	0.9862	1.0002	1.0320

PRIVATE CONSUMPTION (RESIDENTS)

	2001				2002				2003			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Private consumption	20168.8	20447.0	20510.4	20673.3	21077.8	21260.8	21545.1	21501.3	21692.9	21777.5	22052.7	22298.5
Durables	2689.6	2737.0	2675.5	2607.3	2656.4	2702.8	2606.2	2470.0	2368.5	2373.4	2445.4	2475.1
Non-durables	17479.2	17710.0	17834.9	18066.0	18421.4	18558.0	18938.9	19031.3	19324.5	19404.2	19607.3	19823.4
Previous year prices (EUR million)												
Private consumption	19672.5	19827.6	19791.6	19844.9	20736.3	20746.3	20813.8	20588.7	21195.2	21204.2	21358.8	21446.1
Durables	2640.5	2671.0	2598.1	2530.2	2628.2	2665.5	2546.5	2398.6	2336.8	2339.6	2409.2	2434.1
Non-durables	17032.0	17156.7	17193.5	17314.7	18108.0	18080.8	18267.3	18190.0	18858.4	18864.6	18949.6	19012.0
Chain-linked volume (reference year 2000)												
Private consumption	19672.5	19827.6	19791.6	19844.9	20061.2	20070.9	20136.2	19918.4	19904.8	19913.3	20058.4	20140.4
Durables	2640.5	2671.0	2598.1	2530.2	2562.0	2598.4	2482.3	2338.2	2235.0	2237.7	2304.3	2328.0
Non-durables	17032.0	17156.7	17193.5	17314.7	17498.4	17472.1	17652.4	17577.7	17663.5	17669.3	17748.9	17807.4
Deflator (2000=1)												
Private consumption	1.0252	1.0312	1.0363	1.0417	1.0507	1.0593	1.0700	1.0795	1.0898	1.0936	1.0994	1.1072
Durables	1.0186	1.0247	1.0298	1.0305	1.0368	1.0402	1.0499	1.0564	1.0597	1.0606	1.0613	1.0632
Non-durables	1.0263	1.0323	1.0373	1.0434	1.0527	1.0622	1.0729	1.0827	1.0940	1.0982	1.1047	1.1132

GROSS FIXED CAPITAL FORMATION

	2001				2002				2003			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Gross fixed capital formation	8165.6	8546.7	8697.1	8809.0	8594.7	8687.0	8403.0	8156.7	8000.1	7900.0	7945.1	7889.2
Machinery and equipment	2088.8	2084.3	2031.7	2002.7	1941.3	1952.9	1885.6	1871.5	1798.6	1752.2	1802.0	1836.0
Transport material	811.4	870.4	841.0	815.9	752.5	733.7	729.1	673.2	639.6	662.8	673.2	650.3
Construction	4185.6	4469.2	4647.8	4753.1	4639.3	4694.6	4486.8	4313.4	4274.3	4210.3	4214.9	4140.8
Others	1079.8	1122.8	1176.6	1237.2	1261.6	1305.8	1301.4	1298.7	1287.6	1274.7	1255.0	1262.1
Previous year prices (EUR million)												
Gross fixed capital formation	8017.9	8368.6	8474.3	8568.8	8510.7	8507.7	8146.4	7861.1	7886.4	7808.3	7876.4	7767.1
Machinery and equipment	2069.1	2078.1	2072.0	2110.5	1969.0	1961.8	1906.2	1896.3	1834.8	1805.0	1881.6	1924.4
Transport material	787.3	846.4	806.6	773.8	766.7	735.8	688.8	657.9	636.8	653.9	667.6	648.4
Construction	4117.5	4362.6	4472.0	4528.5	4538.2	4532.4	4293.9	4084.2	4158.7	4110.0	4119.3	4012.9
Others	1044.0	1081.5	1123.7	1156.0	1236.8	1277.7	1257.6	1222.7	1256.0	1239.5	1208.0	1181.4
Chain-linked volume (reference year 2000)												
Gross fixed capital formation	8017.9	8368.6	8474.3	8568.8	8314.5	8311.6	7958.6	7679.9	7518.9	7444.5	7509.5	7405.3
Machinery and equipment	2069.1	2078.1	2072.0	2110.5	1998.3	1991.0	1934.5	1924.5	1882.1	1851.5	1930.0	1974.0
Transport material	787.3	846.4	806.6	773.8	738.1	708.3	663.0	633.3	604.7	620.9	633.9	615.7
Construction	4117.5	4362.6	4472.0	4528.5	4393.6	4388.1	4157.1	3954.1	3874.1	3828.7	3837.4	3738.3
Others	1044.0	1081.5	1123.7	1156.0	1180.3	1219.3	1200.1	1166.7	1158.5	1143.3	1114.2	1089.7
Deflator (2000=1)												
Gross fixed capital formation	1.0184	1.0213	1.0263	1.0280	1.0337	1.0452	1.0558	1.0621	1.0640	1.0612	1.0580	1.0653
Machinery and equipment	1.0095	1.0030	0.9806	0.9489	0.9715	0.9809	0.9747	0.9724	0.9556	0.9464	0.9337	0.9301
Transport material	1.0306	1.0283	1.0427	1.0545	1.0194	1.0358	1.0997	1.0629	1.0578	1.0675	1.0620	1.0561
Construction	1.0165	1.0244	1.0393	1.0496	1.0559	1.0698	1.0793	1.0909	1.1033	1.0997	1.0984	1.1077
Others	1.0342	1.0382	1.0471	1.0702	1.0689	1.0710	1.0844	1.1131	1.1114	1.1150	1.1264	1.1583

PRIVATE CONSUMPTION (RESIDENTS)

	2004				2005				2006			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Private consumption	22626.7	22948.1	23258.2	23490.0	23791.7	24156.1	24214.0	24545.0	24901.7	25193.9	25441.4	25610.7
Durables	2447.8	2563.5	2597.7	2658.4	2633.9	2825.2	2586.2	2726.8	2702.3	2738.6	2703.7	2771.5
Non-durables	20179.0	20384.6	20660.5	20831.6	21157.8	21330.9	21627.9	21818.2	22199.4	22455.4	22737.7	22839.2
Previous year prices (EUR million)												
Private consumption	22291.7	22438.0	22606.1	22713.2	23456.7	23656.8	23434.8	23573.6	24375.5	24441.8	24520.0	24569.4
Durables	2443.5	2549.6	2578.6	2621.0	2615.2	2800.4	2544.5	2657.4	2660.3	2680.7	2636.0	2689.4
Non-durables	19848.1	19888.4	20027.5	20092.2	20841.5	20856.5	20890.3	20916.2	21715.3	21761.1	21884.0	21879.9
Chain-linked volume (reference year 2000)												
Private consumption	20310.6	20443.9	20597.1	20694.7	20845.7	21023.5	20826.2	20949.5	21083.2	21140.5	21208.2	21250.9
Durables	2302.6	2402.5	2429.9	2469.8	2446.4	2619.6	2380.3	2485.9	2452.9	2471.7	2430.5	2479.8
Non-durables	18001.9	18038.4	18164.5	18223.3	18396.2	18409.4	18439.3	18462.1	18625.4	18664.7	18770.1	18766.6
Deflator (2000=1)												
Private consumption	1.1140	1.1225	1.1292	1.1351	1.1413	1.1490	1.1627	1.1716	1.1811	1.1917	1.1996	1.2052
Durables	1.0631	1.0670	1.0691	1.0764	1.0766	1.0785	1.0865	1.0969	1.1017	1.1080	1.1124	1.1177
Non-durables	1.1209	1.1301	1.1374	1.1431	1.1501	1.1587	1.1729	1.1818	1.1919	1.2031	1.2114	1.2170

GROSS FIXED CAPITAL FORMATION

	2004				2005				2006			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Gross fixed capital formation	7989.5	8175.2	8214.9	8201.4	8170.0	8306.1	8258.7	8363.4	8398.5	8550.1	8310.9	8279.5
Machinery and equipment	1872.4	1906.2	1919.3	1961.3	1922.9	1929.8	1929.6	1966.1	1898.6	1923.1	1921.6	2039.7
Transport material	657.9	632.3	627.1	687.6	613.7	604.6	666.2	685.7	723.7	938.0	794.6	713.4
Construction	4222.9	4367.7	4390.1	4275.9	4309.7	4425.5	4309.0	4316.6	4368.1	4272.3	4178.8	4098.2
Others	1236.4	1269.0	1278.3	1276.7	1323.7	1346.1	1353.9	1395.0	1408.1	1416.6	1415.9	1428.2
Previous year prices (EUR million)												
Gross fixed capital formation	7931.6	7994.7	7989.9	7892.3	8098.9	8192.5	7989.7	7999.8	8275.7	8320.6	8044.7	7937.5
Machinery and equipment	1897.3	1909.4	1949.9	1974.7	1957.4	1977.1	1939.1	1970.8	1898.9	1909.9	1968.5	2014.4
Transport material	656.6	642.0	615.1	679.4	611.7	618.4	635.7	657.5	732.2	928.6	766.7	688.3
Construction	4164.5	4201.3	4188.9	4035.0	4241.3	4293.6	4123.8	4073.8	4269.9	4105.1	3948.3	3891.0
Others	1213.2	1242.1	1236.0	1203.3	1288.5	1303.4	1291.1	1297.7	1374.6	1377.1	1361.2	1343.8
Chain-linked volume (reference year 2000)												
Gross fixed capital formation	7467.6	7527.1	7522.6	7430.7	7444.4	7530.4	7344.0	7353.3	7419.1	7459.3	7212.0	7115.9
Machinery and equipment	2015.7	2028.6	2071.6	2097.9	2099.1	2120.3	2079.6	2113.5	2061.7	2073.6	2137.2	2187.1
Transport material	618.9	605.2	579.8	640.4	574.0	580.3	596.5	617.0	674.6	855.4	706.3	634.0
Construction	3778.2	3811.6	3800.4	3660.8	3699.2	3744.8	3596.7	3553.2	3589.4	3450.8	3319.1	3270.9
Others	1076.2	1101.7	1096.3	1067.4	1105.5	1118.3	1107.7	1113.4	1127.6	1129.6	1116.6	1102.3
Deflator (2000=1)												
Gross fixed capital formation	1.0699	1.0861	1.0920	1.1037	1.0975	1.1030	1.1245	1.1374	1.1320	1.1462	1.1524	1.1635
Machinery and equipment	0.9289	0.9397	0.9265	0.9349	0.9161	0.9102	0.9279	0.9302	0.9209	0.9274	0.8991	0.9326
Transport material	1.0631	1.0448	1.0815	1.0737	1.0691	1.0420	1.1170	1.1113	1.0729	1.0965	1.1249	1.1252
Construction	1.1177	1.1459	1.1552	1.1680	1.1650	1.1818	1.1980	1.2148	1.2169	1.2381	1.2590	1.2529
Others	1.1488	1.1518	1.1660	1.1961	1.1974	1.2037	1.2222	1.2530	1.2488	1.2541	1.2681	1.2956

PRIVATE CONSUMPTION (RESIDENTS)

	2007			
	Q1	Q2	Q3	Q4
Current prices (EUR million)				
Private consumption	25948.8	26296.6	26482.9	26785.2
Durables	2777.3	2971.5	2840.2	2912.2
Non-durables	23171.5	23325.0	23642.7	23873.0
Previous year prices (EUR million)				
Private consumption	25541.3	25646.2	25723.9	25793.0
Durables	2751.5	2934.3	2811.0	2889.7
Non-durables	22789.7	22711.9	22912.8	22903.3
Chain-linked volume (reference year 2000)				
Private consumption	21383.6	21471.5	21536.5	21594.4
Durables	2479.0	2643.7	2532.6	2603.5
Non-durables	18898.9	18834.4	19001.0	18993.1
Deflator (2000=1)				
Private consumption	1.2135	1.2247	1.2297	1.2404
Durables	1.1204	1.1240	1.1215	1.1186
Non-durables	1.2261	1.2384	1.2443	1.2569

GROSS FIXED CAPITAL FORMATION

	2007			
	Q1	Q2	Q3	Q4
Current prices (EUR million)				
Gross fixed capital formation	8497.6	8671.9	8930.5	9243.3
Machinery and equipment	1969.5	2022.3	2132.0	2192.9
Transport material	747.9	908.6	963.4	943.2
Construction	4301.4	4264.8	4337.3	4554.7
Others	1478.8	1476.1	1497.8	1552.5
Previous year prices (EUR million)				
Gross fixed capital formation	8479.2	8557.5	8693.4	8893.4
Machinery and equipment	2001.6	2061.4	2111.5	2154.1
Transport material	752.7	900.3	939.7	895.4
Construction	4268.9	4149.5	4184.5	4363.1
Others	1456.0	1446.3	1457.7	1480.8
Chain-linked volume (reference year 2000)				
Gross fixed capital formation	7383.9	7452.0	7570.3	7744.5
Machinery and equipment	2175.7	2240.6	2295.0	2341.3
Transport material	681.6	815.3	851.0	810.8
Construction	3439.4	3343.2	3371.4	3515.3
Others	1149.7	1142.0	1151.0	1169.2
Deflator (2000=1)				
Gross fixed capital formation	1.1508	1.1637	1.1797	1.1935
Machinery and equipment	0.9052	0.9026	0.9290	0.9366
Transport material	1.0973	1.1145	1.1321	1.1633
Construction	1.2506	1.2757	1.2865	1.2957
Others	1.2863	1.2926	1.3013	1.3278

HOUSEHOLD'S DISPOSABLE INCOME

	1977				1978				1979			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Compensation of employees	591.4	596.3	614.0	630.5	669.7	693.8	726.7	753.2	777.6	812.6	858.2	909.0
Domestic transfers	94.4	95.8	98.6	102.8	108.5	113.6	118.2	122.2	125.7	132.7	143.2	157.2
External transfers	51.8	56.2	55.5	55.5	64.4	83.6	92.3	117.0	135.6	141.9	163.1	158.3
Corporate and property income	155.2	162.3	177.3	200.9	215.2	239.1	261.0	280.0	294.4	313.8	335.0	358.2
Direct taxes	29.8	30.4	31.5	33.2	35.6	38.3	41.5	45.2	49.3	52.9	56.0	58.5
Social Security contributions	92.8	94.5	97.8	102.8	109.4	115.3	120.4	124.9	128.6	135.3	145.1	158.0
Disposable income	770.2	785.8	816.2	853.7	912.8	976.5	1036.2	1102.4	1155.4	1212.7	1298.4	1366.3

LABOUR MARKET

	1977				1978				1979			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
10^3 heads												
Labour force	4045.4	4040.5	4074.0	4075.4	4147.6	4154.6	4212.2	4226.0	4252.9	4272.5	4305.4	4329.4
Total employment	3850.4	3843.0	3869.8	3858.3	3931.6	3928.0	3980.9	3992.8	4018.5	4038.2	4070.8	4093.9
Unemployment	194.9	197.5	204.2	217.1	216.0	226.6	231.2	233.3	234.4	234.3	234.7	235.5
Employment in full-time equivalent	3721.1	3714.3	3740.7	3729.3	3798.4	3797.4	3843.2	3863.8	3880.5	3905.7	3937.5	3952.8
Employees	3061.0	3057.2	3089.1	3085.0	3162.1	3165.2	3209.2	3224.0	3230.3	3249.8	3280.5	3299.7
Other forms of employment	660.0	657.1	651.6	644.3	636.3	632.2	634.0	639.7	650.2	655.9	657.0	653.1
EUR thousand												
Compensation per employee	0.193	0.195	0.199	0.204	0.212	0.219	0.226	0.234	0.241	0.250	0.262	0.275
Per cent												
Unemployment rate	4.8	4.9	5.0	5.3	5.2	5.5	5.5	5.5	5.5	5.5	5.5	5.4

HOUSEHOLD'S DISPOSABLE INCOME

	1980				1981				1982			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Compensation of employees	975.8	1034.6	1096.9	1160.5	1212.3	1280.0	1343.9	1415.4	1500.2	1584.5	1667.4	1762.2
Domestic transfers	174.7	191.6	208.1	224.0	239.3	255.1	271.1	287.5	304.3	323.0	343.9	366.7
External transfers	178.4	179.7	190.8	191.4	203.0	228.1	219.9	226.7	233.6	257.6	270.7	286.9
Corporate and property income	381.9	411.5	445.6	482.6	525.5	567.6	613.7	664.0	711.6	760.6	813.3	861.2
Direct taxes	60.6	64.2	69.4	76.3	84.6	92.7	100.5	107.9	115.0	122.6	130.9	139.7
Social Security contributions	173.8	188.1	200.8	211.8	221.3	234.1	250.3	269.8	292.7	315.8	339.0	362.4
Disposable income	1476.2	1565.1	1671.2	1770.3	1874.1	2004.0	2097.9	2215.9	2342.0	2487.3	2625.4	2775.0

LABOUR MARKET

	1980				1981				1982			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
10^3 heads												
Labour force	4352.0	4357.7	4367.4	4388.1	4369.2	4386.2	4378.1	4369.4	4405.8	4408.8	4384.2	4387.6
Total employment	4121.3	4135.5	4142.6	4163.3	4133.8	4145.6	4137.9	4127.8	4171.7	4169.8	4157.2	4154.7
Unemployment	230.7	222.3	224.7	224.8	235.4	240.7	240.1	241.6	234.1	239.0	227.0	232.8
Employment in full-time equivalent	3989.7	3993.1	4005.4	4017.8	3992.3	4004.0	3994.0	3997.4	4027.2	4034.5	4019.7	4010.8
Employees	3346.7	3359.1	3378.0	3395.7	3375.4	3386.6	3373.3	3367.8	3381.6	3380.4	3364.7	3362.6
Other forms of employment	643.0	634.0	627.5	622.2	616.9	617.4	620.6	629.6	645.6	654.1	655.0	648.2
EUR thousand												
Compensation per employee	0.292	0.308	0.325	0.342	0.359	0.378	0.398	0.420	0.444	0.469	0.496	0.524
Per cent												
Unemployment rate	5.3	5.1	5.1	5.1	5.4	5.5	5.5	5.5	5.3	5.4	5.2	5.3

HOUSEHOLD'S DISPOSABLE INCOME

	1983				1984				1985			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Compensation of employees	1837.0	1917.4	1974.6	2018.1	2061.4	2116.8	2195.4	2302.3	2415.8	2548.0	2668.7	2802.2
Domestic transfers	391.7	414.3	434.6	452.6	468.3	491.1	521.0	558.0	602.0	637.4	664.0	681.9
External transfers	283.4	280.0	303.7	311.6	370.0	367.0	397.6	415.9	394.4	415.0	448.7	504.9
Corporate and property income	899.6	988.6	1103.4	1203.9	1305.2	1395.1	1469.5	1548.2	1596.1	1666.2	1756.4	1816.9
Direct taxes	149.1	158.8	168.8	179.1	189.7	203.6	220.6	240.9	264.4	278.2	282.3	276.8
Social Security contributions	386.0	407.1	425.8	442.1	456.0	473.4	494.2	518.5	546.2	575.3	605.6	637.3
Disposable income	2876.6	3034.3	3221.7	3365.0	3559.1	3693.0	3868.7	4065.0	4197.8	4413.2	4649.8	4891.7

LABOUR MARKET

	1983				1984				1985			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
10^3 heads												
Labour force	4329.5	4341.5	4345.8	4355.5	4409.0	4422.3	4448.3	4463.3	4454.7	4456.4	4440.5	4441.3
Total employment	4079.8	4078.0	4067.4	4065.0	4117.0	4125.4	4142.9	4150.7	4137.4	4139.3	4121.5	4116.4
Unemployment	249.7	263.6	278.4	290.6	292.0	297.0	305.4	312.6	317.3	317.1	319.0	324.9
Employment in full-time equivalent	3946.5	3937.0	3926.4	3930.2	3972.0	3989.8	4000.7	4014.6	3997.4	4001.1	3982.8	3973.8
Employees	3313.4	3312.6	3305.0	3306.3	3339.1	3348.4	3353.2	3361.2	3340.3	3343.8	3328.5	3327.5
Other forms of employment	633.0	624.4	621.3	623.9	632.9	641.4	647.5	653.4	657.1	657.3	654.3	646.3
EUR thousand												
Compensation per employee	0.554	0.579	0.597	0.610	0.617	0.632	0.655	0.685	0.723	0.762	0.802	0.842
Per cent												
Unemployment rate	5.8	6.1	6.4	6.7	6.6	6.7	6.9	7.0	7.1	7.1	7.2	7.3

HOUSEHOLD'S DISPOSABLE INCOME

	1986				1987				1988			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Compensation of employees	2920.0	3057.8	3194.9	3333.7	3469.5	3611.3	3749.4	3879.0	4018.5	4163.8	4356.1	4558.4
Domestic transfers	691.0	712.1	745.3	790.4	847.5	894.9	932.5	960.4	978.5	1006.1	1043.2	1089.8
External transfers	482.4	484.3	483.0	496.9	563.5	581.1	601.4	615.3	625.5	635.5	644.8	655.7
Corporate and property income	1908.2	2000.6	2049.8	2122.2	2215.6	2271.5	2343.8	2401.5	2453.3	2534.4	2650.5	2806.9
Direct taxes	261.7	249.0	238.8	231.1	225.9	231.2	246.9	273.1	309.7	351.4	398.3	450.3
Social Security contributions	670.3	706.6	746.1	788.9	835.0	875.5	910.4	939.6	963.3	995.7	1037.0	1087.1
Disposable income	5069.6	5299.3	5488.1	5723.1	6035.2	6252.1	6469.9	6643.5	6802.9	6992.7	7259.3	7573.3

LABOUR MARKET

	1986				1987				1988			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
10^3 heads												
Labour force	4406.8	4415.9	4429.4	4438.9	4468.5	4493.5	4515.5	4525.6	4536.7	4546.2	4572.6	4591.6
Total employment	4075.1	4081.7	4101.2	4121.2	4161.6	4194.5	4225.5	4246.9	4266.4	4281.2	4314.6	4341.0
Unemployment	331.7	334.2	328.2	317.7	307.0	299.0	290.0	278.7	270.3	265.0	258.0	250.6
Employment in full-time equivalent	3938.8	3942.2	3957.7	3984.3	4017.5	4055.1	4084.1	4100.6	4123.4	4133.0	4167.3	4194.8
Employees	3304.8	3311.7	3321.7	3337.2	3353.0	3377.8	3401.6	3420.1	3450.6	3466.1	3502.9	3527.6
Other forms of employment	633.9	630.5	636.1	647.1	664.6	677.3	682.4	680.5	672.8	666.9	664.4	667.2
EUR thousand												
Compensation per employee	0.884	0.923	0.962	0.999	1.035	1.069	1.102	1.134	1.165	1.201	1.244	1.292
Per cent												
Unemployment rate	7.5	7.6	7.4	7.2	6.9	6.7	6.4	6.2	6.0	5.8	5.6	5.5

HOUSEHOLD'S DISPOSABLE INCOME

	1989				1990				1991			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Compensation of employees	4828.4	5060.1	5311.9	5547.5	5767.6	6032.6	6276.4	6618.6	6876.6	7223.4	7503.3	7839.6
Domestic transfers	1145.8	1204.1	1264.5	1327.1	1391.9	1466.3	1550.5	1644.3	1747.8	1857.7	1973.8	2096.3
External transfers	723.1	718.7	729.2	721.8	719.4	796.1	824.2	801.1	763.1	897.0	798.7	819.1
Corporate and property income	3001.2	3174.5	3326.4	3466.5	3580.8	3701.9	3846.8	4024.9	4209.8	4386.3	4533.1	4667.6
Direct taxes	507.5	552.4	585.1	605.6	613.9	630.7	656.1	690.1	732.6	787.9	856.0	936.8
Social Security contributions	1145.9	1204.4	1262.3	1319.8	1376.8	1438.3	1504.3	1574.9	1649.9	1736.5	1834.6	1944.2
Disposable income	8045.1	8400.6	8784.6	9137.5	9469.0	9927.9	10337.4	10824.0	11214.8	11840.0	12118.4	12541.7

LABOUR MARKET

	1989				1990				1991			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
10^3 heads												
Labour force	4660.5	4682.9	4712.5	4721.6	4708.3	4726.1	4725.8	4777.1	4780.6	4797.3	4770.3	4762.1
Total employment	4412.3	4434.1	4466.1	4478.5	4466.0	4484.5	4484.3	4537.3	4540.6	4567.2	4549.2	4550.0
Unemployment	248.2	248.8	246.4	243.0	242.4	241.7	241.5	239.9	240.0	230.2	221.1	212.1
Employment in full-time equivalent	4260.7	4284.9	4315.6	4324.8	4316.0	4331.7	4329.0	4383.5	4379.3	4412.9	4395.2	4398.7
Employees	3587.1	3607.7	3637.0	3648.1	3643.6	3658.4	3648.0	3688.1	3665.8	3688.0	3665.8	3668.1
Other forms of employment	673.6	677.2	678.6	676.6	672.4	673.4	681.0	695.4	713.5	724.9	729.5	730.6
EUR thousand												
Compensation per employee	1.346	1.403	1.461	1.521	1.583	1.649	1.721	1.795	1.876	1.959	2.047	2.137
Per cent												
Unemployment rate	5.3	5.3	5.2	5.1	5.1	5.1	5.1	5.0	5.0	4.8	4.6	4.5

HOUSEHOLD'S DISPOSABLE INCOME

	1992				1993				1994			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Compensation of employees	8236.5	8523.0	8785.0	8972.7	9049.7	9158.0	9150.4	9239.7	9204.7	9336.3	9502.0	9703.4
Domestic transfers	2225.1	2332.6	2418.9	2483.9	2527.6	2572.5	2618.6	2665.8	2714.2	2773.8	2844.6	2926.7
External transfers	816.8	780.4	786.3	773.0	839.3	690.4	736.3	760.5	731.9	718.9	631.5	744.1
Corporate and property income	4773.0	4881.2	4959.8	5001.7	5047.5	5117.0	5144.2	5150.5	5205.0	5304.8	5439.1	5587.6
Direct taxes	1030.3	1095.6	1132.7	1141.5	1122.0	1112.1	1112.0	1121.5	1140.6	1158.1	1173.9	1188.0
Social Security contributions	2065.2	2172.5	2265.8	2345.3	2411.0	2452.4	2469.7	2462.8	2431.7	2447.7	2510.8	2621.0
Disposable income	12955.9	13249.1	13551.5	13744.4	13931.2	13973.4	14067.8	14232.2	14283.5	14528.0	14732.6	15152.8

LABOUR MARKET

	1992				1993				1994			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
10^3 heads												
Labour force	4768.7	4752.8	4772.5	4756.7	4749.1	4747.5	4731.3	4747.7	4756.8	4780.2	4818.7	4817.9
Total employment	4582.6	4570.6	4587.4	4568.9	4542.0	4520.2	4487.5	4489.2	4485.0	4498.0	4526.6	4520.5
Unemployment	186.1	182.2	185.1	187.7	207.1	227.3	243.8	258.5	271.8	282.2	292.1	297.4
Employment in full-time equivalent	4427.0	4418.1	4424.6	4415.4	4377.3	4371.0	4327.9	4346.9	4327.0	4353.1	4367.7	4367.6
Employees	3694.4	3686.4	3687.3	3674.0	3630.9	3614.5	3559.7	3558.3	3514.9	3519.8	3516.8	3507.1
Other forms of employment	732.6	731.7	737.2	741.4	746.4	756.5	768.2	788.6	812.2	833.3	850.9	860.5
EUR thousand												
Compensation per employee	2.229	2.312	2.382	2.442	2.492	2.534	2.571	2.597	2.619	2.653	2.702	2.767
Per cent												
Unemployment rate	3.9	3.8	3.9	3.9	4.4	4.8	5.2	5.4	5.7	5.9	6.1	6.2

HOUSEHOLD'S DISPOSABLE INCOME

	1995				1996				1997			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Compensation of employees	9973.3	10194.3	10397.2	10599.2	10792.1	10902.6	11142.1	11324.3	11620.5	11899.3	12190.6	12427.4
Domestic transfers	3019.9	3099.5	3165.3	3217.4	3255.7	3299.4	3348.4	3402.8	3462.5	3532.7	3613.4	3704.6
External transfers	593.5	613.9	632.6	668.9	682.1	659.7	659.9	650.4	709.3	735.1	739.8	727.5
Corporate and property income	5738.4	5864.4	5950.3	5996.7	6012.4	5945.4	5916.8	5892.0	5875.6	5854.6	5861.1	5910.0
Direct taxes	1200.4	1221.4	1250.9	1289.0	1335.6	1370.1	1392.5	1402.7	1400.8	1404.4	1413.4	1427.9
Social Security contributions	2778.2	2898.2	2980.8	3026.1	3034.1	3063.6	3114.4	3186.7	3280.3	3371.7	3460.9	3547.9
Disposable income	15346.5	15652.5	15913.7	16167.0	16372.5	16373.5	16560.3	16680.1	16986.9	17245.5	17530.6	17793.8

LABOUR MARKET

	1995				1996				1997			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
10^3 heads												
Labour force	4822.7	4818.7	4829.0	4862.0	4912.7	4897.3	4940.1	4936.2	4976.5	5002.8	5049.0	5057.1
Total employment	4522.4	4519.3	4529.9	4552.5	4601.0	4581.6	4626.3	4627.1	4671.8	4713.5	4752.5	4774.2
Unemployment	300.3	299.4	299.1	309.5	311.7	315.6	313.8	309.2	304.7	289.3	296.5	282.9
Employment in full-time equivalent	4367.4	4367.2	4373.5	4399.9	4436.8	4429.7	4467.5	4473.9	4515.9	4556.3	4600.2	4627.6
Employees	3504.3	3497.9	3499.3	3514.5	3539.9	3529.7	3560.7	3565.7	3604.9	3637.9	3675.1	3694.0
Other forms of employment	863.1	869.4	874.2	885.4	896.9	900.0	906.8	908.3	910.9	918.3	925.1	933.6
EUR thousand												
Compensation per employee	2.846	2.914	2.971	3.016	3.049	3.089	3.129	3.176	3.224	3.271	3.317	3.364
Per cent												
Unemployment rate	6.2	6.2	6.2	6.4	6.3	6.4	6.4	6.3	6.1	5.8	5.9	5.6

HOUSEHOLD'S DISPOSABLE INCOME

	1998				1999				2000			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Compensation of employees	12742.5	13032.1	13204.0	13478.2	13665.1	13919.8	14197.9	14486.2	14867.0	15139.8	15418.3	15658.0
Domestic transfers	3806.3	3906.4	4004.8	4101.5	4196.6	4299.0	4408.9	4526.2	4650.9	4772.9	4892.2	5008.8
External transfers	750.5	762.5	761.8	740.3	759.3	758.5	845.5	771.4	814.9	880.1	826.5	955.2
Corporate and property income	5936.1	5987.6	6058.4	6138.4	6230.6	6292.3	6374.0	6476.5	6599.0	6682.1	6788.9	6853.3
Direct taxes	1447.8	1469.5	1492.8	1517.9	1544.7	1579.1	1621.1	1670.7	1727.9	1776.9	1817.6	1850.1
Social Security contributions	3632.6	3703.6	3760.9	3804.5	3834.3	3890.6	3973.5	4082.9	4218.9	4332.7	4424.4	4494.0
Disposable income	18155.0	18515.5	18775.2	19136.1	19472.5	19799.9	20231.7	20506.6	20985.0	21365.4	21683.8	22131.1

LABOUR MARKET

	1998				1999				2000			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
10^3 heads												
Labour force	5104.9	5109.4	5102.2	5131.7	5133.2	5149.3	5157.8	5166.4	5201.0	5205.2	5255.2	5263.8
Total employment	4822.6	4867.4	4857.3	4888.8	4899.3	4913.6	4934.9	4952.2	4986.5	5002.7	5044.5	5070.4
Unemployment	282.3	242.0	244.9	242.9	233.9	235.7	222.9	214.2	214.6	202.6	210.7	193.4
Employment in full-time equivalent	4685.8	4731.4	4724.8	4754.0	4747.8	4761.8	4781.3	4801.1	4848.3	4869.4	4903.9	4934.4
Employees	3739.1	3775.0	3772.0	3801.9	3804.2	3822.1	3841.0	3856.7	3893.8	3907.3	3931.0	3951.9
Other forms of employment	946.7	956.5	952.8	952.1	943.6	939.7	940.3	944.3	954.4	962.1	973.0	982.5
EUR thousand												
Compensation per employee	3.408	3.452	3.501	3.545	3.592	3.642	3.696	3.756	3.818	3.875	3.922	3.962
Per cent												
Unemployment rate	5.5	4.7	4.8	4.7	4.6	4.6	4.3	4.1	4.1	3.9	4.0	3.7

HOUSEHOLD'S DISPOSABLE INCOME

	2001				2002				2003			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Compensation of employees	15788.7	15960.1	16175.3	16424.7	16721.9	16908.9	17019.8	16971.3	17192.6	17231.0	17305.8	17410.3
Domestic transfers	5122.7	5245.0	5375.7	5514.8	5662.4	5785.5	5884.4	5958.9	6009.0	6075.2	6157.5	6255.8
External transfers	899.7	936.9	890.0	896.1	761.4	666.6	690.4	643.1	661.0	560.5	588.6	597.9
Corporate and property income	6956.5	7021.1	7069.2	7113.1	7086.8	7135.4	7216.4	7260.8	7390.2	7462.7	7539.7	7648.3
Direct taxes	1874.5	1895.5	1913.3	1927.9	1939.2	1944.4	1943.4	1936.2	1922.9	1916.8	1918.0	1926.4
Social Security contributions	4541.5	4595.2	4655.2	4721.3	4793.7	4859.7	4919.1	4972.1	5018.6	5062.6	5104.1	5143.1
Disposable income	22351.7	22672.4	22941.7	23299.5	23499.5	23692.4	23948.4	23925.8	24311.4	24350.0	24569.6	24842.9

LABOUR MARKET

	2001				2002				2003			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
10^3 heads												
Labour force	5310.4	5317.7	5343.6	5370.0	5383.5	5419.5	5440.3	5428.3	5455.6	5460.1	5460.2	5465.2
Total employment	5102.4	5106.7	5126.3	5152.6	5152.4	5163.8	5160.2	5111.7	5121.9	5117.1	5118.9	5118.1
Unemployment	208.0	211.0	217.3	217.4	231.2	255.7	280.1	316.6	333.7	343.0	341.3	347.1
Employment in full-time equivalent	4941.8	4950.9	4966.2	4985.1	5004.1	5004.5	4992.1	4939.2	4950.8	4933.8	4922.8	4912.7
Employees	3950.5	3958.6	3976.8	4002.1	4036.9	4046.2	4039.1	3993.8	3997.7	3981.1	3973.2	3972.0
Other forms of employment	991.3	992.3	989.4	983.0	967.2	958.3	953.0	945.4	953.1	952.7	949.6	940.7
EUR thousand												
Compensation per employee	3.997	4.032	4.067	4.104	4.142	4.179	4.214	4.249	4.301	4.328	4.356	4.383
Per cent												
Unemployment rate	3.9	4.0	4.1	4.0	4.3	4.7	5.1	5.8	6.1	6.3	6.3	6.4

HOUSEHOLD'S DISPOSABLE INCOME

	2004				2005				2006			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Current prices (EUR million)												
Compensation of employees	17631.9	17789.1	17994.8	18277.5	18476.1	18713.2	18933.3	19074.8	19461.4	19589.5	19776.6	19827.3
Domestic transfers	6370.3	6478.3	6580.0	6675.4	6764.4	6860.5	6963.6	7073.8	7191.0	7303.8	7412.1	7516.0
External transfers	579.7	616.9	628.2	607.2	542.1	584.1	504.4	517.5	630.6	597.7	605.4	678.4
Corporate and property income	7608.5	7702.8	7750.4	7821.6	7966.2	7996.7	8042.5	8035.9	7969.5	7962.7	7978.2	8060.6
Direct taxes	1942.1	1960.3	1981.0	2004.2	2030.0	2056.0	2082.4	2109.1	2136.1	2171.7	2215.7	2268.3
Social Security contributions	5179.5	5244.9	5339.3	5462.7	5615.1	5735.6	5824.2	5881.1	5906.0	5954.3	6026.0	6121.0
Disposable income	25068.7	25381.9	25633.2	25914.7	26103.9	26362.8	26537.2	26711.9	27210.4	27327.8	27530.7	27692.9

LABOUR MARKET

	2004				2005				2006			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
10^3 heads												
Labour force	5463.1	5476.4	5483.5	5503.1	5496.5	5515.6	5522.6	5543.2	5542.8	5566.6	5569.0	5570.7
Total employment	5120.8	5116.6	5105.9	5124.7	5092.8	5103.7	5092.8	5110.6	5123.5	5147.4	5148.5	5127.6
Unemployment	342.2	359.9	377.6	378.3	403.7	411.9	429.8	432.6	419.3	419.2	420.5	443.1
Employment in full-time equivalent	4926.2	4917.2	4915.0	4929.6	4904.8	4907.3	4909.4	4902.1	4944.7	4942.2	4951.4	4926.7
Employees	3998.1	4000.4	4006.4	4023.1	4003.4	4011.5	4026.9	4034.3	4097.7	4106.7	4123.9	4102.9
Other forms of employment	928.1	916.8	908.6	906.5	901.4	895.8	882.5	867.9	846.9	835.4	827.5	823.8
EUR thousand												
Compensation per employee	4.410	4.447	4.492	4.543	4.615	4.665	4.702	4.728	4.749	4.770	4.796	4.833
Per cent												
Unemployment rate	6.3	6.6	6.9	6.9	7.3	7.5	7.8	7.8	7.6	7.5	7.6	8.0

HOUSEHOLD'S DISPOSABLE INCOME

	2007			
	Q1	Q2	Q3	Q4
Current prices (EUR million)				
Compensation of employees	20103.6	20224.4	20462.9	20647.4
Domestic transfers	7615.4	7714.7	7813.9	7913.0
External transfers	706.6	727.2	708.5	683.9
Corporate and property income	8161.1	8276.3	8376.4	8478.8
Direct taxes	2329.4	2380.3	2420.9	2451.3
Social Security contributions	6239.3	6345.8	6440.5	6523.4
Disposable income	28018.0	28216.6	28500.2	28748.5

LABOUR MARKET

	2007			
	Q1	Q2	Q3	Q4
10^3 heads				
Labour force	5589.8	5580.0	5606.5	5601.8
Total employment	5134.2	5127.5	5158.3	5167.8
Unemployment	455.6	452.5	448.2	434.0
Employment in full-time equivalent	4942.2	4935.9	4960.1	4965.9
Employees	4110.6	4100.5	4117.1	4120.6
Other forms of employment	831.6	835.4	843.1	845.4
EUR thousand				
Compensation per employee	4.891	4.932	4.970	5.011
Per cent				
Unemployment rate	8.1	8.1	8.0	7.7

CHRONOLOGY OF MAJOR FINANCIAL MEASURES

January to June 2008

January

• **3 January (Decree-Law No 1/2008, Official Gazette No 2, Series I, Ministry of Finance and Public Administration)**	Introduces changes to the Legal Framework of Credit Institutions and Financial Companies, approved by Decree-Law No 298/92 of 31 December and amended by Decree-Laws No 246/95 of 14 September 1995, No 232/96 of 5 December 1996, No 222/99 of 22 June 1999, No 250/2000 of 13 October, No 285/2001 of 3 November, No 201/2002 of 26 September, No 319/2002 of 28 December, No 252/2003 of 17 October, No 145/2006 of 31 July, No 104/2007 of 3 April and No 357-A/2007of 31 October. It amends a number of articles, adds a few others and revokes Articles 89 and 90 of the said Decree-Law, re-published in full in an annex (consolidated version). This Decree-Law establishes the market conduct supervision of credit institutions and financial companies, within the framework of the tasks of Banco de Portugal, thus reinforcing its supervisory powers. This Decree-Law shall enter into force on the day following its publication.
• **4 January (Circular Letter of Banco de Portugal No 3/2008/DET, Treasury and Issue Department)**	Informs, within the scope of the framework for implementation of Decree-Law No 195/2007 of 15 May, with regard to the conclusion of contracts on euro banknote recycling, that in December 2007 Banco de Portugal signed a contract with the cash-in-transit company LOOMIS, S.A.
• **9 January (Circular Letter of Banco de Portugal No 1/08/DSBDR, Banking Supervision Department)**	Conveys the understanding of Banco de Portugal as to the interpretation of Article 3 of Decree-Law No 240/2006 of 22 December with regard to the periodicity of revision of the benchmark used in variable-rate credit operations.
• **15 January (Notice of Banco de Portugal No 1/2008, Official Gazette No 15, Series II)**	Under the terms and for the purposes of the provisions of Article 13(1) of Decree-Law No 221/2000 of 9 September, it determines which payment systems will benefit from the irrevocability of transfer orders and the enforceability of collateral set up on behalf of a participant or a bank integrating the European System of Central Banks (ESCB). This notice enters into force on 18 February 2008, or on the date of the actual migration of TARGET2-PT to the Single Shared Platform of TARGET2, if this migration can only occur on a later date.
• **15 January (Instruction of Banco de Portugal No 33/2007, BNBP 01/2008)**	Regulates the operation of the Target 2 national system.
• **15 January (Instruction of Banco de Portugal No 34/2007, BNBP 01/2008)**	Regulates the participation in the Large-Value Payment System (RTGS2).
• **15 January (Instruction of Banco de Portugal No 35/2007, BNBP 01/2008)**	Creates the Intraday Credit Market.
• **15 January (Instruction of Banco de Portugal No 36/2007, BNBP 01/2008)**	Amends Instruction No 25/2003, published in the Official Bulletin No 10 of 15 October 2003, with regard to the close of Financial Clearing and Settlement in the EFT System for the processing of operations sent and received within the scope of SEPA.

- **16 January 2008 (Circular Letter of Banco de Portugal No 5/2008/DET. Treasury and Issue Department)**

  Informs that Banco de Portugal will disseminate to the banking system requests for information submitted to it by individual persons, relating to the identification of bank accounts and/or other financial assets of deceased relatives. For that purpose, Banco de Portugal will make available, on the Bank Customer-oriented website, a form named "Request for the location of financial assets in case of death of the respective holders", which will allow for the filling-in and electronic sending of the request, as well as its printing and later forwarding by mail.

- **18 January (Circular Letter No 6/2008/DET Banco de Portugal. Treasury and Issue Department)**

  Informs, within the scope of the implementation framework set forth in Decree-Law No 195/2007 of 15 May on the contractual obligations relating to the recycling of euro banknotes, that Banco de Portugal has signed a contract with the cash-in-transit company *GRUPO 8 - Vigilância e Prevenção Electrónica, Lda*.

- **23 January (Circular Letter No 8/2008/DET Banco de Portugal. Treasury and Issue Department)**

  Publishes the procedures to be met in contracts to be signed with Banco de Portugal, arising from the new legal framework governing euro coin recycling, pursuant to Decree-Law No 184/2007 of 10 May. It provides clarification on the contract model to be adopted and informs on the procedures for handling euro coins unfit for circulation and for removing counterfeit coins from circulation. It establishes that the entities shall adjust to the transition period laid down therein, and informs that Banco de Portugal offers its availability in terms of cooperation, training and clarification regarding any issue.

- **24 January (Circular Letter No 6/2008/DSBDR Banco de Portugal. Banking Supervision Department)**

  Provides information, in the wake of the entry into force of Decree-Law No 371/2007 of 6 November, on the changes to the procedures relating to the Complaints Book to which Credit Institutions and Financial Companies should pay particular attention, with a view to a faster and more efficient treatment of the respective complaints. It also informs that a new service on claims is expected to be available soon, within the scope of BPnet, to be used for the electronic circulation of information flows between credit institutions and Banco de Portugal.

- **30 January (Circular Letter No 8/2008/DSB of 30 January 2008 Banco de Portugal. Banking Supervision Department)**

  Reminds credit institutions that they shall fully comply with the enforcement of attachments of bank accounts and securities, namely those stemming from the Directorate General of Taxation, with special attention to the applicable provisions of the Code of Civil Procedure. This reminder is provided in the wake of a number of complaints to the Ombudsman's Office. The Ombudsman addressed to the Governor of Banco de Portugal a recommendation pointing to the elimination of procedures adopted by some banking institutions that were deemed to be irregular.

February

- **4 February (Decision No 2727/2008 of 21 December 2007 Ministry of Finance - General Government. Minister's Office Official Gazette No 24 - Series 2**

  Approves, pursuant to Article 63 (1) of the Organic Law of Banco de Portugal (Law No 5/98 of 31 January), the new Chart of Accounts of Banco de Portugal, to enter into force as of 1 January 2008.

- **6 February Instruction of Banco de Portugal No 1/2008, BNBP 03/2008 (date of entry into force: 8 February 2008)**

  Introduces changes in Instruction No 4/2002, published in the Official Bulletin No 1 of 15 February 2002, which defines the information elements relating to liabilities on account of retirement and survivorship pensions to be supplied to Banco de Portugal.

- **18 February 2008 (Notice of Banco de Portugal No 2/2008, Official Gazette No 38, Series II)**

  Introduces changes in Notice No 12/91 of 31 December, in compliance with the amendments to the Companies Register, as a result of Simplified Business Information.

March

- **7 March (Parliament Decision No 6/2008, Official Gazette No 51, Series I)**

  Determines the setting up of a parliamentary committee of inquiry into the exercise of banking, insurance and capital market supervision.

- **17 March (Instruction of Banco de Portugal No 2/2008, BNBP 3/2008)**

  Revokes Instruction No 27/2000, published in the BNBP No 12 of 15 December 2000.

- **17 March (Instruction of Banco de Portugal No 3/2008, BNBP 3/2008)**

  Informs that credit institutions adopting the minimum banking services system laid down in Decree-Law No 27-C/2000 of 10 March shall fill in and send to Banco de Portugal, up to 15 January each year, the table in attachment to the present Instruction.

- **17 March (Instruction of Banco de Portugal No 4/2008, BNBP 3/2008)**

  Lays down the procedures to be followed in the application to the utilisation of internal models by institutions, as regards the calculation of own fund requirements to cover market risks.

- **17 March 2008 (Circular Letter of Banco de Portugal No 27/2008/DET, Treasury and Issue Department)**

  Makes known that within the framework for the implementation of Decree-Law No 195/2007 of 15 May, Banco de Portugal has entered into a contract with Prosegur - Companhia de Segurança, Lda. (a cash-in-transit company) regarding the euro banknote recycling activity.

- **18 March 2008 (Notice of Banco de Portugal No 3/2008, Official Gazette, Series II)**

  Lays down that credit institutions must provide clear and accurate information on the balance of demand deposit accounts and defines the concept of "available balance". This Notice shall apply to all information that mentions the available balance, irrespective of it being provided over-the-counter, by ATMs, banking portals or call centres. This Notice shall enter into force on the 90th day following its publication.

- **26 March 2008 (Circular Letter of Banco de Portugal No 25/2008/DSB, Banking Supervision Department)**

  Pursuant to the provisions laid down in paragraph 2 of Article 77-A of the Legal Framework of Credit Institutions and Financial Companies, approved by Decree-Law No 298/92 of 31 December, as amended by Decree-Law No 1/2008 of 3 January, defines a set of procedures to be complied with by credit institutions and financial companies when complaints are directly submitted to the Bank against those institutions, and where the Bank considers that the said institutions must be involved in the assessment process.

- **26 March 2008 (Decree-Law No 57/2008, Ministry of Economy and Innovation, Official Gazette No 60, Series I)**

  Lays down the legal framework applicable to unfair business-to-consumer commercial practices, occurred before, during or after a commercial transaction in relation to a product or service. This Decree-Law transposes into Portuguese law Directive

2005/29/EC of the European Parliament and of the Council of 11 May.

April

- **7 April 2008 (Notice of Banco de Portugal No 4/2008, Official Gazette No 4, Series II)**

  Makes known that the Board of Directors of Banco de Portugal has decided to close down its agency located in Vila Real, effective from 31 May 2008.

- **17 April (Circular Letter No 30/08/DSBDR Banco de Portugal. Banking Supervision Department)**

  With a view to clarifying a number of doubts, it explains the provisions of paragraph 5 of Article 15 (implementation of the IRB approach) of Decree-Law No 104/2007 of 3 April.

- **28 April (Circular Letter No 36/2008/DET Banco de Portugal. Treasury and Issue Department)**

  In the wake of public complaints on practices involving the refusal to exchange cash and the charging of fees for the mere conduct of such operations, it informs that credit institutions must ensure the carrying out of exchange operations free of charge at their branches, so as not to undermine the trust of the public and other traders in currency circulation.

May

- **15 May (Instruction of Banco de Portugal No 5/2008, BNBP 05/2008)**

  Amends Instruction No 25/2003 published in the Official Bulletin No 10 of 15 October 2003, as regards the clearing of cheques and of interbank electronic transfers, as well as the closing times of financial clearing and settlement.

- **15 May (Instruction of Banco de Portugal No 6/2008, BNBP 5/2008)**

  Amends Instruction No 23/2007 published in the Official Bulletin No 8 of 16 August 2007, which laid down the prudential reporting requirements applicable to credit institutions and certain financial companies.

- **15 May (Instruction of Banco de Portugal No 7/2008, BNBP 5/2008)**

  Revokes Instruction No 18/2004 published in the Official Bulletin No 9 of 15 September 2004, laying down a new framework for the notification and regular reporting of securitisations.

- **15 May (Circular Letter of Banco de Portugal No 30/2008/DSB, Banking Supervision Department)**

  For the purposes of clarification of some doubts, makes clearer the provisions laid down in Article 15 (5) (implementation of the IRB Approach) of Decree-Law No 104/2007 of 3 April.

- **15 May (Circular Letter of Banco de Portugal No 38/2008/DSB, Banking Supervision Department)**

  Informs that for the purposes of compliance with the requirement laid down in Circular Letter of Banco de Portugal No 17/2002/DSB regarding the preparation of a report quantifying the economic provisions required to cover the risk implicit in a credit portfolio, Banco de Portugal will thenceforth accept the replacement of the said report with an imparity report, provided that the methods used are consistent and consistency is certified by the external auditors of the respective institutions.

- **29 May (Decree-Law No 88/2008, Official Gazette No 103, Series I, Ministry of Finance and Public Administration)**

  Harmonizes the criteria to be used in the calculation of the interest rate and respective indexing rate in the situations covered by Decree-Law No 51/2007 of 7 March, adopts the general 360-day count convention for the euro market, regarding the calculation of the interest rates of deposits, within the scope of the provisions laid down in Decree-Law No 430/91 of 2 November, and clarifies the treat-

ment of reference indices for the calculation of interest in terms of the monthly average, set out in credit and financing contracts and foreseen in Article 3 of Decree-Law No 240/2006 of 22 December. This Decree-Law shall enter into force on the 30th day after its publication.

June

- **5 June (Law No 25/2008 of 5 June, Official Gazette No 108, Series I, Assembly of the Republic)**

Lays down measures of a preventive and repressive nature to combat money laundering of illicit origin and terrorist financing, transposing into Portuguese law Directives No 2005/60/EC of the European Parliament and of the Council of 26 October and No 2006/70/EC of the Commission of 1 August on the prevention of the use of the financial system for the purpose of money laundering and terrorist financing.