

Economic Review

Special edition – April 2008



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ISSN 1780-664X

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Main findings

Recent developments in inflation and purchasing power

- Inflation accelerated in Belgium, rising from 1.2 p.c. in August 2007 to 3.5 p.c. in January 2008. The rate of price increases in energy and processed food products came to 13.3 and 8.5 p.c. respectively in January 2008. Together these products represent around 22 p.c. of consumption expenditure. The movement in the prices of these product categories, which is examined in detail below, mainly reflects the impact of the increase in crude oil and food prices on the global market. A similar acceleration was observed in the euro area, although it was less marked. According to the Eurostat Flash estimate, inflation there came to 3.2 p.c. in January 2008. Conversely, inflation remained moderate for unprocessed food, non-energy industrial goods and services.
- Since the indexation mechanism only cuts in after a certain delay, in the short term an acceleration in inflation is reflected in some erosion of purchasing power. However, this delay mechanism is essentially neutral since it operates in the opposite direction when inflation slows down. Thus, in overall terms, indexation prevents the erosion of purchasing power. However, price rises are keenly felt when inflation accelerates.
- The application of the health index (which excludes petrol and diesel, in particular) provides only partial protection for purchasing power in the present circumstances, causing a relative loss of purchasing power compared to a situation in which oil prices had not increased. In practice, purchasing power continued to rise in 2007 from a macroeconomic point of view, principally as a result of job creations, but also because of the continuing rise in real hourly wages.
- Since crude oil is imported, an increase in its price – all other things being equal – leads to collective impoverishment of the Belgian economy. The application of the health index contributes to ensure that the consequences of that impoverishment are evenly distributed and helps preventing the start of a price-wage spiral. In order to prevent such a spiral from occurring, most European countries have abolished their formal indexation mechanisms. In Belgium, the health index, combined with the application of the law on the promotion of employment and the safeguarding of competitiveness, offers protection against such a spiral.
- The loss of purchasing power is greater for certain groups, such as households receiving benefits which are hardly linked – if at all – to prosperity, and consuming more products which have seen a much bigger than average price rise. Thus, in the present circumstances, the aggregate price increase corresponding to the consumption pattern of the population comprising the 10 p.c. lowest incomes is greater than that based on average consumption patterns, on which the inflation measure is based. All other things being equal, the purchasing power of this population group thus declined (by 1.1 percentage points) during the period 2004-2007 compared to the average household. That gap could widen further during 2008.
- The general perception of purchasing power erosion may be reinforced by the gap between perceived inflation and real inflation. That gap appears to be larger in Belgium than in the euro area, one possible reason being that the inflation figure takes no account of the accommodation costs of owner occupiers. However, it is very difficult to

incorporate those costs accurately in the inflation measure. Moreover, the structural growth in the number of groups of products which have gone up in price – though the number of products which have fallen sharply in price has increased in approximately the same proportions over the past five years – may have played a role, more particularly if the consumer is more aware of price increases rather than reductions. Such variations in relative prices prompt consumers to adjust their spending patterns. There is probably more resistance to such adjustment if it is necessary to reduce the consumption of certain goods and services.

- Nonetheless, that adjustment helps consumers to preserve their level of welfare and permits a more efficient allocation of resources. The authorities should therefore not oppose it by intervening at the level of pricing, be it via indirect taxation or otherwise. However, the authorities, and more particularly the competition authorities or the sectoral regulator, if appropriate, must ensure that the markets operate efficiently in order to avoid distortions in pricing, particularly to the detriment of consumers, but also in order to augment the dynamic efficiency of the economy. In addition, they can resort to indirect taxation to take account of certain externalities such as climate change. They may also address the purchasing power problems specific to certain population groups by adopting appropriate, targeted social policy measures.

Inflation over the past five years

- In the past five years (2003-2007), inflation in Belgium has averaged 2 p.c. per annum. It has therefore been slightly below the figure recorded in the euro area (2.1 p.c.). Also since the advent of monetary union, inflation in Belgium has been slightly lower than that in the euro area. The divergences in relation to the three main neighbouring countries mainly reflect cyclical differences.
- However, in Belgium inflation often diverges, albeit briefly, from that in the euro area in either direction. These differences are due essentially to the effect of variations in primarily administrative prices and the greater sensitivity of Belgian inflation to crude oil price fluctuations (cf. below).
- The implementation of a macroeconomic policy which conforms to the smooth operation of monetary union explains why Belgian inflation has not deviated significantly from that in the euro area. Pursuit of such a policy is therefore necessary to ensure that this performance is perpetuated. A fiscal policy geared to stability and moderate growth of all incomes is particularly important in this context.

Petroleum products: inflation and price levels

- Inflation in petroleum product prices accelerated in Belgium, rising from –4.7 p.c. in August 2007 to 15.9 p.c. in December 2007. The acceleration was stronger than in the euro area, where inflation increased from –3.4 p.c. to 15.3 p.c.
- Petroleum products are also the only important product category for which the price rise was significantly more pronounced in Belgium than in the euro area over the past five years, namely by 10 percentage points. The price rise was also steeper in Belgium than in each of the three main neighbouring countries. Heating oil was the main product for which the differences were substantial.
- Nevertheless, the level of heating oil prices is lower in Belgium than in the euro area (and in each of the three main neighbouring countries). That is due to the low level of flat-rate taxes (essentially excise duty) on this product. However, that also implies that the percentage of the price rise attributable to the movement in crude oil prices is higher.
- The low level of excise duty also explains why the diesel price is lower in Belgium than in the euro area, while the price of petrol is higher owing to heavier excise duty. The reverse ratchet system which came into force in mid 2005 has had the effect of reducing the Belgian excise duty on biodiesel to the EU minimum by the end of 2007. Up to February 2008 the reverse ratchet system was not activated for petrol. Belgium is the only country where the rise in crude oil prices was offset to a small degree by reductions in excise duty.

- The effect of the higher percentage increase in the price of heating oil, in particular, was further augmented by the greater weight of that product in Belgium. That means that Belgian inflation is traditionally more sensitive to fluctuations in crude oil prices. Since the price of crude oil essentially rose since 2002, this factor has penalised Belgium in the past five years. That also means that Belgian consumers have been harder hit by the rise in crude oil prices.
- The programme contract has not caused any significant distortions in pricing. Nonetheless, the automatic indexation of the distribution margins places the sector in a comfortable position. On the other hand, in recent years the actual consumer prices have increasingly dropped below the maximum prices, indicating that the margins have been cut. That could also be a sign of greater competition in the distribution of petroleum products, although the fact that some service stations grant much bigger discounts than others seems to indicate that this market is still highly segmented and that imperfect competition still prevails.

Electricity and natural gas: inflation and price levels

- Inflation in the prices of electricity and natural gas accelerated in Belgium, rising from – 6.3 p.c. in July 2007 to 1.3 p.c. in December 2007. The acceleration was stronger than in the euro area (from 1.9 p.c. in July to 2 p.c. in December 2007), but inflation was higher in the euro area throughout that period.
- Liberalisation of the residential segment of the electricity market had no significant impact on the part of the electricity price which is subject to competition.
- Nonetheless, the consumer price of electricity has increased by only 6 p.c. in the past five years, compared to a rise of 18 p.c. in the euro area. Consequently, by mid 2007 the pre-tax price of electricity was lower than in Germany and the Netherlands. However, it remained higher than in France. These differences are due partly to the size of the nuclear capacity used to generate electricity. Despite the higher VAT rate in Belgium, the price after tax was also lower in Belgium than in Germany and the Netherlands in mid 2007. This did not apply in relation to France. That indicates that other fiscal levies are relatively more substantial in the neighbouring countries, mainly Germany and the Netherlands.
- The major part of the relatively favourable movement in electricity prices is attributable to the price reductions which were first imposed on the regulated market by the Electricity and Gas Control Board (CCEG) and later by the Electricity and Gas Regulation Board (CREG). The price reductions imposed by the CREG concerned only the transport and distribution prices which are still subject to monopolies. The downward influence of these tariff reductions was only partly offset by the fact that the liberalisation was also accompanied by a series of new levies. Since the liberalisation, distribution tariffs have varied between regions: these tariffs are higher in Brussels and Wallonia than in Flanders. These differences are largely due to objective factors, but their precise exact impact is difficult to determine.
- In the past five years, the consumer price of natural gas has risen more sharply than electricity prices, mainly because the actual energy input is greater since there is not really any production process. Moreover, fewer tariff reductions were imposed for natural gas than for electricity. Nonetheless, the rise in natural gas prices during the period 2003-2007 was also less pronounced in Belgium (15 p.c.) than in the euro area (34 p.c.).
- In the case of natural gas, pricing underwent an important change in 2007. Henceforth, the movement in the actual energy cost is determined not only by the somewhat smoothed movement in petroleum product prices but also by the movement in the reference prices of natural gas at Zeebrugge. The natural gas price is now much more volatile than it used to be, owing to the introduction of a spot price in the consumer price indexation formulas for this product. The impact of this last aspect was further reinforced by the fact that, since January, the natural gas price index has reflected the movement in the monthly tariffs.
- The structurally greater volatility is probably largely neutral for the medium-term picture, but combined with the integration of the monthly tariffs in the price index that could cause a difference between the assessment by households of changes in the amounts invoiced, on the one hand, and the movement in the price index, on the other; in fact, as a general rule, households continue to pay a fixed amount for one year by way of an intermediate invoice.

- In mid 2007, Belgium was in a very favourable position in an international comparison of the pre-tax consumer prices of natural gas. Despite a higher VAT rate, that was also the case for the price after tax, although to a lesser extent. This situation is due, in particular, to the decline in the price of gas in the first half of 2007, which was more marked in Belgium than in the euro area. In the second half of 2007, the price of natural gas nevertheless rose sharply in Belgium, so that Belgium's position at the end of 2007 was probably less favourable, though data on that subject are not yet available.
- Prices of electricity and natural gas will continue to increase significantly in 2008. This is due partly to the increases in the price of the actual energy component. However, the major part of the increase is due to higher charges for transport (electricity) and distribution (electricity and gas). The reason for this situation is that the justification for the tariff reductions previously imposed by the CREG was subjected to a legal challenge by the intermunicipal associations, and the court ruled that the CREG had exceeded its powers in this case. The tariff increases will largely cancel out the tariff reductions previously imposed, and in consequence an international price comparison will be less favourable to Belgium in the future.
- However, the lawmaker could extend the CREG's powers, which seems appropriate for a market segment which is still a de facto monopoly.
- Price setting by competing suppliers does not appear to pose any major problems. However, the tariff indexation principle sometimes lacks transparency and the regulator does not have the necessary powers to judge whether or not changes to suppliers' tariffs or indexation parameters are fair. As competition develops, that should reduce the risk of abuse, but the existence of dominant operators is a factor in favour of some supervision.

Processed food: inflation and price levels

- Since mid 2006 the pace of processed food price increases has been considerably higher in Belgium than in the euro area. In the past few months it has accelerated further, from 4 p.c. in June to 7.6 p.c. in December, while a more or less parallel movement was seen in the euro area, although starting from a lower level. There the pace of processed food price increases came to 5.1 p.c. in December 2007. In Belgium, this pace increased further in January to 8.5 p.c.; the comparable figure for the euro area is not yet available.
- However, the cumulative rise in food prices over the past five years has been hardly any higher than that recorded in the euro area, being 14.5 p.c. in Belgium against 14.4 p.c. in the euro area.
- It is not so much the strong acceleration in processed food price inflation in the second half of 2007 that is atypical, but rather the fact that processed food prices had already risen sharply in the second half of 2006 and the first half of 2007. That movement is to a large extent totally unconnected with the increase in food commodity prices, which is more recent. It was also a more or less general phenomenon, affecting most categories of processed food products.
- The effects of the food commodity price increase recorded since mid 2007 have been substantial, by historical standards. The main reason is that the common agricultural policy no longer smoothes out world market price fluctuations.
- The price of a number of basic products prevailing on the internal market of the EU has been the main factor driving the recent rise in consumer prices of milk, cheese and eggs, oils and fats, and bread and cereals in both Belgium and the euro area. Consumption patterns specific to Belgium (more bread and butter, less olive oil) have been somewhat unfavourable. However, the transmission has been systematically weaker in France, but it is too soon to say whether that is only a sign of slower transmission or whether it also means that the total scale of the transmission will be smaller. Indirect pieces of evidence also suggest that the main reason for the price adjustment was the effect of the cost increases. The price adjustments were in fact biggest and speediest in the case of low-priced products. Since the margins on those products are smaller, in principle, the pressure exerted by costs is more noticeable.

- It is mainly for bread and cereals that there are signs of supplementary price increases. That also applies to the euro area, albeit to a slightly lesser extent than in Belgium. Furthermore, the rise in bread and cereal prices has been consistently stronger in Belgium than in the euro area over the past four years. That is not due solely to a (short-lived) catching-up process following the deregulation of bread prices in July 2004. It is perhaps due to inefficiencies in this sector, in view of the large number of small firms operating there. To some degree, that situation reflects the consumer's preference for the "artisan baker".
- In line with this picture of rapid reaction, the latest data (January 2008) show that the price adjustments for the products considered are beginning to slow down. However, for other products, such as meat, that has only partly begun as yet.
- According to Eurostat, food prices level in Belgium were 6 p.c. above the level recorded in the euro area in 2006. They were also higher than in each of the main three neighbouring countries. The difference is particularly large in relation to the Netherlands, where there was a "price war" in the distribution sector between late 2003 and mid 2006. Eurostat classes Belgium, France and Germany in a group where the level of food prices is comparable, taking account of the margin of uncertainty in these statistics. A more detailed classification is not possible without an in-depth analysis. Differences in VAT rates account for little if any of the observed differential.
- According to OECD data currently available, the Belgian distribution sector is the most highly regulated, more particularly as regards the establishment of new supermarkets, opening hours, and discounting (period in which clearance sales are prohibited). However, these indicators date from 2003, and Belgium has made progress in many areas in recent years. Belgian supermarkets are smaller, on average, than those in Germany and France, where hypermarkets are more numerous. The number of supermarkets has recently expanded at a faster pace, and the number of "hard discounters" has also risen steadily.
- Keener competition, increased efficiency and relaxation of the regulations in the distribution sector could help to reduce price levels and foster greater dynamism in the economy.

Inflation in Belgium: an analysis by the NBB at the request of the federal government ⁽¹⁾

Introduction

This study examines inflation in Belgium, following its steep rise in late 2007 and early 2008, and compares it with that in the euro area as a whole and, where relevant, with that in the three main neighbouring countries (Germany, France and the Netherlands). This study, conducted at the request of the federal government, aims (i) to identify the determinants of inflation in Belgium, (ii) to define the extent to which there are factors common to the euro area and neighbouring countries, and (iii) to ascertain the causes of any asymmetries and examine their economic policy implications. In its request, the federal government explicitly stated that it wanted the study to examine the movement in prices over the past five years and to concentrate on the product categories behind the recent acceleration in inflation, namely energy and food products.

This is a résumé of that analysis. The conclusions presented here are largely based on various specific studies, each of which is set out in detail in the annexes to this report. The latter relate to (a) the main characteristics of the harmonised index of consumer prices (HICP), the main statistic used for the analysis, (b) the movements in petroleum product prices (petrol, diesel and heating oil), (c) the movements in electricity and gas prices, (d) the movements in processed food prices, and (e) the specific

characteristics of the price adjustments of the processed food products recording the largest price increases.

This study broadly follows that structure and examines in succession the various specific questions mentioned above. However, it starts by offering a more general view of the inflation developments in Belgium and their impact on purchasing power.

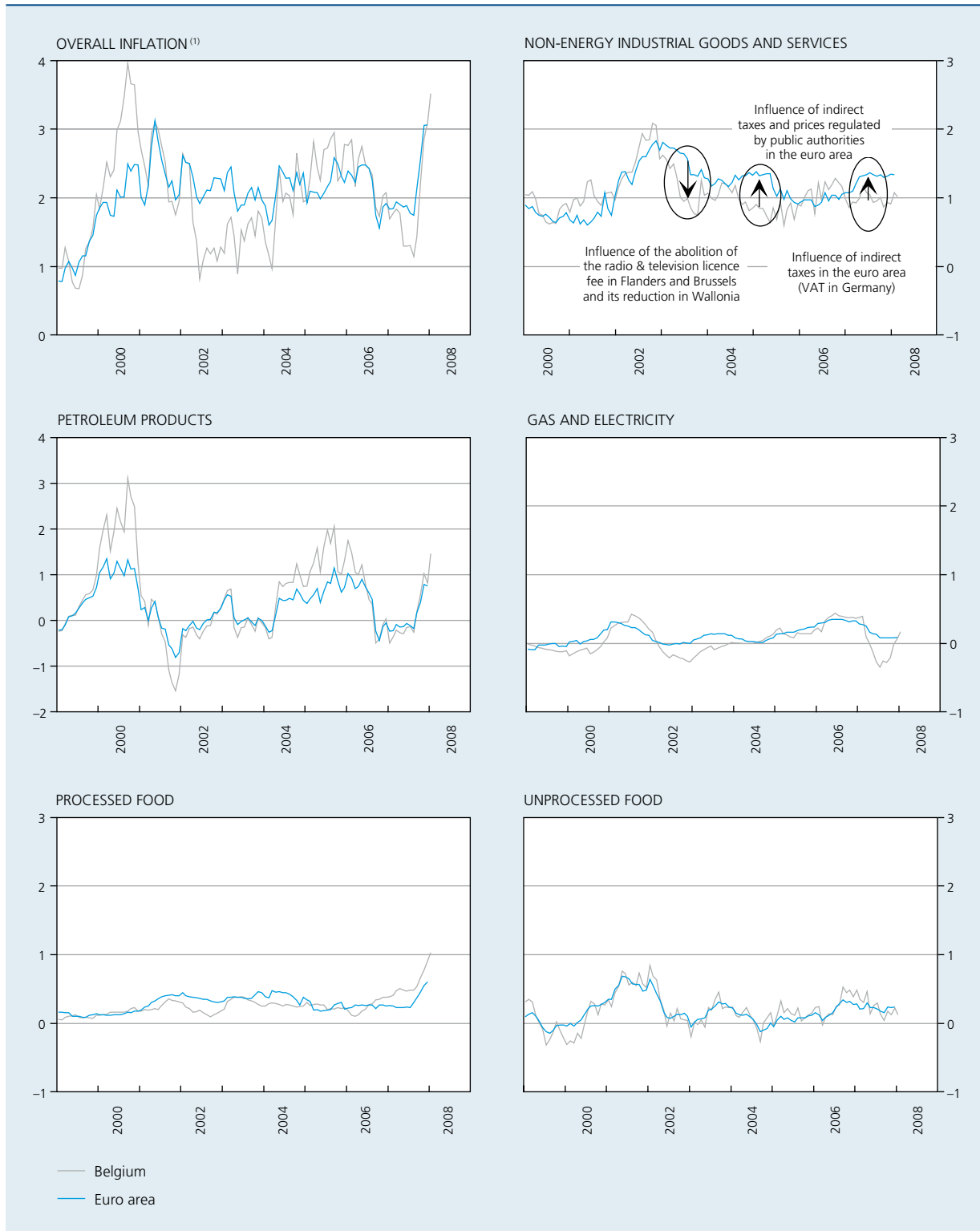
1. Recent inflation movements and purchasing power

Recent inflation movements

This study is based on the harmonised index of consumer prices (HICP), which is more relevant than the national consumer price index (CPI), essentially because it lends itself better to international comparisons (cf. annex A for more details). In 2007, inflation measured by this indicator averaged 1.8 p.c. in Belgium, against 2.1 p.c. in the euro area. In Belgium, it nonetheless accelerated rapidly in the second half of 2007, rising from 1.2 p.c. in August 2007 to 3.5 p.c. in January 2008. Energy and processed food prices increased by 13.3 and 8.5 p.c. respectively in January 2008. These products account for around 22 p.c. of consumption expenditure. The movement in their prices, described in detail in the next section, largely reflects the impact of the increased cost of crude oil and food on the world market. A similar acceleration, though slightly less marked, was seen in the euro area. According to Eurostat's flash estimate, inflation there was running at 3.2 p.c. in January 2008. In the case of unprocessed

(1) This analysis was conducted by the NBB's Research department in collaboration with the Microeconomic Information department, for Annex C, and the Directorate General of Statistics and Economic Information (DGSEI) of the FPS Economy, SMEs, Self-employed and Energy for Annex E. The DGSEI also made some valuable comments on an initial version of the other aspects of this study. This study was presented to the federal government on February 22. Later inflation developments are therefore not dealt with by this study. The Bank will again discuss inflation movements in its Economic Review of the second quarter, which will be published in June.

CHART 1 INFLATION IN BELGIUM AND IN THE EURO AREA
 (contribution to inflation, unless otherwise stated)



Sources: EC, NBB.

(1) Percentage changes compared to the corresponding period of the previous year.

food, non-energy industrial goods and services, inflation remained moderate.

While the stronger rise in inflation in Belgium is attributable partly to the movement in prices of petroleum products (petrol, diesel and heating oil), it is due mainly to the increase in the price of gas, electricity and processed food. Those product categories are therefore analysed in more detail below (in sections 3, 4 and 5 respectively).

In the case of electricity and gas, inflation accelerated sharply in the second half of 2007, after recording a marked fall in the first half. Section 4 shows that the picture specific to Belgium is due to the use of a spot market price in the gas indexation formulas now applied by gas suppliers to set consumer prices. Consumer prices for gas in Belgium have thus become more volatile than they used to be. Moreover, the fact that, since January, the gas price index has mirrored the movement in the monthly tariffs has accentuated the effects of this increased volatility.

Conversely, in the case of processed food, the strong acceleration seen in the second half of the year – a broadly parallel rise was seen in the euro area, although starting from a lower level – followed a period (second half of 2006 – first half of 2007) in which the increase in processed food prices was already outpacing the rise in the euro area. It is not so much the strong acceleration in the second half of 2007, but rather the fact that processed food prices had already risen in the second half of 2006 and the first half of 2007 that is atypical. Section 5 demonstrates that this pattern is, to a large extent, totally unconnected with the rising price of food commodities, which is more recent. It was also a widespread phenomenon which affected most processed food categories.

Macroeconomic evolution of purchasing power

In Belgium, not only wages and salaries but also social security benefits and certain other incomes such as rents are index-linked, neutralising the impact of price movements on purchasing power in macroeconomic terms. This automatic and general indexation is more or less unique in Europe, but is not without its dangers, as it heightens the risk of a price-wage spiral which would considerably reinforce the persistence of inflation shocks. Moreover, indexation can affect competitiveness, since such a practice is non-existent or less generalised in other countries.

However, indexation takes effect after a certain time lag and is only partial in the current circumstances.

Indexation takes effect after a certain time lag because the law stipulates that it must be based on the average health index for the past four months. In addition, the exact indexation procedures are laid down in the sectoral collective labour agreements, which may cause an additional delay. In broad terms there are two methods: either indexation takes place at set intervals (every six months or once a year, for example), or when certain thresholds (key indices) are passed (this mechanism exists in the civil service and is also applied to social benefits; in both cases, the current thresholds are 2 p.c.). Such a delay does imply some erosion of purchasing power in the short term, but in the medium term its impact is neutral since this factor has the opposite effect when inflation slows down. When indexation itself accelerates, which was to some extent the case recently – particularly when the key index was exceeded in December 2007 – and social benefits and wages are therefore indexed, the purchasing power problem is less noticeable than when inflation gathers momentum.

However, the effects on purchasing power are not totally neutralised in the current circumstances, mainly because of the influence of the health index examined below.

The health index was introduced as the reference index in 1994. It excludes certain products: tobacco, alcoholic beverages, petrol and diesel. This implies that the part of the acceleration in inflation attributable to the movement in petrol and diesel prices does not trigger indexation, in contrast to the acceleration resulting from an increase in the price of food and energy products other than motor fuels (heating oil, gas and electricity). In practice, the cumulative rise in the health index over the period 1999- 2007 reveals that the increase has been 2 percentage points below the rise in the total harmonised index, the former totalling 17.3 p.c. against 19.3 p.c. for the latter. Since an index which excluded all energy products would have recorded a cumulative increase of only 16 p.c. over that period, the conclusion is that the health index eliminates around three-fifths of the total inflationary effect due to an oil shock, while incorporating the other two-fifths.

Comparison of the two sub-periods featuring a rise in crude oil prices, namely 1999-2003 and 2004-2007, shows that the indexation based on the health index was partial, falling short of overall inflation by 0.6 and 1.3 percentage points respectively. While the energy products included in the health index exerted an upward effect of 1.1 percentage points during the second sub-period, their impact had been negligible during the first.

TABLE 1 INFLATION AND THE HEALTH INDEX
(cumulative percentage changes)

	1997-1998	1999-2003	2004-2007	1999-2007
Overall inflation	2.4	9.7	8.8	19.3
Health index	2.6	9.1	7.5	17.3
Health index excluding energy ⁽¹⁾	2.8	9.0	6.4	16.0

Sources: EC, DGSEI, NBB.

(1) All components of the energy price increase have been excluded, including those of domestic origin.

However, the loss of purchasing power associated with the application of the health index is justified from an economic point of view. The steep increase in crude oil prices in fact leads to collective impoverishment of the economy which should, in principle, be borne by all the domestic economic sectors. Passing on a disproportionate amount of the impoverishment to businesses via total indexation is liable to trigger a price-wage spiral, which would affect the future evolution of inflation and impair competitiveness, eventually causing a slowdown in economic activity (and hence a loss of purchasing power). Passing on the impoverishment to the government is also inadvisable in view of the narrow budgetary scope available. Moreover, if the government were to compensate for the loss of purchasing power, that would obscure the signal given by the increase in crude oil prices, whereas that increase should rightly encourage energy saving. It was precisely in order to protect the Belgian economy against such mechanisms, the ill effects of which were apparent in the 1970s and early 1980s, that the health index was introduced. Even now, around two-fifths of the shocks caused by petroleum product prices are reflected in the movement in the health index, and therefore potentially also in wages. However, the application of the 1996 law on wage setting, and the increasingly widespread practice of concluding all-in agreements, mean that the link between the rise in the health index and nominal wages is less automatic, and therefore weaker.

Finally, the idea of a loss of purchasing power associated with the application of the health index needs to be seen in context. The loss is relative, i.e. in relation to a situation in which the crude oil price had not risen. In absolute terms, purchasing power continued to increase in 2007 and looks set to carry on rising in 2008. Thus, in 2007, earned incomes increased by 2.4 p.c. in real terms,

i.e. above inflation. This rise was due mainly to job creation, but the real change in wages per hour worked in the private sector was also positive, despite some erosion caused by the acceleration of inflation. The total disposable income of households and private consumption also increased in real terms, at similar rates.

Microeconomic evolution of purchasing power

The macroeconomic evolution of purchasing power outlined above is not necessarily valid for all population groups. As the recent acceleration in inflation was due largely to the prices of basic consumption goods such as food and heating (heating oil and gas), the question is whether the lowest income groups were more affected. To answer that, an attempt was made to calculate the overall price increase affecting recipients of incomes in the first decile (i.e. the bottom 10 p.c. of incomes)⁽¹⁾. For that purpose, a basket of goods appropriate to that group was composed on the basis of the household budget survey, and the movement in prices apparent in the consumer price index was applied to that specific expenditure structure. This is merely an initial approximation since, ideally, the specific movement in prices ought to be taken into account on top of the specific expenditure pattern, but those figures are not available. However, if they were, then the asymmetry examined below might be even more marked. In fact, the analysis presented in Annex E reveals that the changes in food prices were faster and more pronounced for cheaper products (where margins are lowest). Since less well-off consumers probably buy more products of that type, it is possible that they faced an even more adverse price evolution than the average. Moreover, it is evident from the statistics of the Brussels Rental Observatory that the rise in rents payable by the most disadvantaged tenants exceeded the average in 2006. Conversely, the new social tariffs for gas and electricity, applicable from 2008, are more advantageous

(1) For more details, cf. box 12 in chapter 5 "Prices" of the NBB's Report 2007

than before and therefore below the standard tariffs (cf. annex C). In the absence of exhaustive data, however, it was not possible to take these specific characteristics into account in the analysis presented here.

The exercise shows that there is no systematic deviation in one specific direction. Thus, inflation exceeded the average for low incomes during the period 1997-1998, but was lower during the period 1999-2003. The absence of any systematic deviation has already been suggested in a study conducted at the UCL⁽¹⁾. Nonetheless, it appears that during the period 2004-2006, the cumulative inflation figure was 0.9 percentage point above the average in the case of low incomes. That gap widened by 0.2 percentage point in 2007, and is expected to increase further in 2008.

Other factors also imply that vulnerable households find it harder to cope with the shock of the price increase. In certain cases, a relative deviation in purchasing power may in fact also emerge between households whose incomes increase little, if at all, in real terms and employees receiving real wage increases. This applies, for example, to households dependent on replacement incomes or pensions, the amounts of which are subject to only sporadic and partial adjustment in real terms (i.e. increases excluding indexation, also known as the link to prosperity). This type of loss of relative purchasing power is not directly connected with the evolution in prices and indexation but, as it may accumulate over periods of varying length, it may accentuate the inequality in the face of a large price increase. Moreover, most of the poorest households generally have little if any scope for absorbing the shock of a price increase by reducing their savings.

(1) Bodart V. and J. Hindricks (2006), *Les Belges sont-ils tous égaux devant l'inflation?*, Itinera Institute, Memo 1/2006.

While it is clearly inadvisable, from a macroeconomic angle, to introduce general compensation for the loss of purchasing power resulting from oil shocks, be it by an indexation mechanism or by government compensation, appropriate targeted social policies can nonetheless be used to address social aspects, if necessary.

2. The fundamental characteristics of the inflation evolution in Belgium are largely comparable to those of the euro area

This section places the recent divergence in Belgian inflation in perspective by comparing it with inflation in the euro area over a longer period, e.g. the last five years (period 2003-2007) or since the start of monetary union in 1999. It then becomes apparent that the pattern of inflation in Belgium has also deviated from that in the euro area a number of times in the past. Compared to those past divergences, the current gap is not particularly large. Moreover, the deviations recorded in the past tended to be transient and were not systematically in an upward direction.

However, there is also no question of a significant downward deviation, since cumulative inflation over the period 1999-2007 as a whole in Belgium was only 0.7 percentage point below the figure for the euro area. This slight negative deviation is due entirely to the movement in prices over the past five years (period 2003-2007), when inflation in Belgium averaged 2 p.c., against 2.1 p.c. in the euro area.

An important source of (temporary) divergence is the contribution of indirect taxes and administrative price changes, since they are purely discretionary. Thus, in 2007, inflation in the euro area was driven up by around 0.3 percentage point as a result of the increase in

TABLE 2 INFLATION FOR THE LOWEST INCOMES
(cumulative percentage changes)

	1997-1998	1999-2003	2004-2006	2007
Overall inflation	2.4	9.7	6.9	1.8
Inflation for the first decile	2.9	8.8	7.8	2.0
Implicit decline (-) / increase (+) in purchasing power for the first decile	-0.5	+0.8	-0.9	-0.2

Sources: DGSEI, NBB.

indirect taxes in Germany. In 2004, too, administrative price changes had a significant upward influence on inflation in the euro area. Conversely, in Belgium the abolition of the radio and television licence fee in Flanders and Brussels and its reduction in Wallonia had the effect of lowering inflation in 2002 and 2003.

Asymmetry barely perceptible in the fundamental determinants of inflation

Leaving aside these factors which tend to have a rather temporary influence, the underlying trend in inflation in Belgium, measured by the movement in the prices of services and non-energy industrial goods, largely mirrored the profile seen in the euro area. The Belgian economy is in fact very open – with a particularly high import content in non-energy industrial goods⁽¹⁾ – so that the inflation pattern in the main neighbouring countries very quickly affects that seen in Belgium. Moreover, the Belgian economic cycle is largely synchronised, for much the same reason, with that of the euro area, and the cyclical component of inflation therefore presents a similar profile⁽²⁾. In particular, fiscal policy in recent years has been compatible with the smooth operation of EMU, and has not engendered any upward inflationary pressure via excessive stimulation of demand. Finally, pursuant to the 1996 law on the promotion of employment and the safeguarding of competitiveness, wage setting in Belgium has been broadly aligned with the movement in wages in the three main trading partners, thus minimising the inflation differentials due to divergent wage evolutions. In future, it will be necessary to continue avoiding divergences in wage setting so that inflation in Belgium can be constantly maintained at a level close to that in the euro area. The pursuit of a fiscal policy geared to stability is also a contributory factor.

The moderate wage increases of recent years are the main reason why inflation in services declined from 2.6 p.c. in 2002 to 1.9 p.c. in 2007. Furthermore, the rate of increases in rents, which come under services, has also been modest. However, it should be noted that the rent actually paid by tenants is incorporated in the HICP, but not the costs of owner-occupied housing. The latter are not included in the national consumer price index either. However, from the methodological point of view it is very difficult to measure such costs reliably and incorporate them in the inflation figure (cf. annex A for more details).

(1) Cornille, D. and B. Robert (2005), *Sectoral interdependence and cost structure of the Belgian economy: an application of the input-output tables*, NBB, Economic Review, no. 2, pp. 33-48.

(2) For more details on this subject cf. box 5 in the NBB's Report 2003.

Whether or not the costs of owner-occupied housing are taken into account is not neutral for inflation measurement, especially in a country such as Belgium, where the proportion of owner-occupied housing is considerable. Finally, it is also worth pointing out that non-energy industrial goods and services, which together represent around 70 p.c. of the index basket, did not contribute to the recent acceleration in inflation. Prices of non-energy industrial goods increased by 0.9 p.c. in 2007, and prices of services by 1.9 p.c.

The contribution of unprocessed food (vegetables, fruit, meat and fish) to overall inflation in Belgium is largely comparable to that in the euro area, both over the past five years and since the start of monetary union. These products did not contribute to the recent rise in inflation, either in Belgium or in the euro area. However, some acceleration in meat prices, in particular, cannot be ruled out in the future, following the increase in the cost of cattle feed, which in turn follows from the general rise in basic food prices (cf. annexes D and E on the impact of this rise on prices of processed food). However, it should be noted that, for these products, inflation in Belgium is slightly more volatile in the short term. Nonetheless, this difference seems to be due mainly to the fact that prices of these products are greatly influenced by weather conditions, which are generally specific to one country or a small group of countries. As a rule, the effects are attenuated or offset within the euro area by the aggregation of the inflation figures for the various countries, whereas they may be reflected in full in the Belgian index.

Need for an in-depth analysis of the movement in prices of petroleum products, electricity and gas, and processed food

For three other groups of products, namely petroleum products (petrol, diesel and heating oil), gas and electricity, and processed food, sometimes significant deviations have been seen in the past, compared to the inflation evolution in the euro area. These three product groups are also the source of the acceleration in inflation recorded in the second half of 2007 and in January 2008. That was also the case in the euro area, but the contribution of these product groups to the acceleration in inflation since mid 2007 was more marked in Belgium. These product groups are therefore analysed in more detail below (cf. annexes B and C respectively concerning petroleum products and electricity and gas, and annexes D and E relating to processed food). Nonetheless, it is worth pointing out at this stage that it was only in the case of petroleum products that the cumulative price increase was higher in Belgium than in the euro area, namely by

TABLE 3 CUMULATIVE INFLATION DIFFERENTIALS IN RELATION TO THE EURO AREA
(percentage points)

	1999-2007		2003-2007			1999-2007		2003-2007	
	Overall inflation					Non-energy industrial goods and services			
Ireland	12.3	3.3	Greece	11.7	6.8				
Greece	10.6	5.6	Ireland	10.7	3.5				
Spain	9.7	5.2	Portugal	10.3	3.7				
Portugal	8.0	2.6	Spain	10.0	5.0				
Luxembourg	5.9	4.4	Italy	4.7	1.7				
Netherlands	3.1	-2.3	Luxembourg	2.7	1.5				
Italy	2.2	0.8	Netherlands	2.6	-1.9				
Belgium	-0.7	-0.7	Belgium	-0.7	-1.2				
France	-2.4	-0.8	Finland	-1.4	-3.7				
Austria	-2.7	-1.4	Austria	-1.6	-1.3				
Germany	-4.3	-1.9	France	-2.3	-0.2				
Finland	-4.4	-5.4	Germany	-5.8	-2.9				
	Petroleum products				Electricity and gas				
Luxembourg	15.3	9.3	Netherlands	43.8	15.2				
Belgium	12.0	10.0	Ireland	25.2	24.0				
Germany	9.4	0.0	Germany	12.4	6.3				
Greece	2.7	8.3	Luxembourg	-3.2	5.1				
Portugal	2.4	9.4	Italy	-4.2	-1.8				
Spain	0.2	-1.0	Finland	-6.6	-2.1				
Austria	-3.2	1.7	Portugal	-7.6	-2.5				
Ireland	-3.7	-0.3	Austria	-10.2	-2.1				
France	-4.2	2.5	Spain	-16.8	-5.7				
Netherlands	-6.5	-5.0	Belgium	-17.4	-13.0				
Finland	-10.5	-7.1	France	-18.0	-9.8				
Italy	-13.5	-5.8	Greece	-18.5	-5.3				
	Processed food				Unprocessed food				
Greece	15.5	6.6	Spain	15.9	10.5				
Luxembourg	12.8	8.0	Luxembourg	4.0	1.0				
Ireland	11.2	0.2	Italy	2.2	0.6				
Spain	8.4	5.2	Greece	2.2	-3.4				
Portugal	2.7	-0.3	Portugal	0.9	-1.5				
France	0.4	-2.2	Belgium	-0.3	1.2				
Italy	-0.1	1.0	France	-1.2	-1.6				
Belgium	-2.3	0.1	Ireland	-1.8	-7.0				
Germany	-2.8	0.5	Netherlands	-3.0	-6.8				
Austria	-4.5	-1.6	Austria	-4.5	-1.1				
Netherlands	-4.9	-8.9	Finland	-5.6	-5.1				
Finland	-13.8	-12.7	Germany	-10.8	-4.8				

Sources: EC, NBB.

12 percentage points since the start of monetary union, 10 of those percentage points being attributable to the past five years. In the case of processed food, the cumulative price increase since 1999 fell well short of that seen in the euro area, whereas the cumulative price rise over the past five years has been comparable to the figure for the euro area, even though – since mid 2006 – prices of these products have risen faster in Belgium than in the euro area. Conversely, the cumulative increase in gas and electricity prices has been much smaller in Belgium than in the euro area, being 17 percentage points lower since the start of monetary union, 13 of those percentage points being attributable to the past five years.

Greater dispersion in relative price changes both in Belgium and in the euro area, with possible consequences for the prices relevant to various social groups and inflation perception.

Before examining in more detail the three product groups mentioned above, it is worth noting that, over the past five years, although inflation has not been significantly higher than in the past, there has been a considerable increase in the dispersion of relative price changes. The number of products recording a steep price increase and the number becoming much cheaper have both risen in the past five years, compared to the period 1997-2001. The interval of twice two standard deviations around the average price increase has therefore expanded considerably in the past five years. However, this is not peculiar to Belgium since it was also apparent in the euro area as a whole and in the three main neighbouring countries. In that respect, as well, the movement in prices in Belgium is broadly comparable to that seen in the euro area and in the main neighbouring countries. The greater dispersion in relative prices can therefore be considered a structural phenomenon; this is in turn attributable to progressive globalisation, which mainly has an impact on inflation by altering relative prices, driving up the price of commodities (particularly crude oil and food commodities) and reducing the price of manufactured products.

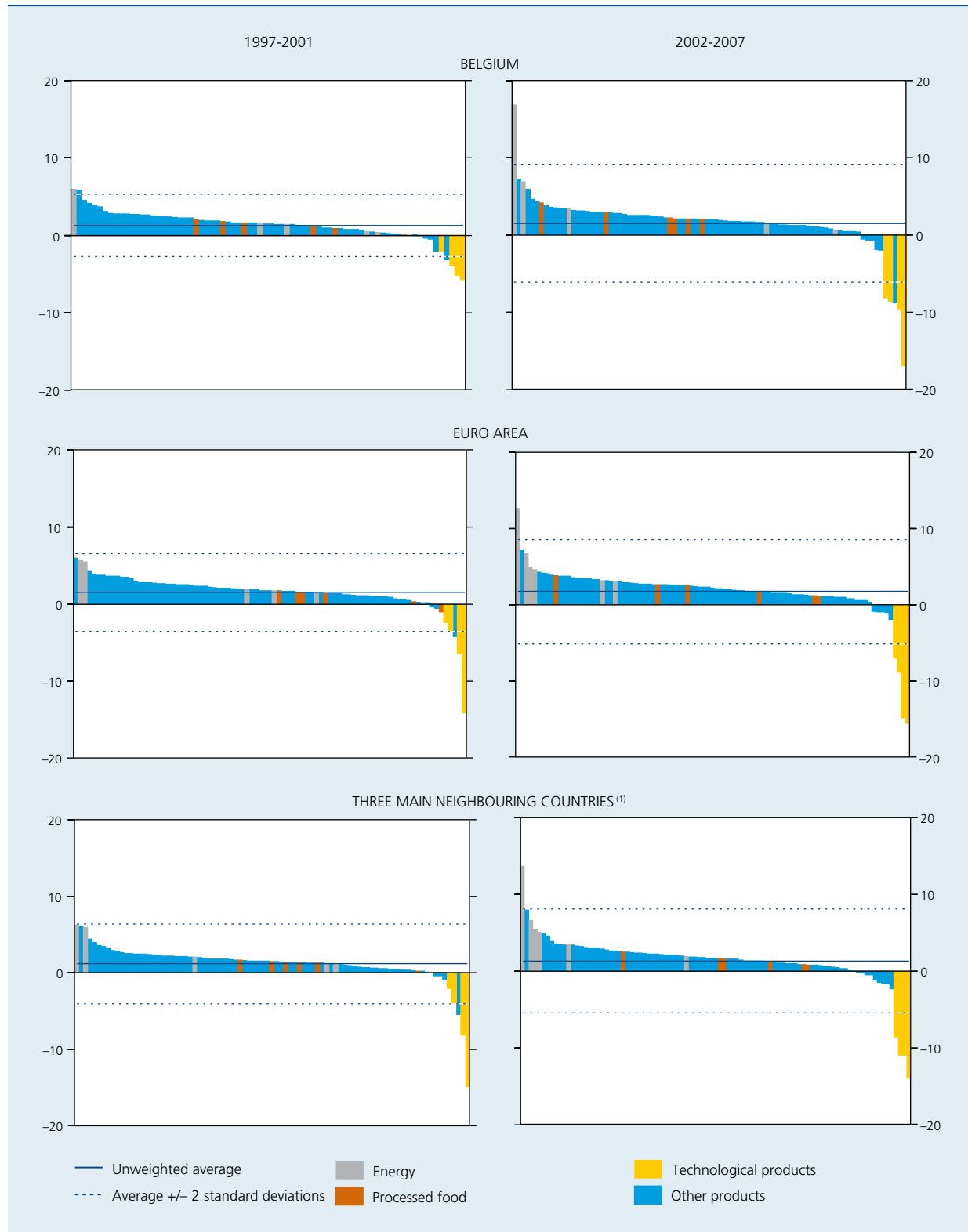
The observed increase in the size of the changes in relative prices in the past five years is not at odds with the fact that monetary policy is aimed at price stability at the aggregate level. The ECB Governing Council in fact defined price stability as an increase in the overall HICP for the euro area of less than, but close to, 2 p.c. in the medium term, and that objective is entirely independent of the movement in prices recorded for certain groups of products or in certain Member States. In a market economy, relative price changes in fact play a key role in the efficient allocation of resources: price increases for

relatively scarce products help to steer demand towards products for which prices are rising less fast, or are even falling, because their supply conditions are more favourable. The substantial increases in certain product prices are therefore not a problem *per se*, and neither are the significant falls in the prices of other products. Thus, the steep rise in energy prices should, in principle, encourage a reduction in energy consumption. Moreover, for consumers, adjustments to their consumption profile enable them to preserve as far as possible their overall level of consumption and thus their standard of living. If the government counteracts these price increases, that weakens the price signal and therefore makes it harder to modify demand. That is particularly harmful if the relative price change is permanent and therefore specifically requires a structural response.

The greater variability of relative prices, which is not a problem in itself, may yet produce significant secondary effects. On the one hand, it increases the likelihood that the consumption profile specific to certain social groups implies that the inflation level relevant for that group deviates from average inflation (which is based, by definition, on the average consumption profile). Section 2 has already drawn attention to the fact that, in the current circumstances, the aggregate price increase corresponding to the consumption profile of the population group with the lowest 10 p.c. of incomes is larger than the rise based on the average consumption profile.

Also, if consumer inflation perception is based more on experience of price increases rather than reductions, the greater variability of relative prices may lead to a positive deviation between perceived inflation and real inflation. Since the introduction of the euro in 2002, perceived inflation measured by the EC consumer survey has begun to exceed actual inflation both in Belgium and in the euro area. However, in the euro area that gap diminished in 2003 and 2004, mainly as a result of the perceived inflation in Germany and the Netherlands. Belgium, together with Austria, France and Spain, is one of the countries where this gap is very persistent. Both in Belgium and in the euro area, perceived inflation has risen considerably since October 2007, but in both cases this movement does not appear to be disproportionate to the acceleration in actual inflation, which is connected with increases in the prices of energy and food products. As already mentioned, the fact that the HICP does not include the costs of owner-occupied housing may perhaps also have encouraged these deviations.

CHART 2 DISPERSION OF THE MOVEMENT IN RELATIVE PRICES
(annual percentage changes)

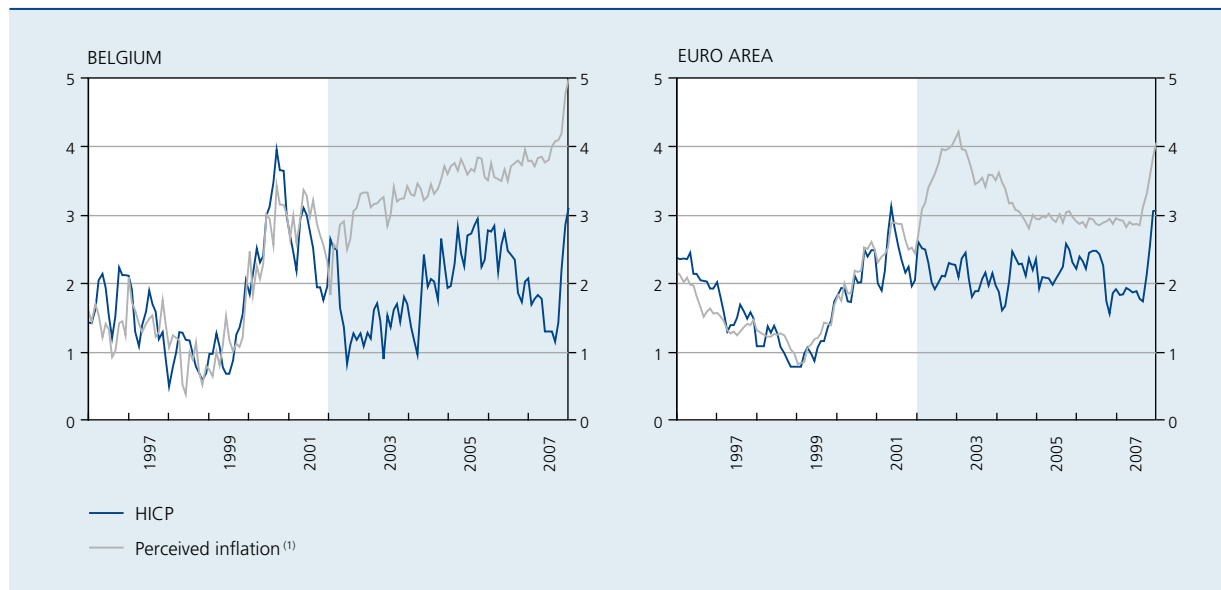


Sources: EC, NBB.

(1) Weighted average for France, Germany and the Netherlands, based on the detailed HICP weightings.

CHART 3 INFLATION : REALITY AND PERCEPTION ⁽¹⁾

(percentage changes compared to the corresponding month of the previous year)



Sources : EC, NBB.

(1) Balance of responses to the EC survey, converted to an inflation indicator comparable to the HICP in accordance with the standardisation procedure described in Aucremanne L., M. Collin and T. Stragier (2007), *Assessing the Gap between Observed and Perceived Inflation in the Euro Area: Is the Credibility of the HICP at Stake ?*, NBB, Working Paper 112, April.

Inflation differentials in relation to the main neighbouring countries mainly reflect cyclical differences

In a monetary union, the inflation within each Member State must also be interpreted primarily as a movement in relative prices. In that case, too, an upward or downward inflation deviation in a particular country is not a problem in itself, as the change in relative prices in a monetary union is precisely one of the adjustment mechanisms which have been retained in order to absorb shocks specific to certain countries and to restore the balance between supply and demand in the country in question. It is all the more important that this mechanism should work well as it is no longer possible to adjust exchange rates in a monetary union, and the single monetary policy can only respond to growth or inflation developments in the euro area as a whole, and not to developments specific to certain Member States. A high degree of flexibility in prices and wages therefore makes it easier to assimilate specific shocks in countries belonging to a monetary union. That inevitably means inflation differentials in relation to the union as a whole. Nonetheless, not all the inflation differentials observed in a monetary union are due to such a virtuous process, as they may also be caused by dysfunction on the product, labour and capital markets of certain countries, pushing the movement in

wages or prices out of line with the underlying economic fundamentals. Finally, inflation differentials may also be the result of an inappropriate economic policy.

It has already been stated that, during the period of monetary union, inflation in Belgium has not tended to persist for long periods at levels above or below those in the euro area. Conversely, that has in fact been the case for some of the three main neighbouring countries so that, ultimately, inflation in Belgium has also deviated persistently from the figure for those countries. However, these differentials appear to be due mainly to the fact that certain neighbouring countries underwent the adjustment process described above, because they were in a different position in the cycle compared to the monetary union as a whole.

Thus, German inflation has tended to be systematically below the rate for the euro area, and hence also lower than in Belgium, owing to the sluggishness of economic activity in Germany until recently. The cumulative negative German inflation differentials improved the competitiveness of the economy, which had been weakened after reunification, and therefore contributed to the recent expansion of economic activity. German inflation gathered pace recently, even without the rise in indirect taxes in 2007, in line with the improvement in business activity.

Over the period 1999-2007 as a whole, inflation in the Netherlands was higher than in the euro area, and hence also higher than in Belgium. Nonetheless, this situation is attributable entirely to the initial years of monetary union, when the Dutch economy showed signs of overheating. The positive inflation differentials recorded in the Netherlands during that period and the accompanying loss of competitiveness contributed to the subsequent economic slowdown. Over the last five years, inflation in the Netherlands has been slightly lower than in the euro area. Inflation in France was also slightly below inflation in the euro area, by roughly the same amount as in Belgium over the past five years.

3. Petroleum product prices

As already stated, the cumulative increase in petroleum product prices was stronger in Belgium than in the euro area, outpacing it by 12 percentage points since the start of monetary union and by 10 percentage points over the past five years. Thus, during that period, the cumulative contribution made by petroleum products to overall inflation in Belgium was 1 percentage point higher than in the euro area. Calculated since the start of monetary union, this difference in terms of contribution is actually 1.8 percentage points. Moreover, petroleum products are part of the reason for the acceleration in inflation observed at the end of 2007. Their contribution to that was also slightly more marked in Belgium than in the euro area, as petroleum products contributed 0.7 percentage point to the acceleration in inflation between September and December 2007 in Belgium, compared to 0.5 point in the euro area.

Annex B examines the pricing of these products in Belgium and compares the level of prices charged in Belgium, both before and after tax, with those prevailing in the euro area as a whole, and in the three main neighbouring countries.

This analysis reveals that the evident asymmetry is due primarily to two factors which make the Belgian HICP more sensitive to fluctuations in crude oil prices, namely (a) the particularly low level of flat-rate taxes on heating oil, so that the price of this product is lower in Belgium than on average in the euro area, but is much more variable, and (b) the weight of this product which, in the Belgian HICP, represents more than twice the weight for the euro area. The reason for the difference in the weight of heating oil is that, since the southern EU countries have less need for heating, the percentage of the household budget allocated to this type of expenditure is lower, and the majority of the other northern EU countries make much

more use of other energy sources for heating (principally gas). Like the price of heating oil, the diesel price is also lower in Belgium than in the euro area in general and in each of the three main neighbouring countries, owing to lower excise duty. Conversely, petrol prices in Belgium are above the average for the euro area, similar to those seen in France and Germany, and lower than those prevailing in the Netherlands.

The greater sensitivity of the Belgian HICP to fluctuations in crude oil prices is symmetrical: it applies to both increases and decreases in crude oil prices. However, since the trend in the crude oil price has been predominantly upwards since 2002 (and also since 1999), this factor penalised Belgium during the period 2003-2007 (and also between 1999 and 2007).

While fluctuations in crude oil prices undoubtedly have a greater impact on consumers in Belgium than in the euro area, it should nevertheless be noted that no significant anomaly was found in the setting of pre-tax prices for these products in Belgium. More particularly, the fact that pricing is largely determined by the "programme contract" does not cause any major distortions. Even though the principle of automatic indexation of distribution margins places the sector in a comfortable position, in recent years the actual consumer prices – primarily for petrol and diesel – have displayed a growing negative deviation in relation to the maximum prices set by the programme contract. It is therefore apparent that the effective distribution margins have contracted slightly in the past five years. That decline could be a sign of keener competition in the distribution of petroleum products, even though the much larger discounts granted by certain service stations appear to indicate that this market is still highly segmented, and that imperfect competition still prevails.

The increase in crude oil prices had a more marked impact on the Belgian HICP even though, in Belgium, in contrast to other euro area countries, it was curbed somewhat by the federal government's introduction of the reverse ratchet system. By means of this system, the excise duty on diesel has been cut by 6.5 euro cents per litre since mid 2005, so that the excise duty on biodiesel is currently at the EU minimum level. Up to mid February, the threshold for activating the reverse ratchet system was not reached in the case of petrol. Leaving aside their impact on the public budget, these cuts in excise duty have the disadvantage of weakening the potential signal given by increases in petroleum product prices, to encourage a reduction in energy consumption.

4. Consumer prices of electricity and gas

In contrast to what was seen in the case of petroleum products, since the start of monetary union cumulative inflation in the case of gas and electricity has been lower in Belgium than in the euro area, by 17 percentage points (cf. table 1) and 13 points over the first five years. These products have thus helped to reduce somewhat the contribution of the energy component to the inflation differential between Belgium and the euro area. However, they played a significant part in the acceleration in inflation at the end of 2007, mainly because of the rise in consumer prices of gas. Here, too, the contribution of these products to the acceleration in inflation between September and December 2007 was greater in Belgium than in the euro area.

The process of setting gas and electricity prices, and the changes made to that process and to the method of recording prices following the liberalisation, are presented in annex C. The level of prices before and after tax is also compared with the prices prevailing in the main neighbouring countries.

This analysis shows that, during the period 1999-2007, the movement in electricity and gas prices for households seems to have been fairly favourable in Belgium compared to the main neighbouring countries. The analysis also shows that any comparison must take account of levies other than VAT, which may be particularly significant in certain countries.

Pricing by competing suppliers does not appear to pose any major problems. However, the principle of tariff indexation sometimes lacks transparency, and the regulator does not have the necessary powers to judge whether or not changes to suppliers' tariffs or indexation parameters are fair. As competition develops, that should reduce the risk of abuse, but the existence of dominant operators is a factor in favour of some supervision.

Where distribution costs are concerned, the 2008 tariff increase is likely to give a substantial boost to inflation, undermining Belgium's relatively favourable position compared to the main neighbouring countries in terms of price levels. As regards the regulated element of the tariffs, for the market segment with a legal monopoly, the State could intervene if it considered that to be necessary and justified. According to the regulator, CREG, extending its powers could reduce that increase by around half in the case of electricity, and even lead to a decline in gas supply tariffs compared to 2007.

In the case of the social tariffs, the changes made to the method of calculation in 2007 should produce their full effects in 2008 and tend to be favourable to the persons concerned. However, the cost of these tariffs is borne by households as a whole.

It is also worth bearing in mind that, from 2007, overall inflation has become far more volatile, owing to the combined effects of the change in the definition of the main gas price indexation parameter, which now incorporates a 'spot' price (the Zeebrugge Hub), and the adaptation of the method of recording gas and electricity prices in the HICP and in the national CPI. In regard to price recording, since January 2007 the price index has reflected changes in monthly tariffs, whereas it had previously reflected changes in the annual bills (which in practice corresponded to an average of the tariffs for the twelve preceding months).

Another consequence of this change of methodology is that, since households generally pay intermediate invoices for a fixed amount each month, there may be some divergence between the assessment by households of the adjustments made to the tariffs invoiced and the movement in the gas and electricity price index. It is in fact not until households receive their annual statement that they are really able to assess the average movement in prices. This could be reflected in a structural gap between perceived and observed inflation.

5. Processed food prices

In view of the steep increases in processed food prices recorded in recent months, there has been close attention of late to the movement in the prices of this product category, even though the focus was often on partial indications or analyses highlighting only one particular aspect of the situation. This section attempts to present an overall analysis based on all the available official data. These are often limited, especially when it is a question of comparing price levels with those prevailing in other countries, and in regard to cost indicators which are relevant for the products concerned. However, the range of data available for the purposes of this analysis was huge in one respect: thanks to active collaboration with the DGSEI, it was possible to base one section of the analysis (presented in annex E) on the source data used for compiling the consumer price index.

Since the start of monetary union in 1999, the cumulative increase in processed food prices has been slightly lower in Belgium than in the euro area as a whole, and in France. It has been broadly comparable to that recorded

in Germany. Only the Netherlands recorded a smaller rise, mainly because the increase in prices of processed foods has been very moderate there over the past five years (the smallest rise in the euro area, except for Finland). There was in fact a 'price war' in the Dutch retail sector between the end of 2003 and mid 2006. In the past five years, prices have risen more rapidly in Belgium than in France and at a rate comparable to that seen in Germany.

In contrast, prices of processed foods have risen considerably more in Belgium than in the euro area since mid 2006. What is atypical is not so much the fast acceleration of the rate of increase in processed food prices since the second half of 2007, discussed in more detail in annexes D and E, but rather the fact that processed food prices had already risen sharply in Belgium during the second half of 2006 and the first half of 2007. This was also a more or less widespread phenomenon, affecting most categories of processed foods. This upward movement appears to be unconnected with the movement in prices of food commodities, an assumption borne out in a number of cases by a more formal VAR analysis.

The increases in processed food prices gathered further speed in Belgium in the second half of 2007, rising from 4 p.c. in July to 7.7 p.c. in December. During that period, the rise was almost equally strong in the euro area, though starting from a lower level. The increase in processed food prices there came to 5.1 p.c. in December 2007. In Belgium, there was a further acceleration in January to 8.5 p.c.; the corresponding figure for the euro area is not yet available. The largest price increases were recorded for milk, cheese and eggs, oils and fats, and bread and cereals. These are also the products which recorded the biggest price rises on the world market. However, by historical standards the impact of the rise in commodity prices was substantial, in both magnitude and in the speed of transmission. That is equally true for the transmission to producer prices of food and for the transmission to consumer prices.

The main reason is that the common agricultural policy (CAP) no longer smooths out fluctuations in world market prices as it did in the past. Consequently, world market price fluctuations now have a much greater impact on prices in Europe. If this factor is taken into consideration, the major part of the increase in processed food prices in both Belgium and the euro area seems to be attributable to the rising world market prices. Consumption patterns specific to Belgium (more bread and butter, less olive oil) have been somewhat unfavourable. The transmission proved to be systematically less marked in France than in Belgium and in the euro area in general. However, it is too soon to ascertain whether that is merely the sign

of slower transmission or of transmission on a reduced scale.

Annex E also shows that price adjustments were larger and speedier in the case of low-price products. Since the margins on those products are, in principle, smaller, the upward pressure of costs is more noticeable. It is therefore logical that larger price changes should be made in the case of these products. That is another, indirect indication that the price adjustments were motivated mainly by the adverse cost evolution, rather than a desire to increase the distributors' margins.

However, there are also signs of supplementary increases in producer and consumer prices. The employed VAR methodology implies that this transmission is not necessarily unjustified. The transmission may seem large because the shock affecting commodity prices coincided with a rise in energy costs. Moreover, it is possible that prices were adjusted more speedily because the food and distribution sectors faced a much more severe shock than those generally experienced in the past. Annex E shows in fact that, since mid 2007, the frequency of price changes has risen sharply for the three product categories examined, bearing witness to faster transmission. In accordance with this finding, the latest data (obtained for January 2008) generally indicate that price adjustment already starts to slow down.

The signs of additional increases are most apparent for the "bread and cereals" product category. However, the same applies for the euro area, although to a slightly lesser extent than in Belgium. Moreover, in the past four years, bread and cereal prices have risen much more noticeably in Belgium than in the euro area. This is due not only to a – short-lived – catching-up process following the deregulation of bread prices in July 2004. It is perhaps connected with inefficiencies in this sector in Belgium, in view of the many small businesses operating there which, at least to some extent, reflect the consumer's preference for "artisan bakers".

According to Eurostat, food prices were 6 p.c. higher in Belgium than in the euro area in 2006. The price level also exceeded that in each of the three main neighbouring countries. The differential is particularly large in relation to the Netherlands, where food price rises have been very moderate over the past five years. However, Eurostat classes Belgium with France and Germany in a group with comparable food prices, taking account of the margin of uncertainty in these statistics. In the absence of an in-depth analysis, a more detailed classification is not possible. Differences in VAT rates account for only a small part, if any, of the differentials observed.

The Belgian distribution sector is the most regulated according to the OECD data currently available. The results for Belgium are particularly weak in the case of new establishments, opening times, rules on the granting of discounts (waiting period prior to the sales) and price regulation. However, these are data for 2003, and some progress has been made in a number of these areas in recent years. That is the case, for example, with the 'IKEA' law, the regulations on opening hours and the abolition of regulated bread prices. The OECD is not expected to update these indicators until later in the year, so that it is difficult to gain an idea of Belgium's current relative position. It is in fact likely that the regulations in force in other countries may also have changed between 2003 and 2007. Nonetheless, the rise in the number of supermarkets has accelerated since 2003 in Belgium and a growing number of hard discounters have been established. The average size of supermarkets in Belgium is smaller than in Germany and France, where there are more hypermarkets.

The harmonised index of consumer prices and the national consumer price index in Belgium : main methodological characteristics

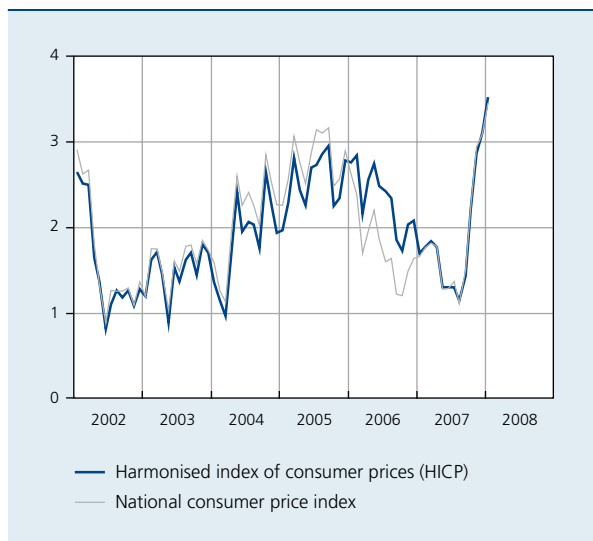
1. Two inflation measures

The analysis is based on the harmonised index of consumer prices (HICP) for two reasons. First, this index is calculated on the basis of a methodology which has been harmonised between the various EU Member States, making it easy to compare price movements. Second, in Belgium the inflation reading obtained via the HICP is superior in quality to that obtained via the national consumer price index (CPI), though the divergences between these two indices have clearly diminished in recent times. For the HICP, the DGSEI applies the methodology harmonised by Eurostat at the European level, while in the case of the method of calculating the national CPI there is social consultation in the Index Committee. In 2004 and 2005, the national CPI has deviated upwards from the HICP because it was outdated, but a year later this bias was rectified by the introduction of the new national index (base 2004 = 100). Since the beginning of 2007, the national CPI has stayed closely in line with the HICP. Although these two statistics may differ slightly month by month, both indices showed an average inflation of 1.8 p.c. in 2007. The two measures were also similar in January 2008: 3.46 p.c. according to the national CPI and 3.52 p.c. according to the HICP. Since the health index, i.e. the reference index for the indexation of wages, salaries and social benefits, is based on the national CPI, it is essential for the Index Committee to ensure that the latter also meets the most stringent methodological requirements.

The two indices differ from one another mainly in their geographical and demographic coverage: unlike the national CPI, the HICP also includes the expenditure of foreign visitors (tourists and customers of frontier stores) and communities such as nursing homes and prisons.

The goods and services whose prices are taken into account in the HICP and in the national CPI must be (and remain) representative of the actual consumption structure. Consequently, both the basket of goods and services and the associated weighting scheme must be adjusted in due course to take account of any change in the consumption structure. The same applies to changes in the structure of retailing. In particular, the prompt incorporation of new products and new types of outlets presents a constant challenge. In the past, there were evident delays in taking account of certain products in Belgium. Thus, personal computers were not included in the HICP until 1999, and it was 2006 before they appeared in the national CPI. Furthermore, the weightings used for the national CPI were only updated after a lengthy time lag, in contrast to what the DGSEI did for the HICP. Thus, the 1996 weightings remained in force until the end of 2005 for the national CPI, while the DGSEI updated the ones for the HICP on three occasions during that period, always on the basis of the latest household budget surveys. These differences caused an upward bias in the inflation figure calculated by the national CPI in 2004 and in 2005. The fact that, at the end of 2005, the social partners meeting in the Index Committee agreed on a partial adjustment to the national CPI every two years is undoubtedly a major improvement. Consequently, a series of new products

CHART A1 INFLATION IN BELGIUM ACCORDING TO THE NATIONAL INDEX AND THE HARMONISED CONSUMER PRICE INDEX
(percentage changes compared to the previous year)



Sources : EC, DGSEI.

– including portable computers – were introduced in the national CPI at the beginning of 2008. These products have also appeared in the HICP since the beginning of the year. It is nevertheless regrettable that these adjustments to the national CPI are only partial, particularly as regards the weightings, so that the HICP is still superior from that point of view. However, there is currently no sign of any systematic divergence between the two indices.

The data on the retail structure are updated in similar ways for the two indices. On the occasion of each major reform, the entire list of outlets is adjusted in line with the new retail landscape. The sample of stores is also kept up-to-date between each major reform, and shops which close down are therefore replaced. It is often small shops that close, giving way to convenience stores, super-markets or hard discounters.

2. Costs of owner-occupied housing

At present the HICP takes no account of the costs of owner occupied housing. Only the rents actually paid by tenants are included in the HICP, in proportion to their share in final consumption. The reason is that no actual price is recorded or paid for the costs which people

incur in occupying their own home. When the HICP was launched, the inclusion of this element appeared contrary to the principle whereby the index only took account of transactions effected for consumption purposes and involving monetary expenditure. Moreover, there was no consensus (nor is there now) on the way in which those costs should be incorporated. Research is in progress at European level on whether the costs of owner occupied housing should be included, and what methodology should be used for that purpose. However, if these costs are taken into account, that is unlikely to happen before 2010. Moreover, it is uncertain whether these costs will one day be included in the HICP, as it would not be easy to incorporate housing as an investment good in the national CPI or in the HICP, which both measure the movement in prices of consumption goods. The national CPI, which also only covers the rents actually paid by tenants, does not take account of these costs either.

Whether or not the costs of owner-occupied housing are taken into account is not neutral for inflation measurement, since these costs represent a substantial proportion of the final consumption expenditure of households. According to the national accounts, imputed rents came to around 12 p.c. of final consumption expenditure in Belgium in 2006 (compared to the 4 p.c. represented by rents actually paid). However, this figure may vary widely between EU Member States: Belgium is actually one of the countries with the largest proportion of owner-occupied housing, in contrast to Germany, for example, where the rental market is much more developed. In addition, property prices have risen strongly, even in real terms, in recent years. Consequently, under the current circumstances, the partial inclusion of housing costs can cause inflation to be underestimated, and may be one of the reasons for the gap between observed and perceived inflation, although it is difficult to quantify its contribution⁽¹⁾.

3. Analytical presentation

The goods and services included in the HICP – altogether, the DGSEI monitors over 140,000 prices relating to more than 500 categories of basic products in over 10,000 outlets – can be grouped according to several different classifications. The COICOP classification (Classification of Individual Consumption by Purpose) groups goods and services according to the type of consumption. As is evident from the table, it initially identifies twelve consumption categories. There is also an analytical classification based on five main categories which are relatively homogenous in terms of their determinants. These are unprocessed food, processed food, energy, non-energy industrial goods and services.

(1) For more details, cf. Aucremanne L., M. Collin and T. Stragier (2007), *Assessing the Gap between Observed and Perceived Inflation in the Euro Area: Is the Credibility of the HICP at Stake?*, NBB, Working Paper 112, April.

TABLE A1 CORRESPONDENCE BETWEEN THE TWO MAIN TYPES OF CLASSIFICATION IN THE HARMONISED INDEX OF CONSUMER PRICES
(percentage weightings, year 2007)

COICOP classification ⁽¹⁾ (per homogenous group by type of use)	Analytical classification (per homogenous group, by determinants)						Total
	Unprocessed food	Processed food	Energy	Non-energy industrial goods	Services		
1. Food and non-alcoholic beverages	Fruit 4.6 Vegetables 1.0 Meat 1.1 Fish 1.6	Bread and cereals 3.1 Milk, cheese, eggs 2.0 Oils and fats 0.4 Sugar 1.1 Food products n.e.c. 0.6 Coffee, tea and cocoa 0.4 Mineral water, soft drinks, vegetable and fruit juices 1.3 Alcoholic beverages 1.8 Tobacco 1.1	Electricity 2.7 Gas 2.2 Heating oil 1.3 Solid fuel 0.1	Repair and maintenance products 1.8 Water supply 0.8	Rent 6.4 Other 1.1		17.2
2. Alcoholic beverages and tobacco							3.0
3. Clothing and footwear				5.8	0.1		5.9
4. Housing, water, electricity, gas and other fuels							16.3
5. Furnishings, household equipment and routine household maintenance							
6. Health				5.6	1.2		6.7
7. Transport			Motor fuel 4.1	Medicinal products, etc. 2.2 Purchase of vehicles, spare parts 7.1	Care, etc. 1.9 Public transport, repair and maintenance, etc. 3.4		4.1
8. Communication							14.6
9. Recreation and culture							3.2
10. Education				6.5	6.0		12.6
11. Restaurants and hotels					0.6		0.6
12. Miscellaneous goods and services					9.0		9.0
Total	8.3	11.9	10.3	31.8	37.7		100.0

Source: EC.

(1) COICOP: Classification of Individual Consumption by Purpose. The classification for the national consumer price index is slightly different: the main difference is that alcoholic beverages are included in COICOP 1, so that COICOP 2 only includes tobacco.

The classification by type of use is often used in Belgium for the purpose of discussing and analysing the inflation figures. Moreover, it is probably closer to the consumers' reality and their inflation perception. Nonetheless, the other classification seems more appropriate for the purposes of this analysis, in which the inflation determinants play a key role. Thus, COICOP group 4 "Housing, water, electricity, gas and other fuels" constitutes a heterogeneous group, as it includes energy (electricity, gas, heating oil and solid fuel), non-energy industrial goods purchased for household cleaning or maintenance, household maintenance services and, as stated previously, (only) the rents actually paid by tenants, whether they be social rentals or not. COICOP group 7 "Transport" is also particularly heterogeneous since it comprises motor fuels (energy), purchases of private vehicles or replacement parts (non-energy industrial goods), transport services (taxis and public transport), and private vehicle maintenance services. That is why this study is based on the analytical classification. Furthermore, the use of that classification is not at odds with the federal government's request that the study should concentrate on the evolution in energy and food prices.

Main elements :

1. Inflation measured by the HICP lends itself better to international comparisons than inflation calculated on the basis of the national consumer price index (CPI).
2. In Belgium, the inflation readings obtained from the national CPI and the HICP have displayed a marked convergence in recent years, although the HICP is still of higher quality, in particular regarding the updating of the weightings used.
3. Neither the HICP nor the Belgian national CPI currently include the costs of owner-occupied housing. The inflation reading could well be affected by whether or not these costs are taken into account, especially in a country such as Belgium where the proportion of owner occupiers is considerable. Moreover, it would not be easy to incorporate housing as an investment good in the national CPI or in the HICP, which both measure the movement in the prices of consumption goods. Also, it is uncertain whether the costs of owner-occupied housing may be included in the national CPI or in the HICP in the future.
4. For the purpose of this study, preference was accorded to an analytical classification of the various goods and services included in the HICP, based on five main categories which are relatively homogenous in terms of their determinants (unprocessed food, processed food, energy, non-energy industrial goods and services), rather than a classification by type of use. The use of the analytical presentation is not at odds with the federal government's request that the study should concentrate on the movement in the prices of energy and food.

Consumer prices of petroleum products in Belgium

1. Summary and conclusions

The cumulative contribution of petroleum products (petrol, diesel and heating oil) to overall inflation in Belgium over the past five years was 1 percentage point greater than in the euro area. Calculated since the start of monetary union, this difference in contribution is as much as 1.8 percentage points. Moreover, petroleum products are part of the reason for the acceleration in inflation observed at the end of 2007. Their contribution to that was also slightly more pronounced in Belgium than in the euro area. Thus, petroleum products contributed 0.7 percentage point to the acceleration in inflation between September and December 2007 in Belgium, compared to 0.5 point in the euro area.

The pricing of these products in Belgium is examined below, and the level of prices charged in Belgium, both before and after taxes, is compared with prices charged in the euro area as a whole and in the three main neighbouring countries.

This analysis reveals that the observed asymmetry is due mainly to two factors which make the Belgian inflation more sensitive to fluctuations in crude oil prices, namely (i) the particularly low level of flat-rate taxes on heating oil: as a result, the price of this product in Belgium is below the average for the euro area, but it is much more variable, and (ii) the weight of this product in the Belgian HICP, which is almost double the figure used for the euro area. Like the price of heating oil, the diesel price is also lower in Belgium than in the euro area as a whole, and lower than in each of the three main neighbouring countries, owing to lower excise duty. Conversely, the price of petrol in Belgium is above the average for the euro area, similar to the price charged

in France and Germany, and lower than that prevailing in the Netherlands.

The greater sensitivity of the Belgian HICP to fluctuations in crude oil prices is symmetrical: it applies to both increases and reductions in the price of crude. However, since the trend in crude oil prices has been predominantly upwards since 2002 (and also since 1999), this factor penalised Belgium during the period 2003-2007 (and also between 1999 and 2007).

While this implies that fluctuations in crude oil prices undoubtedly have a greater impact on consumers in Belgium than in the euro area, it should nevertheless be noted that no significant anomaly was found in the setting of (pre-tax) prices for these products in Belgium. More particularly, the fact that pricing is largely determined by the "programme contract" does not cause any major distortions. Even though the principle of automatic indexation of distribution margins places the sector in a comfortable position, in recent years the actual consumer prices – primarily for petrol and diesel – have displayed a growing negative deviation in relation to the maximum prices set by the programme contract. It is therefore apparent that the effective distribution margins have contracted slightly in the past five years. That decline could be a sign of keener competition in the distribution of petroleum products, even if the fact that some service stations grant much bigger discounts than others appears to indicate that this market is still highly segmented, and that imperfect competition still prevails.

The increase in crude oil prices had a more marked impact on the Belgian HICP even though, in Belgium, in contrast to other euro area countries, it was curbed somewhat by the federal government's introduction of the reverse

ratchet system. By means of this system, the excise duty on diesel has been cut by 6.5 euro cents per litre since mid 2005, so that the excise duty on biodiesel is currently at the EU minimum level. Up to mid February, the threshold for activating the reverse ratchet system was not reached in the case of petrol. Leaving aside their impact on the public budget, these cuts in excise duty have the disadvantage of weakening the potential signal given by increases in petroleum product prices to encourage a reduction in energy consumption.

2. Pricing in Belgium

Fuel price movements are determined by crude oil prices denominated in euro, by refining, transport and distribution margins and by any adjustments to the taxes payable on these products. In Belgium, the principles of price setting are defined in the programme contract which fixes maximum prices for petroleum products.

Up to 1974, when the petroleum product distribution sector wanted to adjust its prices, it had to request explicit authorisation on each occasion. At the time of the 1973-1974 oil crisis it became obvious that prices needed

to be adjusted more flexibly in line with fluctuations on the international market. In 1974, an automatic method of calculating the maximum prices of petroleum products was specified for the first time under the programme contract between the Belgian State and the petroleum federation. This form of price regulation is still in force today.

In order to limit price volatility, the maximum price is only changed if pre-set thresholds are exceeded. In practice, this provision causes only a very slight delay in the adjustment of prices, and – since this smoothing mechanism operates equally for price increases and reductions – the price difference with or without this mechanism is equal to zero, on average, over the period considered. Moreover, the absolute difference between the maximum price thus determined and the maximum price without smoothing has averaged less than one euro cent per litre in the past five years.

The maximum price determined on the basis of the programme contract depends primarily on the prices quoted for refined petroleum products on the international markets. In practice, it is the prices quoted on the Rotterdam market that are used. The refined product

TABLE B1 VARIOUS COST COMPONENTS OF THE MAXIMUM PRICE OF PETROLEUM PRODUCTS
(averages for the period, euro cents per litre)

	Refined product price	Distribution margin	Excise and other duties	VAT	Other ⁽¹⁾	Maximum price
Petrol⁽²⁾						
2002-2003	20	13	51	18	1	102
2004-2005	30	13	57	21	0	121
2006-2007	39	15	60	24	1	139
January 2008	42	15	62	25	2	146
Diesel						
2002-2003	20	13	29	13	1	76
2004-2005	32	13	34	17	1	97
2006-2007	41	15	33	19	1	109
January 2008	47	15	32	20	1	115
Heating oil⁽³⁾						
2002-2003	19	5	1	5	1	31
2004-2005	30	5	2	8	1	46
2006-2007	40	6	2	10	1	58
January 2008	47	6	2	12	2	69

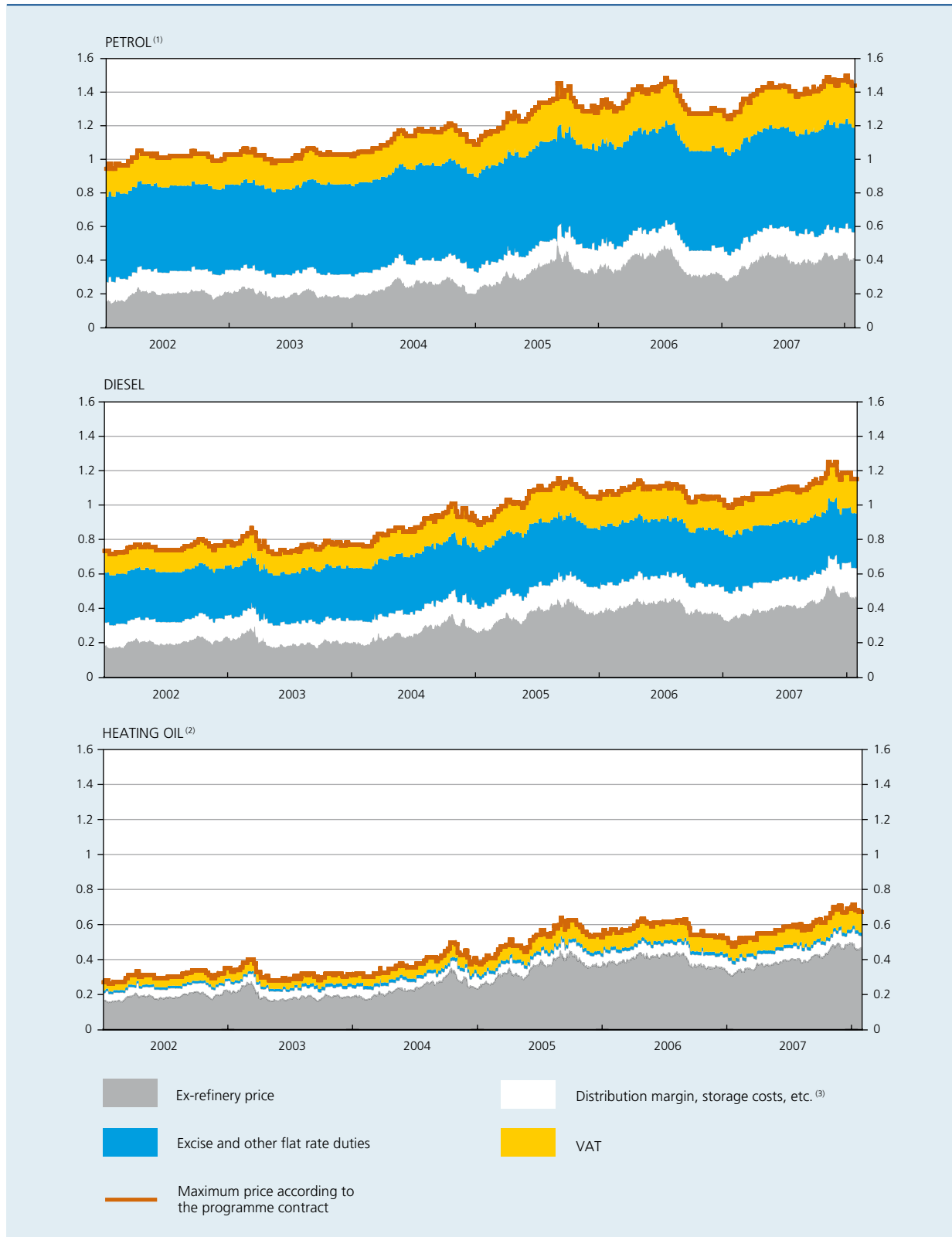
Sources: Platts, Thomson Financial Datastream, DGSEI, NBB.

(1) Storage costs and contributions to the Soil Decontamination Fund and the Heating Oil Fund.

(2) Super plus petrol 95 RON.

(3) Minimum deliveries of 2,000 litres.

CHART B1 CONSUMER PRICES OF PETROLEUM PRODUCTS ON THE BASIS OF THE "PROGRAMME CONTRACT"
(euros per litre)



Sources: Platts, ADE, NBB.

(1) Super plus petrol 95 RON.

(2) Minimum deliveries of 2,000 litres.

(3) Contributions to the Soil Decontamination Fund and the Heating Oil Fund.

price is then increased by a distribution margin and storage costs agreed with the sector, and contributions to the Soil Decontamination Fund and the Heating Oil Fund. In practice, the biggest element is the distribution margin. After that, the flat-rate taxes (mainly excise duty) and VAT – which is 21 p.c. for all three products – are added.

Trend in prices of refined products

In the past five years, about three-quarters of the movement in the maximum prices of petroleum products has been due to the movement in refined petroleum product prices quoted on the Rotterdam market. Those prices in turn depend very much on the crude oil price. In the case of petrol, the refined product price increased from around 20 euro cents per litre in 2002 to 42 euro cents per litre in January 2008; for diesel and heating oil, this price increased from 19-20 euro cents per litre in 2002 to 47 euro cents per litre in January 2008. That corresponds to price increases of 110 and 141 p.c. respectively, which is consistent with the rise, over the same period, in the price of Brent crude denominated in euro (+136 p.c.). While the link between the price of crude oil and prices of refined products is very strong in the long term, it is less pronounced in the shorter term since refining margins may fluctuate according to the market conditions for each product.

Even though the prices of these products displayed an obvious upward trend during the period under review, a temporary fall in the price of Brent and (and in the prices of refined products on the Rotterdam market) was nevertheless rapidly passed on in consumer prices in Belgium (e.g. in March-April 2003, in October-December 2004, in September-November 2005 and in August-September 2006).

Most of the recent price increases in the closing months of 2007 are also due mainly to the rise in the prices of refined products. Thus, the increase in the price of crude oil systematically drove up the maximum prices of motor fuel which, in the autumn of 2007, equalled the record prices of the previous year, and went on to exceed them. In January 2008, prices eased slightly.

Distribution margins

The contribution of distribution margins to the movement in petroleum product prices was much smaller: these margins account for around 8 p.c. of the increase in the maximum prices recorded during the past five years. However, it should be noted that the distribution margins

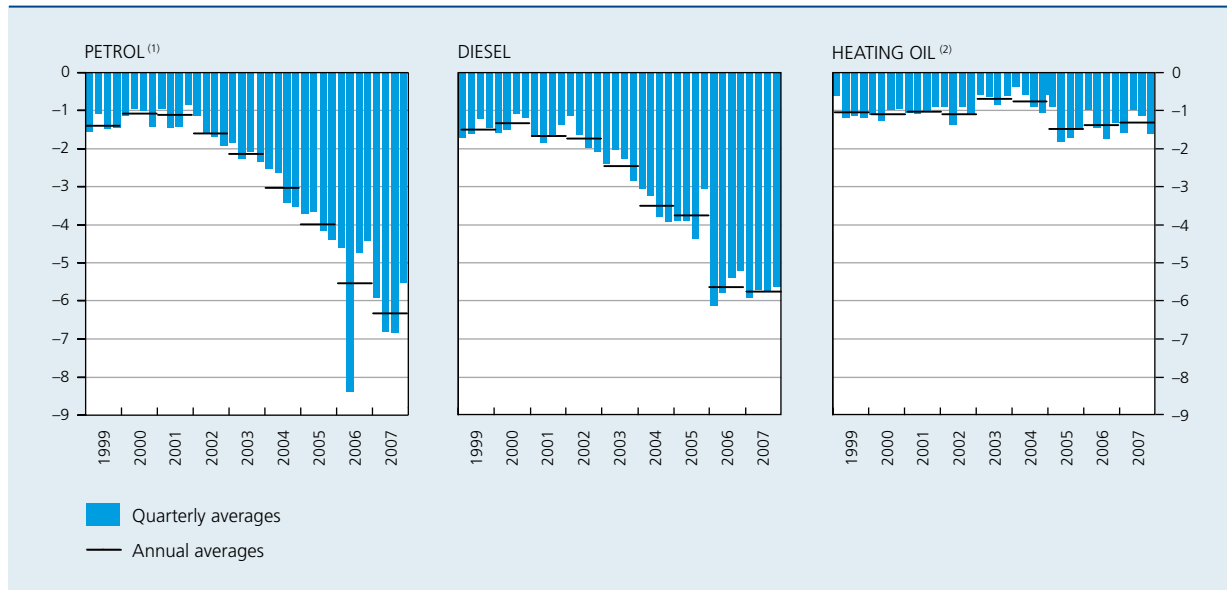
increased by an average of 4.2 p.c. per annum during that period, representing roughly twice the level of average inflation (2 p.c.).

In principle, these margins should cover all the operating costs entailed in transporting the product from the refinery to the consumer, and – apart from the actual distribution costs – they also include the oil companies' profits and a minimum guaranteed margin for petroleum product suppliers and small retailers. The FPS Economy adjusts these margins twice a year (once a year up to 1 October 2006), mainly in line with the movement in hourly wages in the petroleum sector, the movement in an index of industrial producer prices, interest rate fluctuations and prior adjustments to the maximum prices. These margins, fixed under the programme contract, are currently around 15 euro cents per litre for motor fuels and 6 cents for heating oil.

The principle of automatic indexation of the distribution margins places the sector in a comfortable position. However, the programme contract only sets the maximum prices, so that the actual consumer prices can be freely determined so long as they remain below the maximum price: in fact, the distribution sector can grant discounts on the maximum prices fixed by the programme contract. It is possible to obtain an estimate of the average reduction by comparing the average consumer price recorded for the HICP with the maximum price in force at the same time. For petrol and diesel, this shows that, while the difference between these prices always remained within a range of 1 to 2 euro cents during the period 1999-2002, these average discounts have systematically increased in recent years to around 6 euro cents per litre for petrol and diesel. The average discount granted on heating oil has also increased from around 1 euro cent per litre during the period 1999-2002 to an average of around 1.4 euro cents in the past two years. The effective distribution margins have therefore declined slightly for petrol and diesel in the past five years.

The increase in these discounts is possibly attributable to the high level of oil prices themselves, which makes it more difficult to pass on higher costs to the consumer, since demand has become more elastic. However, this increase could also be a sign of greater competition in the distribution of petroleum products, even though the fact that some service stations grant much bigger discounts seems to indicate that this market is still highly segmented and that imperfect competition still prevails.

CHART B2 DISCOUNTS GRANTED BY PETROLEUM PRODUCT DISTRIBUTORS
(euro cents per litre)



Sources: DGSEI, NBB.

(1) Super plus petrol 95 RON.

(2) Minimum deliveries of 2,000 litres.

Flat-rate taxes

The difference between consumer prices of the three petroleum products is due mainly to the difference in the size of the flat-rate taxes on the products. Heating oil is only subject to the monitoring charge (of 1 euro cent per litre) and an energy contribution (0.85 euro cent per litre), but no excise duty. In contrast, the excise duties on petrol (62.27 euro cents per litre) and on diesel (31.27 euro cents per litre) are considerable. The flat-rate nature of these taxes attenuates the transmission of fluctuations in the price of crude oil to consumer prices (after taxes). This cushioning role is most significant for petrol, followed by diesel, and is almost non-existent for heating oil. The resulting higher volatility of heating oil prices is further reinforced by the fact that also the distribution margin on heating oil is lower than that on petrol and diesel (cf. supra).

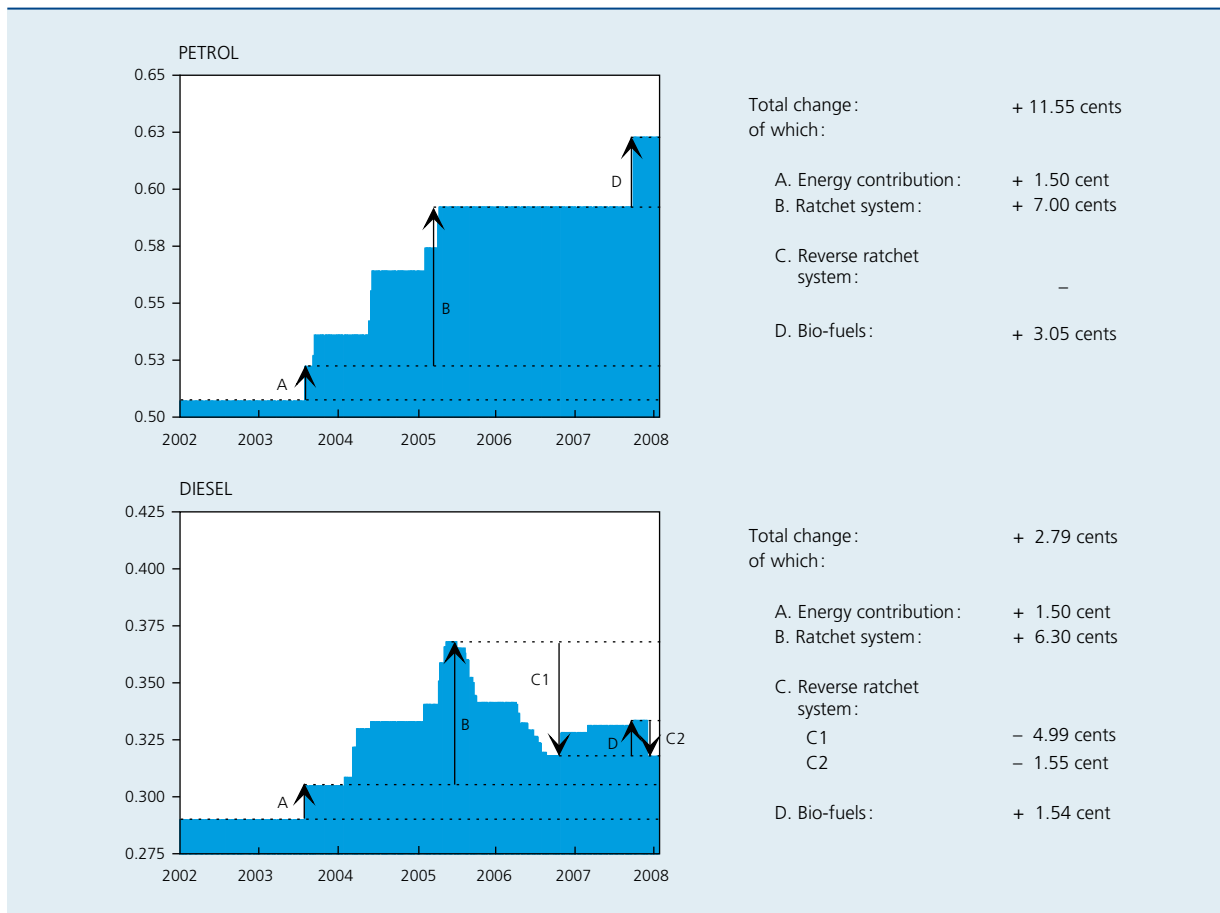
Furthermore, the excise duties on petrol and diesel have been modified several times in the past five years. Changes in the flat-rate taxes therefore account for the remaining 16 p.c. of the increase recorded in the maximum prices of petroleum products. Four phases can be identified, namely A. the increase in the energy contribution B. the increases in excise duties resulting from the original ratchet system C. the reductions in excise duties due to the reverse ratchet system, and D. the increases in

excise duties associated with the introduction of biofuels. Both the increase in the energy contribution and the introduction of the original ratchet system in August 2003 formed part of the policy aimed at reducing greenhouse gas emissions in compliance with the Kyoto protocol.

- A. On 4 August 2003 an energy contribution was introduced for diesel, amounting to 1.5 euro cents per litre; no energy contribution had previously been payable on this product. In the case of petrol and heating oil, the energy contribution was increased with 1.5 and 0.5 euro cents per litre respectively to 2.86 and 0.85 euro cents.
- B. At the same time, the (original) ratchet system was introduced. This stipulated that half of each reduction in price resulting from the application of the programme contract would be offset by a permanent increase in excise duty, until a statutory cumulative maximum was reached. In 2003, only for petrol a ceiling was set, namely 1.4 euro cents per litre. In 2004, an identical ceiling was set for petrol and diesel, namely 2.8 euro cents per litre. In 2005, this was increased to a maximum of 3.5 euro cents per litre for diesel but left unchanged for petrol. Between August 2003 and May 2005, the excise duties on petrol and diesel were therefore increased by a total of 7 and 6.3 euro cents per litre respectively.

CHART B3 EXCISE DUTY AND FLAT-RATE TAXES ON MOTOR FUELS

(euro cents per litre)



Sources : ADE, NBB.

C. Originally, the ratchet system was meant to apply until 2007, but in order to curb the rise in petrol and diesel prices the federal government froze this system in May 2005 and implemented a reverse ratchet system aimed at reducing the excise duties. Under this system, every increase in VAT revenues generated by a rise in prices under the programme contract is fully offset by a reduction in the excise duties, so long as the prices fixed by the programme contract exceed the thresholds of 1.10 euro per litre for diesel and 1.50 euro for petrol. This mechanism reduced the excise duties on diesel by around 5 euro cents per litre between July 2005 and August 2006, bringing them close to the minimum level of 30.2 euro cents per litre fixed by the European Commission. At the end of 2007, the reverse ratchet system was reactivated after a period of inactivity, and on 5 December 2007 the excise duties on diesel, which had meanwhile already been increased by 1.5 euro cent per litre following the intro-

duction of biofuels (cf. below) were again reduced by around 1.5 euro cent per litre, so that the minimum threshold was reached for biodiesel. Further use of the reverse ratchet system is therefore no longer possible for diesel, because it would breach the European regulations. Up to mid February, the reverse ratchet system has not been activated for petrol since the maximum price did not exceed the activation threshold of 1.50 euro per litre.

D. The excise duties on unblended petrol and diesel were also increased during the past two years under the law of 10 June 2006 on biofuels. Since the cost of fuels from renewable sources, i.e. the "bio" element of biofuels, is considerably higher than that of purely fossil fuels, a differential rate of excise duty is the only way of enabling the former to compete with the latter. In November 2006, the excise duty on unblended diesel had already been increased by 1 euro cent per

litre for that purpose. Moreover, during 2007, the percentage of esterified biodiesel in blended diesel increased from 3.37 to 4.29 p.c., and then to 5 p.c., so that the price of unblended diesel had to be increased slightly via a further adjustment to the excise duty (+0.5 euro cent). In addition, on 1 October 2007, on the occasion of the introduction of biopetrol, the excise duty on unblended petrol was increased by 3 euro cents per litre.

In short, it can be said that, for diesel, the increases in excise duty resulting from the original ratchet system and the introduction of biofuels have been largely offset by the operation of the reverse ratchet system so that, in January 2008, the excise duty on this product was only 2.79 euro cents above its 1 January 2002 level. Since the reverse ratchet system was not applied to petrol before mid February, the increase in excise duty on this product (including the rise in the energy contribution) was much greater, namely 11.55 euro cents per litre.

3. Comparison with the euro area and with the three main neighbouring countries

The European Commission data can be used to analyse how petroleum product prices have behaved over the past five years in relation to their respective levels in the three main neighbouring countries and in the euro area as a whole, for prices both before and after taxes.

In the case of prices excluding taxes, i.e. the prices of the refined products on the international markets plus the distribution margins, the disparities in the price level between countries and between the various products are generally minor. Thus, the prices of motor fuel excluding taxes in Belgium and Germany are practically in line with the average for the euro area, while the prices excluding taxes in France are slightly lower and those in the Netherlands slightly higher. Assuming that international market prices are the same for the main neighbouring countries, that implies that the distribution margins in Belgium (and Germany) are between those prevailing in the Netherlands (higher) and in France (lower). In contrast, for heating oil, the prices excluding taxes are systematically below the average in the euro area and in each of the neighbouring countries.

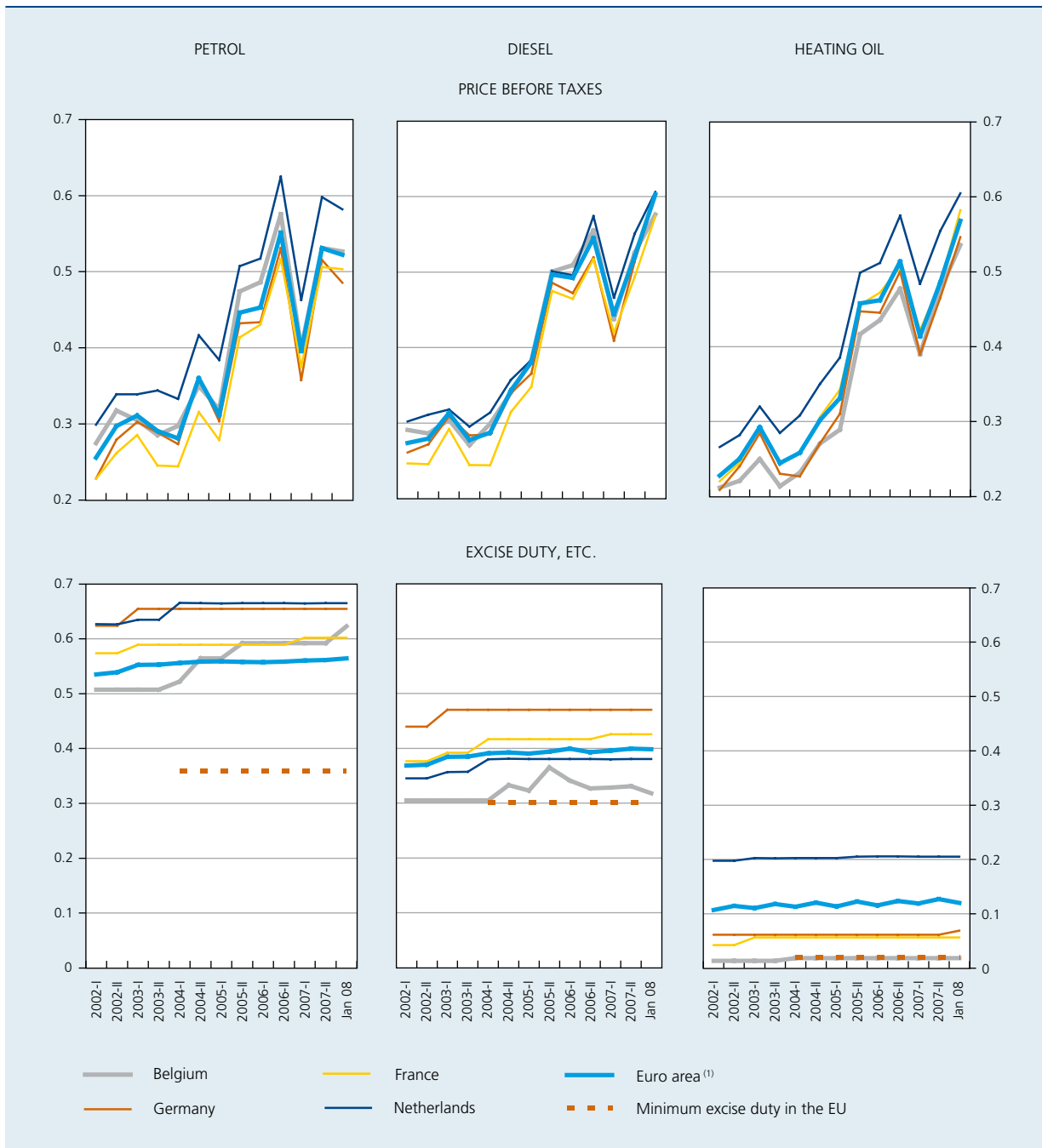
Analysis of the prices after taxes reveals larger differences. Although the rate of VAT applicable to these products in Belgium (21 p.c.) is one of the highest in the euro area – the VAT rate on petroleum products in the euro area is, on average, around 3 percentage points lower⁽¹⁾ –, the relatively low level of flat-rate taxes on diesel and petrol puts the prices of these products in Belgium below those in the neighbouring countries. That applies mainly to heating oil. Conversely, in regard to petrol, the increases in excise duty discussed above have gradually driven the level of excise duty on this product above the average for the euro area and close to that in the main neighbouring countries. At the end of the period, the price of petrol in Belgium was therefore above the average for the euro area, similar to that in France and Germany, and below the price charged in the Netherlands.

Over the past five years, the rise in heating oil prices excluding tax has been slightly greater than that seen in the euro area as a whole and in the Netherlands, but almost the same as that in Germany and France. The reason could be that, in 2002, the level of prices excluding tax in Belgium was lower than in the euro area and the Netherlands, indicating lower margins in Belgium and therefore greater sensitivity to increases in refined product prices. Conversely, the rise in petrol and diesel prices excluding tax was less steep in Belgium than in the euro area as a whole and most of the neighbouring countries considered individually, which is consistent with the above conclusion that the distribution margins on these products have contracted slightly in Belgium.

In regard to heating oil, over the past five years the cumulative increase in prices after taxes in Belgium has more or less equalled the increase excluding taxes, whereas that was not the case in Germany or France, and still less so in the euro area as a whole and the Netherlands. Owing to the much lower level of flat-rate taxes on heating oil in Belgium, increases in the fuel price have a greater impact. That applies mainly in relation to the euro area and the Netherlands, where flat-rate taxes on heating oil are the highest. Given the slightly lower level of flat-rate taxes on diesel in Belgium, the moderating influence of excise duty on that product has also been slightly less there than in the euro area. Indeed, the slower rise in diesel prices in Belgium is more pronounced, in relative terms, for prices excluding taxes than for prices after taxes. In the case of petrol, the rise in the price after taxes was slightly greater in Belgium than in the euro area, whereas that is not so in the case of the price excluding taxes. The main reason is that excise duty on petrol was increased in Belgium by more than in the euro area as a whole during the period under review.

(1) In the case of petrol and diesel, the standard rate of VAT is applicable in all euro area countries – though obviously that rate may vary from one country to another – but in the case of heating oil a few countries (Ireland, Portugal and Luxembourg) charge a reduced rate.

CHART B4 PETROLEUM PRODUCT PRICES: INTERNATIONAL COMPARISON
(euro per litre, unless otherwise stated)



Sources : EC, NBB.

(1) Average weighted by petroleum product consumption.

The cumulative contribution of petroleum products to inflation since 2002 has been significantly higher in Belgium than in the euro area as a whole, indicating that Belgian inflation is more sensitive to fluctuations in crude oil prices. The particularly low level of flat-rate taxes on heating oil, discussed above, and the accompanying

greater volatility of the price of that product, constitute an initial, important reason for this greater sensitivity. Thus, even if the three products in question had the same weight in Belgium and in the euro area (which is not true in practice, cf. below), the cumulative contribution of petroleum products during the period under review would

CHART B4 PETROLEUM PRODUCT PRICES: INTERNATIONAL COMPARISON (CONTINUED)
(euro per litre, unless otherwise stated)



Sources: EC, NBB.

(1) Average weighted by petroleum product consumption.

have been 0.3 percentage point higher than in the euro area (1.9 percentage point, against 1.6 point). This greater sensitivity is reinforced by the fact that these products have a bigger weight in the Belgian HICP. It is mainly the weight of heating oil – precisely the product for which the larger price increase was more pronounced in Belgium

than in the euro area – that is greater there, so that the two factors are mutually reinforcing. During 2002-2007, this weight averaged 1.35 p.c. in the Belgian HICP, almost double the figure for the euro area. The reason for this difference in weight is that the southern EU countries have less need for heating, and most of the other

TABLE B2 PETROLEUM PRODUCT PRICES: PERIOD 2002 – JANUARY 2008
(cumulative percentage changes, unless otherwise stated)

	Belgium	Euro area ⁽¹⁾	Germany	France	Netherlands
Change excluding taxes					
Petrol	77.8	88.8	91.3	105.7	82.4
Diesel	99.8	118.1	125.6	133.5	97.7
Heating oil	147.5	137.6	143.7	150.5	120.7
Change after taxes					
Petrol	43.1	34.6	33.3	35.1	31.9
Diesel	50.7	56.3	55.6	60.7	51.4
Heating oil	141.0	97.7	121.0	132.4	71.7
Contribution to total inflation for the period 2002-2007 ⁽²⁾					
with own weighting	2.6	1.6	1.7	1.8	1.1
with euro area weighting ⁽³⁾	1.9	1.6	1.6	1.7	1.1

Sources: EC, NBB.

(1) Average weighted by petroleum product consumption.

(2) Contribution in percentage points.

(3) This calculation was based on the technical assumption that petrol and diesel have the same weighting in the HICP.

northern EU countries make much greater use of other energy sources (mainly natural gas) for heating. Owing to this divergent weight, the difference in the cumulative contribution of petroleum products to inflation increases further to 1 percentage point (2.6 percentage points in Belgium against 1.6 point in the euro area).

In view of the factors which account for it, the greater sensitivity of the Belgian HICP to fluctuations in crude oil prices is symmetrical: it applies to both increases

and reductions in crude oil prices. This was also evident during the brief periods in which oil prices declined (e.g. in 2001 and 2002 and in the first eight months of 2007): during these periods, the contribution of petroleum products to overall inflation also declined more sharply in Belgium than in the euro area. However, since the trend in the crude oil price has been predominantly upwards since 2002 (and also since 1999), this factor essentially penalised Belgium during the period 2003-2007 (and also between 1999 and 2007).

Consumer prices of electricity and gas for households

This annex analyses the trend in electricity and gas prices on the residential market in Belgium, as reflected in the consumer price index. The trend in electricity prices for commercial users is beyond the scope of this study, even if it does have indirect effects. Electricity prices influence not only the costs of businesses and hence their competitiveness, but also the final level of prices which they charge for the goods and services which they produce, and hence eventually inflation for products consumed by households.

In Belgium, the residential market in gas and electricity has been opened up in phases. The market was liberalised in Flanders in July 2003, but not until January 2007 in Brussels and Wallonia. However, for technical reasons the effects of the liberalisation in Flanders were not taken into account in the index of consumer prices for electricity until February 2005, and in the gas price index only from January 2006. Conversely, in January 2007 the effects of the liberalisation in the rest of the country were immediately taken into account in the respective indices.

Following the liberalisation, the method of recording prices in the index was modified to reflect the movement in the monthly tariffs, rather than that in the annual invoices as used to be the case. This new method, which was already applied in Flanders once the liberalisation was taken into account in the index (2005 for electricity and 2006 for gas), concerns the three regions of the country since January 2007. This has increased the variability of the index.

(1) Calculated on the basis of annual averages. The rise between 1999 and 2007 therefore corresponds to the difference between the average index for 1998 and that for 2007.

(2) This chart only permits comparison of the movement in prices, and not the average level itself. A comparison of price levels is presented later in this annex.

1. Price of electricity for households

Between 1999 and 2007, electricity prices recorded a relatively modest rise in Belgium, since they went up by 5 p.c. while cumulative inflation came to 19 p.c.⁽¹⁾ It is interesting to note that most of this price increase occurred in the recent period, since a rise of 6 p.c. was recorded between 2003 and 2007. This indicates that prices were tending to fall between 1999 and 2003, for the reasons presented below. Comparison with the movement in electricity prices in the euro area, where they increased by 21 p.c. between 1999 and 2007 (and 18 p.c. between 2003 and 2007) also shows that the increase was tempered in Belgium. These findings are borne out by chart C1 (top left) which illustrates the trend in prices in Belgium and in the euro area, taking the 2005 average as the benchmark.⁽²⁾

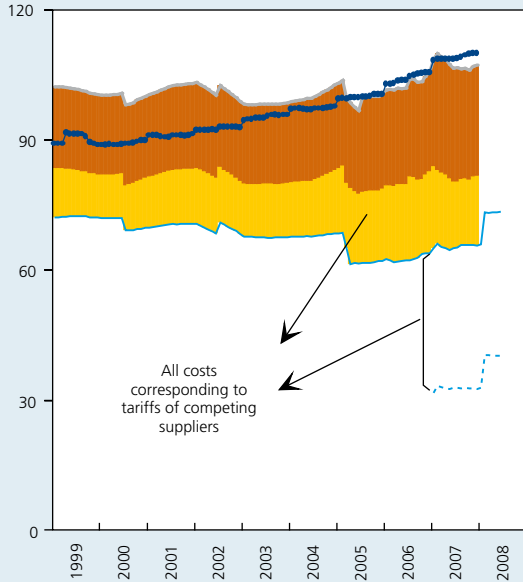
1.1 Developments from 1999 to 2007

Electricity prices can be broken down into various types of costs. Thus there are the production and supply costs which, in the liberalised market, are borne by the suppliers; the costs of transport between the production or import sites and the distributors; the distribution costs, which correspond to the costs of getting the electricity to the consumer, and vary according to the (intermunicipal) network operator; and finally, taxes.

The suppliers' costs therefore comprise both the production costs – since the suppliers have to obtain their supplies from the electricity producers, who sometimes form part of the same economic entity – and their own supply costs (wages, overheads, remuneration of the capital invested, etc). The production costs consist of

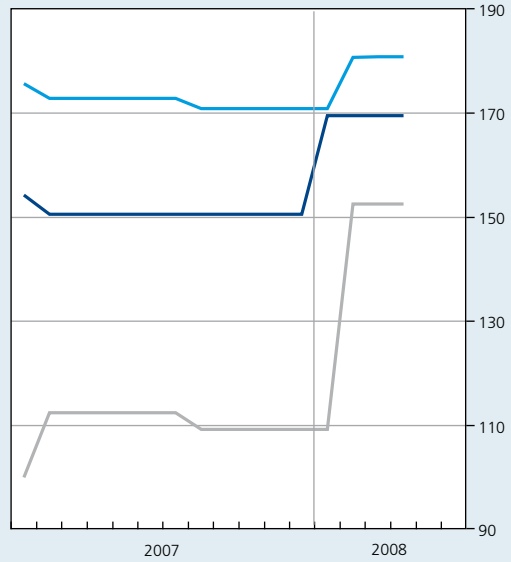
CHART C1 RESIDENTIAL ELECTRICITY PRICES

MOVEMENT IN CONSUMER PRICES AND ESTIMATED ⁽¹⁾ CONTRIBUTION OF THE VARIOUS PRICE COMPONENTS IN BELGIUM (indices 2005 = 100)



- Consumer price index for the euro area
- Consumer price index for Belgium
- of which:
 - Taxes (including VAT)
 - Cost of energy commodities (Nc parameter)
 - Other production and supply costs (wages, overheads, remuneration of capital invested, etc.), distribution costs and transport costs
 - of which: - - - Distribution costs and transport costs

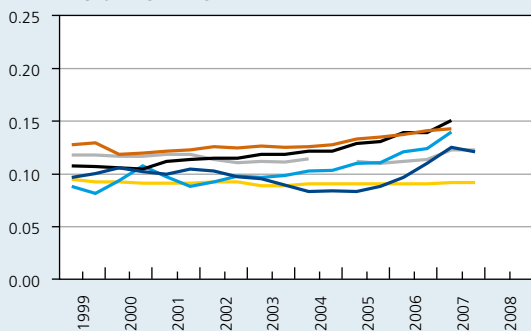
DISTRIBUTION AND TRANSPORT TARIFFS ⁽¹⁾ (estimates, Flanders indices December 2006 = 100)



- Flanders
- Wallonia
- Brussels

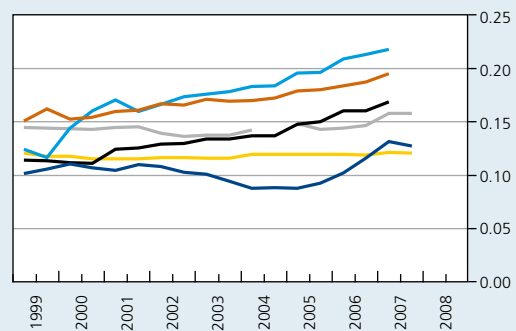
INTERNATIONAL COMPARISON OF PRICE LEVELS FOR CONSUMPTION OF 3500 KW PER ANNUM, OF WHICH 1300 AT NIGHT (euro/kWh)

EXCLUDING TAXES



- Belgium
- Netherlands
- United Kingdom
- France
- Luxembourg
- Germany

INCLUDING ALL TAXES



Sources : EC, DGSEI, NBB.

(1) Estimates based on typical consumers in the national consumer price index and their respective weightings. Estimate for the liberalised market based on the ECS tariff structure. Distribution tariffs are averages weighted according to the relative size of the network operators. The supply of free electricity in Flanders is included in the distribution costs on which it exerts a downward effect.

the prices of the energy commodities needed for production plus the other production costs consisting of wages, overheads (and particularly depreciation), remuneration of the capital invested, etc. The suppliers' tariffs are traditionally indexed monthly on the basis of two parameters: the first is deemed to reflect the movement in energy commodity prices (Nc parameter) and the second reflects suppliers' other costs, i.e. their own supply costs plus the other production costs (Ne parameter reflecting the movement in wages and certain producer prices, among other things).⁽¹⁾

On the basis of the available information, it is impossible to distinguish between production costs and supply costs. Moreover, for the period preceding liberalisation, it is also impossible to separate the suppliers' costs (other than those relating to energy commodities) from the distribution and transport costs.

On the other hand, it is possible to estimate the contribution of the energy commodity cost to the movement in consumer prices for households. Energy commodities represent between 10 and 20 p.c. of the final price. The other costs represent about 60 p.c. of the final price, with distribution and transport costs accounting for roughly half of that figure. Since January 2007, a more detailed breakdown can be obtained. The part of the price represented by competing suppliers comes to 48 p.c.: 17 p.c. for energy commodities and 31 p.c. for the other production and supply costs. The other half of the "other costs" comprises 24 p.c. for distribution and 5 p.c. for transport. Taxes, including VAT, account for 23 p.c. of the final price.⁽²⁾

Liberalisation opened up both production and supply activities to competition. Conversely, distribution and transport are still monopolistic activities, and are therefore regulated by the CREG (*Commission de régulation pour l'électricité et le gaz*, the industry regulator).

CONTRIBUTION OF THE COST OF ENERGY COMMODITIES

Given the relative importance of the other costs, energy commodity costs have a relatively limited influence on prices. Those costs changed relatively little up to mid 2004, before rising by around 30 p.c. following the increase in energy commodity prices (2004-2007). The Nc parameter used to index this tariff component in fact reflects the movement in the price of the energy commodities needed to produce electricity, taking account of their relative importance in that production. At present, the prices of oil,⁽³⁾ coal and gas, and a factor connected with the efficiency of nuclear power stations are taken into consideration.⁽⁴⁾ Liberalisation has not caused any

fundamental change in pricing since all suppliers (who are in competition) continue to take this parameter as the basis for defining the part of their tariffs which reflects the movement in energy prices. Differences in the relative share of this cost factor in the tariffs may, however, emerge between suppliers so that each supplier's sensitivity to changes in the parameter may vary. These differences are disregarded in the estimation of the breakdown presented here.

The other part of the suppliers' tariffs, which reflects the movement in the other supply and production costs, may also vary. It is described with the other costs.

CONTRIBUTION OF OTHER COSTS

The share of costs other than energy commodities in consumer prices displays an upward trend via the indexation of the Ne parameter. However, this situation, which is rather favourable for producers and suppliers since all the costs and margins are indexed,⁽⁵⁾ has been interrupted by successive tariff reductions beginning in 2000. These reductions were initially imposed by the CCEG (*Commission de contrôle de l'électricité et du gaz*, the former industry regulator) at the request of the federal government, in order to pave the way for liberalisation, and were later continued by the CREG. They were made at the expense of both producers and distributors and therefore concerned both the distribution tariffs and the other costs of producers (the part relating to commodity prices was unaffected). These tariff reductions exerted significant downward pressure on the index of electricity prices, estimated at -12 p.c. between 2000 and 2003.⁽⁶⁾

- (1) The "suppliers' tariffs" element is sometimes also called the "energy cost". That term could cause confusion since the suppliers' tariffs comprise both an "energy commodity price" component and an "other production and supply costs" component.
- (2) The estimate of these various relative shares is based on a breakdown of the regulated tariffs for the period preceding liberalisation, and then on a breakdown of the ECS tariffs, i.e. those of Electrabel Consumer Solutions (which, as market shares change, differs from the exact composition of the index), taking account of the distribution and transport costs approved by the CREG. Account is taken of the standard consumption figures used in the consumer price index, and of their respective weight. In addition, for the post-liberalisation period, the distribution tariffs are the weighted averages for the various network operators according to the number of connections.
- (3) Oil is not actually used in electricity production in Belgium, but since its price influences the cost of the fuels used for production, particularly via contracts indexed to that price, it is included in the calculation formula.
- (4) The role of the factor connected with the efficiency of the nuclear power facilities is this: the more the net production of electricity of nuclear origin deviates from the power which can be generated by the nuclear power stations, the greater the need to use gas power stations to make up the shortfall, and the more the price of the gas used in these power stations – deemed to be bought at the spot market price – gains in importance in the indexation parameter.
- (5) Indexation on the basis of the Ne parameter reflects the movement in the benchmark hourly labour cost in the metal manufacturing industry and an average of the indices of industrial producer prices (for "non-energy mineral and chemical products" and "metal, mechanical and electrical manufactures").
- (6) This influence is not directly visible in the chart, because the latter only illustrates the decline in "other costs" in relation to the start of the period, but not the difference compared to what the other costs would have been without the tariff reductions, since those costs would have continued to increase steadily in accordance with the rise in the Ne parameter.

In February 2005, when the index took account of the liberalised tariffs in Flanders, a further fall has been recorded, due mainly to the reduction in distribution tariffs which, in the liberalised market, vary from one locality to another, according to the costs of the local network operators, i.e. the intermunicipal associations (cf. chart C1, top right). Objective factors, such as territory size, population density or proximity to the transport network, account for part of the differences in tariffs between network operators. That is the reason why these tariffs are lower on average in Flanders than in Wallonia, and are therefore below the average for Belgium, which is the benchmark for the regulated tariffs still applied in Wallonia and Brussels in 2005 and 2006. Overall, that therefore exerts a downward influence on the average distribution costs taken into account in the index. However, there is a possibility that the suppliers' other costs may also have contributed to this fall, but information on this subject is very limited. When the liberalisation in the rest of the country was taken into account in January 2007, no significant effect has been recorded. Competition has probably moderated prices somewhat, but since its influence is only minor it has not had a dramatic effect on prices. In January 2007, distribution tariffs also declined in Wallonia and Brussels, but they are still higher than those charged in Flanders, for the reasons mentioned above.

Following liberalisation, the new tariffs offered by the competing suppliers retained the principle of indexation on the basis of the Ne parameter (in addition to the similar principle for the "commodities" element described above) for the part of the tariffs reflecting their other costs. However, the proportion of these costs, and the scale of the indexation, vary from one supplier to another. This results in slightly differing variability, but also fairly large price differentials in certain cases.

The electricity market currently comprises ten active suppliers in Flanders, five in Wallonia and three in Brussels. In September 2007, the estimated market shares in Flanders and Wallonia were respectively as follows: Electrabel Consumer Solutions (ECS): 67 and 63 p.c.; SPE (trading as Luminus) 20 and 25 p.c.; Nuon 8 and 1 p.c.; Essent 2 and 9 p.c.; Lampiris 0.02 and 3 p.c. No figures are available for Brussels.

Despite the price rise, as a result of liberalisation there is almost always a cheaper tariff available than the tariff formula applied by the default supplier to customers who have not made an active choice. The cheapest tariffs offer an average reduction of 9 p.c. in Flanders and 12 p.c. in Wallonia (sources: VREG and CWAPE). Those who have not yet chosen their tariff, and in certain cases those whose contract is coming to an end, therefore still

have the opportunity to attenuate the impact of the price increase.

In principle, these active choices are taken into account in the consumer price index since the suppliers' market shares are adjusted at regular intervals, though sometimes after a time lag.

Since liberalisation, it has become apparent – first in Flanders and then in Wallonia – that the social tariffs were quite often more expensive than certain other tariffs offered by alternative suppliers, opening the way to a reform of the social tariffs in 2007. After a transitional period extending from August 2007 to January 2008, the new tariffs set by the CREG for fixed periods of six months are now obtained by calculating the lowest commercial tariff, less the fixed charge, for the geographical area in Belgium with the cheapest distribution tariff and for the three-month period preceding the calculation of the social tariffs. This enables those qualifying for these tariffs to take advantage of the most competitive price without having to track it down for themselves. These new provisions seem fairly favourable. However, it must be borne in mind that the social tariffs are not covered by the consumer price index, and that the cost of these tariffs is borne by all other consumers via a contribution based on their electricity consumption. Therefore, if the conditions for granting the social tariff were widened, increasing its total cost, that would also have an impact on the bills payable by other consumers and on inflation.

CONTRIBUTION OF TAXES

Liberalisation was also accompanied by the appearance of new contributions which were previously incorporated implicitly in the regulated tariffs. This therefore increased the transparency of the energy price breakdown, as is also evident from the separate statement of the distribution and transport costs appearing on the invoices. Of course, the resulting increased complexity of the invoices means that it is not always easy to understand what is happening to prices, as households may consider every new item as an additional cost.

Apart from these contributions, taxes naturally include VAT, charged at 21 p.c., and the energy contribution which already existed before liberalisation. Among the new levies there are contributions for public service obligations, the costs of protecting vulnerable customers (e.g. the social tariffs), the operating costs of the regulatory bodies, etc. Some levies are also determined at regional level, and may therefore differ between regions. Moreover, the loss of income which the municipalities suffered as a result of liberalisation (via the reduction in

intermunicipal dividends following the fall in the distribution tariffs and via the loss of income for intermunicipal associations excluded from the electricity supply business) caused Flanders to introduce a compensatory tax (also known as the Elia tax); the significant impact of this tax – far greater than that of other levies – exerted upward pressure on the index in July 2005 and downward pressure in July 2007, after the amount of the tax was roughly halved (from 4.91 euro/MWh to 2.50 euro/MWh excl. VAT). This tax will cease to be payable by households in 2008.

1.2 Outlook for 2008 – Higher distribution tariffs and energy commodities prices

Regarding the outlook for 2008, account should be taken of the steep increase in distribution tariffs implemented by the network operators (the intermunicipal associations) and the increase in transport tariffs averaging 22 p.c. for the country as a whole, in relation to 2007 (cf. chart C1, top). These will be incorporated in the price index after a one-month delay, i.e. in the February index. All other things being equal, they should have an impact of 9 p.c. on the electricity price index, or 0.23 p.c. on overall inflation (0.25 p.c. on the health index). The increase in the distribution tariffs is due to a loss of powers for the regulatory authority (the CREG), following various judgments handed down by Belgian courts in disputes between the CREG and the network operators (the intermunicipal associations). The latter challenged the CREG's arguments for rejecting or approving the distribution tariffs, notably as regards the arrangements for recording depreciation in the accounts. The practical consequence of this partial loss of powers is that the reductions (of "other costs") obtained since 2000 have been offset by the increase in distribution tariffs in 2008.

This increase in distribution tariffs is not the same in each region. It is larger in Flanders than in Wallonia, although the tariffs are higher there. Nevertheless, in Flanders the abolition of the levy compensating for the loss of municipal revenue (Elia tax) for households in January 2008 should attenuate somewhat the impact of the tariff increase.

It is evident from the movement in the parameters for the indexation of electricity prices in January that the prices of the commodities needed to produce electricity have also risen significantly, particularly as a result of the rise in the cost of energy commodities and the lower use of the Belgian nuclear generating capacity in January. Although this last factor is temporary, the rise in energy commodity prices is likely to continue to influence electricity prices

in 2008. Thus, according to the CREG (press conference on 18/1/2008) fuel costs are set to rise by between 10 and 11 p.c. in 2008, compared to the 2007 average. The major part of this increase is not yet incorporated in the index, since, according to empirical findings, there is a two-month delay between the changes in the indexation parameters and inflation. Thus, the increase in the January parameter will probably not be reflected in the HICP until March. Compared to a situation of stable commodity prices at their December 2007 level, that means an additional increase in electricity inflation estimated at 2.6 p.c., or 0.06 p.c. for overall inflation (0.08 p.c. for the health index).⁽¹⁾

1.3 International comparison of price levels

On the basis of the consumer price index, the cumulative increase in electricity prices came to 5 p.c. in Belgium and 21 p.c. in the euro area over the period 1999-2007.

An international comparison of price levels also reveals that prices excluding tax took a more favourable turn in Belgium than in the neighbouring countries. While prices had tended to be higher than the average for the three main neighbouring countries from 1999 to 2001, that has become less and less the case since 2002, owing to the efforts made to cut distribution costs, in particular (cf. chart C1, bottom). The increase in 2007 was due partly to the introduction of cheap week-end tariffs because, in international comparisons, the prices of a two-hour tariff are not adjusted downwards to take account of the longer period in which the (cheaper) night tariffs apply.⁽²⁾ The existence of substantial nuclear generating capacity in Belgium is also one of the factors keeping prices lower, and less sensitive to commodity costs, than in countries where such facilities are limited or non-existent. That is also the reason why France still has prices which are systematically lower than in Belgium, as it has very substantial nuclear capacity. The greater stability of these prices over time in France is attributable both to the highly regulated tariffs and to the preponderance of nuclear power. In contrast, in Germany coal prices appear to play a greater role in electricity prices, while in the gas producing countries (such as the United Kingdom and the Netherlands), the gas price tends to be the dominant factor.

(1) Much of this increase is already incorporated in the Bank's inflation projections published in December 2007.

(2) However, for technical reasons this extension of the night tariff to daytime at week-ends also had the effect of slightly increasing the one-hour tariffs. As a result of the tariff rebalancing, both day and night tariffs increased, so that, on average, the two-hour tariffs remained stable if account is taken of the shift in the consumption breakdown between the "daytime" tariff and the "night/week-end" tariff. However, the daytime tariff is often the same as the one-hour tariff, so that the latter has increased.

Belgium's relative position is still fairly favourable if taxes are taken into account. In fact, it emerges that these are higher in the Netherlands and Germany than in Belgium, while VAT – 21 p.c. in Belgium – is lower there (19 p.c. in the Netherlands, and also in Germany since January 2007). It is therefore mainly the other levies, particularly significant in those countries, that work in Belgium's favour in the comparison. Conversely, taxes are lower in France, where it seems that only VAT is applicable, namely at a rate of 5.5 p.c. on the part of the tariff corresponding to the supply agreement and 19.5 p.c. on the variable component. The rates of VAT are much lower still in Luxembourg and the United Kingdom (6 and 5 p.c. respectively). In Luxembourg, however, there are also supplementary levies which come to more than VAT.

In regard to pricing, the information on practices in the main neighbouring countries is not easy to obtain. However, the general indexation system applied to tariffs in Belgium does not appear to be the rule in neighbouring countries.

In conclusion, although Belgium's position in relation to the main neighbouring countries was fairly favourable up to 2007, it looks set to deteriorate in 2008, mainly owing to the increase in distribution and transport tariffs.

2. Gas price for households

Over the past five years – but also in the period 1999-2007 – gas prices in Belgium have fluctuated fairly widely. However, apart from developments specific to 2007, these movements prove to be in line with what is seen in the euro area as a whole (cf. chart C2, top, which illustrates the movement in prices in Belgium and in the euro area, taking the 2005 average as the benchmark⁽¹⁾). Between 1999 and 2006, i.e. disregarding developments specific to 2007, gas prices in Belgium increased by a total of 49 p.c., outpacing the cumulative overall inflation which, over that same period, came to 17 p.c. However, the increase in gas prices was more moderate in Belgium than in the euro area where it came to 60 p.c. over the same period. About half of that increase occurred between 2003 and 2006, when gas prices went up by 24 p.c. in Belgium and 31 p.c. in the euro area. In 2007, gas prices declined, on average, by 7 p.c. in Belgium and increased by 2 p.c. in the euro area.

The fairly significant scale of the changes in the gas price index is due essentially to the movement in the price of natural gas, which is the main element of the price. The developments specific to 2007, with a much sharper fall in gas prices in Belgium than in the euro area as a whole, and a renewed rise in the closing months of 2007, is due largely to the direct and indirect effects of liberalisation.

2.1 Developments from 1999 to 2007

The gas price breakdown is very similar to that for electricity prices, except that there is not really any gas production in Belgium, since gas is imported as an end product and then distributed.

A distinction is thus made between import and supply costs which, on the liberalised market, are borne by the suppliers; the costs of transport between the points of importation and the distributors; the distribution costs, which correspond to the cost of getting the gas to the consumer, and vary from one (intermunicipal) network operator to another; and finally, taxes.

The suppliers' tariffs for import and supply costs are traditionally indexed every month on the basis of parameters which are deemed to reflect the movement in the prices of the energy commodities necessary for production (lga parameter) and the other costs incurred by suppliers (lgd parameter), i.e. their own supply costs but also the importers' costs unconnected with the energy price. These last two types of cost correspond to wages, overheads, remuneration of the capital invested, etc. entailed in supplying gas.⁽²⁾

As in the case of electricity, before liberalisation the contribution of the cost of energy commodities was the only factor that could be precisely identified separately from the other costs. The price of gas as the commodity represents between 35 and 53 p.c. of the final price (in January 1999 and December 2007 respectively, depending on the price level). Other costs represent between 40 and 27 p.c. of the final price, depending on the price level, with distribution and transport costs accounting for seven-tenths of that. A more detailed breakdown has been available since January 2007. Thus, from that date the proportion of the price attributable to competing suppliers is estimated at 61 p.c.: 52 p.c. for energy commodities and 9 p.c. for other import and supply costs. The balance of other distribution and transport costs comes to 19 p.c. Taxes, including VAT, represent 20 p.c. of the final price.⁽³⁾

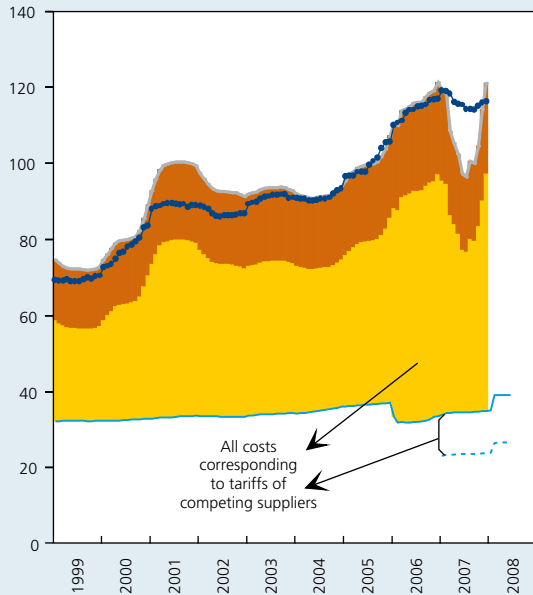
(1) This chart therefore only permits comparison of the movement in prices, not the average level itself.

(2) The "suppliers' tariffs" element is sometimes also called the "energy cost". That term could cause confusion since the suppliers' tariffs comprise both an "energy commodity price" component and an "other import and supply costs" component.

(3) The estimate of these various relative shares is based on a breakdown of regulated tariffs for the period preceding liberalisation, and then on a breakdown of the ECS tariffs (which, as market shares change, differs from the exact composition of the index), taking account of the distribution and transport costs approved by the CREG. Account is taken of the standard consumption figures used in the consumer price index, and of their respective weight. In addition, for the post-liberalisation period, the distribution tariffs are the weighted averages of the various network operators according to the number of connections.

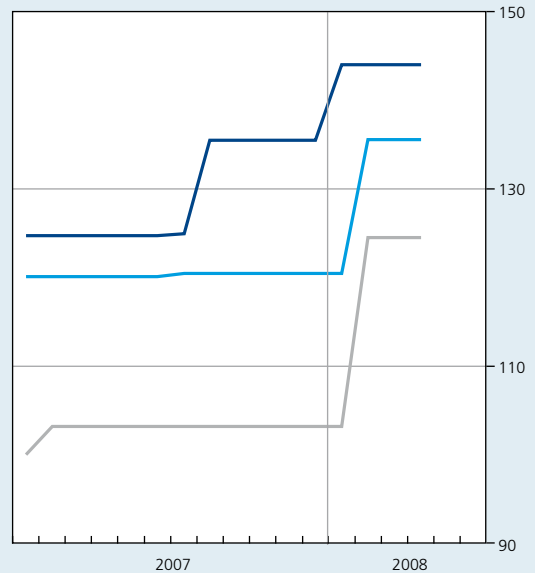
CHART C2 RESIDENTIAL GAS PRICES

MOVEMENT IN CONSUMER PRICES AND ESTIMATED ⁽¹⁾ CONTRIBUTION OF THE VARIOUS PRICE COMPONENTS IN BELGIUM (indices 2005 = 100)



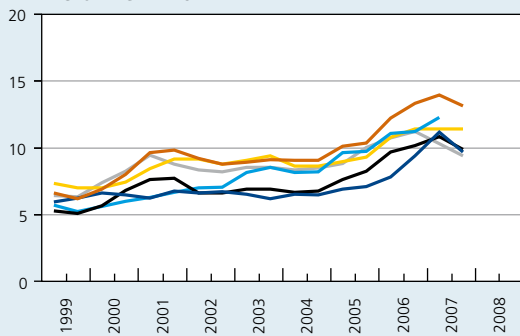
- Consumer price index for the euro area
- Consumer price index for Belgium
- of which:
 - Taxes (including VAT)
 - Cost of energy commodities (lga and gpi parameters)
 - Other importers' costs and supply costs (wages, overheads, remuneration of capital invested, etc.), distribution costs and transport costs
 - of which: - - - Distribution costs and transport costs

DISTRIBUTION AND TRANSPORT TARIFFS ⁽¹⁾ (estimates, indices Flanders December 2006 = 100)



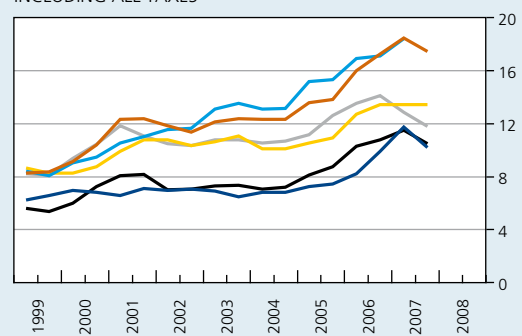
- Flanders
- Wallonia
- Brussels

INTERNATIONAL COMPARISON OF PRICE LEVELS FOR CONSUMPTION OF 83.80 GJ per annum (euro/Gigajoules) EXCLUDING TAXES



- Belgium
- France
- Netherlands
- Luxembourg
- United Kingdom
- Germany

INCLUDING ALL TAXES



Sources: EC, DGSEI, NBB.

(1) Estimates based on typical consumers in the national consumer price index and their respective weightings. Estimate for the liberalised market based on the ECS tariff structure. Distribution tariffs are averages weighted according to the relative size of the network operators.

The biggest difference in the breakdown of consumer prices of gas as opposed to electricity is the very substantial proportion of energy commodities in the gas price, which is logical since, in contrast to electricity, there is no production process, so that there are no supplementary costs to temper the weight of import prices.

CONTRIBUTION OF THE COST OF ENERGY COMMODITIES

Consumer prices of gas are in fact largely determined by energy prices on the international markets. Until 2006 the “energy commodities” component of the gas tariffs was adjusted according to the Iga parameter. That reflected the cost of acquiring the gas and, since gas import contracts included clauses adjusting the prices according to oil prices, after a time lag of several months that component mirrored the movement in international prices quoted for petroleum products in euro. Between 1999 and 2006, the “energy commodities” component therefore moved in line with Brent prices after a certain time lag. Thus, the increase in the consumer price of gas in 2001 corresponds to the oil price rise in 1999 and 2000. Similarly, the steady rise in 2005 and 2006 largely corresponds to the increase in oil prices between mid 2004 and mid 2006.

In 2007, the “energy commodities” component of consumer prices of gas displayed a very marked fall, before rising again in the final months of 2007. The scale of these fluctuations primarily reflects the indirect effects of liberalisation, which affected all three regions of the country.

First, there was a change in the parameter formula (known as the Iga parameter until 2006) used by gas suppliers to index their tariffs. At the beginning of 2007, owing to the time lag in adjusting gas prices in line with the price of Brent, the latter initially exerted a downward effect on gas prices in Belgium, before having a progressive upward influence from the middle of the year. But this profile became more pronounced after liberalisation as, since the beginning of 2007, the natural gas reference prices at Zeebrugge (known as Zeebrugge Hub) have been a (new) second factor, alongside oil prices, determining the indexation of gas tariffs. Almost all the suppliers active on the Belgian market chose to use these two determinants, but in proportions which may differ according to the formulas used to calculate the indexation of their tariffs. The names of these new parameters therefore also vary between suppliers: there is the Gpi parameter for ECS, Igm for Luminus, Egi for Essent, etc. In 2007, the two determinants of these parameters initially declined and then resumed an upward trend almost simultaneously, accentuating the movements during the year.

Moreover, the liberalisation of the gas and electricity markets has led to changes in the method of recording prices. Consequently, since January 2007 the price index has reflected changes in the monthly tariffs, whereas it had previously reflected the movement in the annual bills as deemed to be sent to households, which in practice corresponded to an average of the tariffs for the preceding twelve months. Another consequence of this change of methodology is that, since households generally pay intermediate invoices for a fixed amount each month, there may be some divergence between the assessment by households of the adjustments made to the tariffs invoiced and the movement in the gas and electricity price index. It is in fact not until households receive their annual statement that they are really able to assess the average movement in prices, provided they are also able to distinguish between the part of the change in the invoice attributable to price changes and the part due to fluctuations in consumption, resulting for example from favourable or adverse weather conditions. This difficulty in assessing the movement in prices is also suggested by a recent study conducted for Flanders by the regional regulator, the VREG. This phenomenon could be reflected in a structural gap between perceived and observed inflation. In particular, it is possible that consumers will not be aware of the recent increase in the gas price until later in the year. Of course, it is conceivable that consumer perceptions may be based on media reports of tariff increases at the time of their announcement, rather than on the actual invoice received several months later.

The main consequence of the combined effects of the change in the definition of the main indexation parameter and the adjustment of the method of recording prices is significantly greater volatility in the gas price index. Since gas prices tend to move in line with Brent prices, that could further augment the sensitivity of Belgian inflation to Brent prices in the future; as explained in annex B, that sensitivity is already more marked than in the euro area as a result of petroleum products. This characteristic makes it more difficult to anticipate developments.

Moreover, the rise recorded at the end of the year was further reinforced following the change made in October 2007 by the leading household gas supplier (ECS) to its new commodity price indexation formula which took effect a few months earlier, in January 2007 (revision of the formula for the Gpi parameter). ECS stated that the reason for this adjustment was a change in its import portfolio. However, the regulatory authorities were unable to obtain the information needed to assess whether or not this tariff increase was justified. The effects of this change have been fully reflected in the HICP since November.

The other suppliers also imposed tariff increases subsequently, but they were proportionately smaller. Since their market share is more limited, the effects on the index will also be less. Moreover, the various tariff increases applied have not systematically concerned the formula for the indexation parameter. The tariff elements modified vary from one supplier to another, and in some cases even concerned the part of the tariffs reflecting costs other than the cost of gas imports.

In regard to tariff indexation, there is a deplorable lack of transparency in some of the variables on which the parameters are based, since certain data are not published.

CONTRIBUTION OF OTHER COSTS

In the period 1999-2005, total costs other than gas commodity costs maintained an upward trend with relatively little variability via the indexation of the Igd parameter. This situation, fairly favourable for producers and suppliers, since all costs and margins were indexed, did not attract any reductions imposed by the authorities, in contrast to electricity.

The decline recorded in January 2006 corresponds to the delayed incorporation in the consumer price index of the liberalisation in Flanders (which took effect in July 2003). As in the case of electricity, distribution tariffs are lower in Flanders than the regulated tariffs in Wallonia and Brussels, and that exerts a downward influence on the distribution costs recorded in the index. In January 2007, the impact of the liberalisation of the residential market in the other two regions of the country was incorporated directly in the index. The distribution tariffs were then reduced in the three regions under pressure from the CREG, so that on average they did not increase when the Wallonian tariffs – higher than those in Flanders – were incorporated in the index.

Following liberalisation, the new tariffs offered by competing suppliers retained the principle of indexation according to the Igd parameter (in contrast to what happened with the energy component, described above, the CREG continues to publish this parameter) for the part of the tariffs reflecting their other costs. However, the proportion of those costs, and the scale of the indexation, vary from one supplier to another. This leads to slight differences in variability, but also results in fairly large price differentials in certain cases.

The gas market currently comprises six suppliers active in Flanders, five in Wallonia and two in Brussels. In September 2007, the market shares in Flanders and Wallonia were estimated respectively at: ECS 71 and

61 p.c.; SPE 16 and 27 p.c.; Nuon 9 and 1 p.c.; Essent 2 and 6 p.c.; Lampiris in Wallonia: 4 p.c.

Despite the price increase, as in the case of electricity, since liberalisation there is almost always a cheaper tariff available than the tariff applied by the default supplier (which supplies customers who have not made an active choice). The cheapest tariffs offer an average reduction of around 5 p.c. in Flanders and 9 p.c. in Wallonia (sources: VREG, July 2007 and CWAPE, December 2007). Those who have not yet chosen a supplier, and in certain cases those whose contract is coming to an end, therefore still have the opportunity to attenuate the impact of the increase.

In regard to the new social tariffs, the principle adopted is the same as in the case of electricity.

CONTRIBUTION OF TAXES

The situation is broadly similar to that in the electricity sector. For the same reasons as in that sector, various contributions intended to cover specific costs have appeared since liberalisation, some of them determined at regional level and therefore possibly varying between regions. With the (federal) energy contribution which existed before liberalisation, they represent between 2.5 p.c. (in Wallonia and Flanders) and 4.3 p.c. (in Brussels) of the final price. The energy contribution was reduced slightly in January 2007 (and in August 2003, in order to promote gas, which is less damaging to the environment, in the context of the Kyoto protocol). As in the case of electricity, it is the 21 p.c. VAT that represents the bulk of the taxes. Conversely, there is no equivalent to the tax intended to compensate for the loss of municipal income (Elia tax).

2.2 Outlook for 2008 – Increase in distribution tariffs and energy commodity prices

Regarding the outlook for 2008, as in the case of electricity account should be taken of the steep increase in distribution tariffs (not transport tariffs) implemented by the network operators (the intermunicipal associations) averaging 16 p.c. (cf. chart C2, top). This is likely to have an impact of 4 p.c. on the gas price index, or less than 0.1 p.c. on overall inflation and the health index. In practice, this increase offsets the reductions in other costs recorded since liberalisation.

The increase in distribution tariffs is not the same in each region. Thus, it is larger in Flanders than in Wallonia, though the level of tariffs remains higher there.

In addition, the increase in energy commodity prices should continue to be reflected in gas prices in 2008. However, at this stage there is insufficient information to quantify that effect. In particular, it is necessary to bear in mind that part of the increase in gas prices has already been incorporated in the price index, notably following the strong rise associated with the change in the definition of the ECS indexation parameter in October, and that the additional rise is therefore likely to be small,⁽¹⁾ assuming that suppliers make no significant changes to their tariff formulas in 2008. Nevertheless, the rate of change in the gas price index in 2008 will still be particularly high (over 30 p.c.) for part of the year, in view of the sharp fall recorded in 2007.

2.3 International comparison of price levels

An international comparison of the level of gas prices excluding tax shows that Belgium's position in relation to the three main neighbouring countries has remained fairly favourable since mid 2001 (cf. chart C2, bottom). While prices in the Netherlands were lower than those in Belgium until 2003, they subsequently became fairly comparable. Prices in Germany are still higher, on average. The steep decline seen in 2007 in Belgium, which records the lowest level of the panel, was also evident in other countries but was less pronounced. However, the exceptionally low level in Belgium was offset by a significant increase in the tariffs in October, so that, even taking account of the increase in gas prices in the other countries following the rise in commodity prices since July 2007, prices in Belgium at the end of 2007 were in a less favourable relative position than in July. That position is likely to be even more unfavourable when the January 2008 figures are available, since they should also incorporate the significant increase in distribution tariffs.

Taking account of taxes (in which VAT generally represents the largest part), it is apparent that the difference between gas price levels in Belgium, on the one hand, and in Germany and the Netherlands on the other has widened since about 2003. The differences in taxation therefore appear to work in Belgium's favour, although the rate of VAT in Belgium (21 p.c.) is higher than the rate in force in those countries (19 p.c. in the Netherlands, and also in Germany since January 2007). In both those

countries, the weight of other levies on the gas price is therefore particularly significant, while in Belgium it is only between 2 and 4 p.c. of the final price. Conversely, taxes are lower in France where it seems that only VAT is applicable, namely at a rate of 5.5 p.c. on the part of the tariff corresponding to the supply agreement and 19.5 p.c. on the variable component. The rates of VAT are much lower still in Luxembourg and the United Kingdom (6 and 5 p.c. respectively), which explains why the price level including all taxes is lower there than in Belgium.

In regard to pricing, the information on practices in the main neighbouring countries is not easy to obtain. In theory, there should be differences between the gas producing countries (such as the Netherlands, the United Kingdom and, to a lesser extent, Germany) and those dependent on imports. Traditionally, the countries dependent on imports, such as Belgium, are bound by long-term contracts which are generally indexed to petroleum product prices. However, the general indexation system applied to household tariffs in Belgium does not appear to be the rule in neighbouring countries. In France for example, despite the tentative emergence of alternative offers from new suppliers, the majority of household gas tariffs are still regulated tariffs fixed by the State, and require explicit government approval if a change of tariff is requested. The resulting prices have been more stable, but not necessarily lower or more transparent.

In conclusion, although Belgium's position in relation to the main neighbouring countries was fairly favourable up to 2007, it looks set to deteriorate in 2008, following the October 2007 tariff increase and the increase in distribution tariffs.

Conclusion

Between 1999 and 2007, the rise in gas and electricity prices was more moderate in Belgium than in the euro area, as the cumulative inflation figure for these products was 16 p.c. in Belgium and 40 p.c. in the euro area. The same applies to the past five years. In regard to price levels, the situation seems fairly favourable in Belgium compared to the main neighbouring countries for the whole of the period 1999-2007. This analysis also shows that, for any comparison, account should be taken of levies other than VAT which may be particularly significant in certain countries.

Price setting by competing suppliers does not appear to pose any major problems. However, the tariff indexation principle sometimes lacks transparency and the regulator does not have the necessary powers to judge whether or

(1) Thus, according to the CREG (press conference on 18/1/2008) energy costs are set to rise by 35 p.c. in 2008 compared to the 2007 average. However, since that figure is based solely on ECS tariffs and therefore incorporates the effect of the steep tariff increase in October 2007, it needs to be viewed in perspective. At least 80 p.c. of the estimated increase was already included in the December price levels, so that the additional increase in relation to the end of 2007 should be much smaller. Moreover, the change in other suppliers' prices, even after their respective tariff increases, should be much less marked and that should also temper the rise in the gas consumer price index.

not changes to suppliers' tariffs or indexation parameters are fair. As competition develops, that should reduce the risk of abuse, but the existence of dominant operators is still a factor in favour of some supervision.

Where distribution costs are concerned, the 2008 tariff increase is likely to give a substantial boost to inflation, undermining Belgium's relatively favourable position compared to the main neighbouring countries in terms of price levels. As regards the regulated element of the tariffs, for the market segment with a legal monopoly, the State could intervene if that proved to be necessary and justified. According to the regulator, CREG, extending its powers could reduce that increase by around half in the case of electricity, and even lead to a decline in gas supply tariffs compared to 2007.

In the case of the social tariffs, the changes made to the method of calculation in 2007 should produce their full effects in 2008 and tend to be favourable to the persons concerned. However, the cost of these tariffs is borne by households as a whole.

It is also worth bearing in mind that, from 2007, overall inflation has become far more volatile, owing to the combined effects of the change in the definition of the main gas price indexation parameter, which now incorporates a "spot" price (the Zeebrugge Hub), and the adaptation of the method of recording gas and electricity prices in the HICP and in the national CPI.

Processed food: inflation and price levels

1. Analysis of the movement in processed food prices

The cumulative movement in processed food prices over the past five years has been largely comparable to that seen in the euro area; that is also the case since the start of monetary union in 1999 (cf. chart 1 and table 1 in the main document). Between 1999 and 2005, the pace of price increases actually tended to be slower in Belgium than in the euro area. In contrast, in 2006 and 2007, prices increased faster than in the euro area.

It is not so much the strong acceleration in the rate of increases in processed food prices in the second half of 2007 that is atypical, but rather the fact that processed food prices had already risen sharply in Belgium in the second half of 2006 and the first half of 2007. The “processed food” component of the HICP comprises nine more or less homogeneous groups for which comparable data are available for the euro area and the three main neighbouring countries⁽¹⁾. If these HICP data are expressed as indices with base June 2007 = 100, it emerges that the cumulative price increases since June 2007 are only very slightly higher than those recorded in the euro area. However, with the exception of alcoholic beverages, prices of all processed food product categories increased significantly faster in Belgium than in the euro area in 2006.

For most of these product groups, the rate of price increases had in fact already exceeded that in the euro area by the second half of 2006 and/or the first half of 2007. This rise was more pronounced for bread and cereals, tobacco, sugar products and other processed food. The latter's contribution to the overall increase in processed food prices is rather small, however, owing to

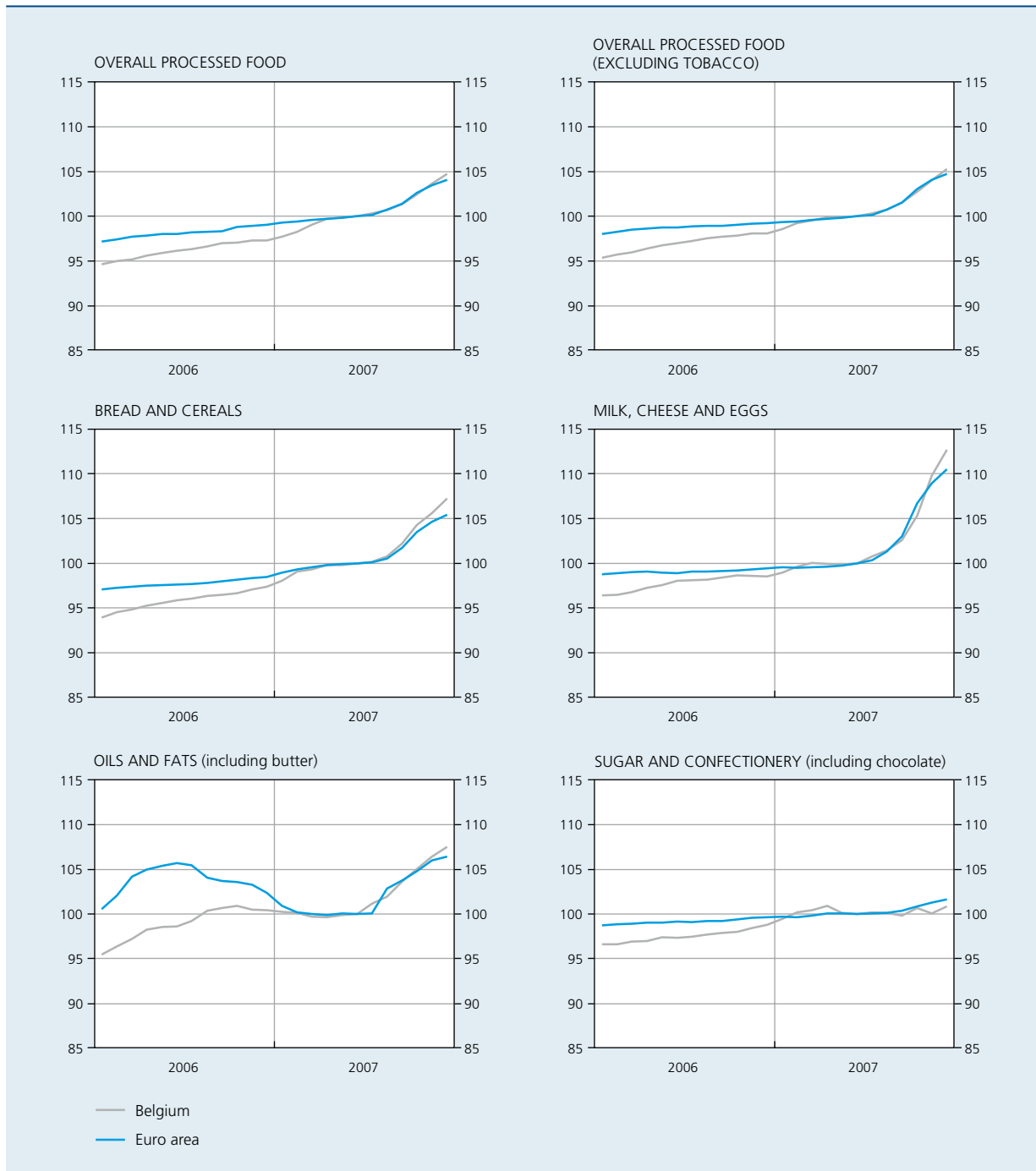
the low weight of these products (0.6 p.c. of the HICP, out of a total of 11.9 p.c. for processed foods in 2007). At the beginning of 2007, tobacco prices increased sharply, a packet of 25 cigarettes going up from 4.9 to 5.4 euro. An increase in excise duty accounted for 20 euro cents of this rise.

Three of these product groups are also the source of the new acceleration in the rate of increase in processed food prices recorded in the second half of 2007, namely milk, cheese and eggs, oils and fats, and bread and cereals. These three product groups are discussed in more detail below. They are also analysed in greater depth in Annex E.

Taking account of these developments, the rise in processed food prices came to 4.8 p.c. in Belgium between June and December 2007, against 4 p.c. in the euro area. However, in this connection it should be pointed out that composition effects may play a role in an international comparison of the movement in processed food prices. Thus, the rise in processed food prices recorded between July and December 2007 would have been slightly lower in Belgium than the true figure if the weights of the various components applicable in the euro area had been used, instead of those applicable in Belgium. In the Netherlands, and especially in Germany, doing so would have the opposite effect. These differences are due to the substantial weight represented in Belgium by bread and cereals, which have risen steeply in price, while they have a particularly low weight in Germany. In addition, differences between countries regarding the composition

(1) A more detailed breakdown is, of course, available for Belgium but it is hardly relevant for this part of the analysis since no comparable data are available for the euro area. However, such a more detailed approach is the subject of the analysis presented in Annex E.

CHART D1 RECENT MOVEMENTS IN PROCESSED FOOD PRICES
(HICP index, base June 2007 = 100)



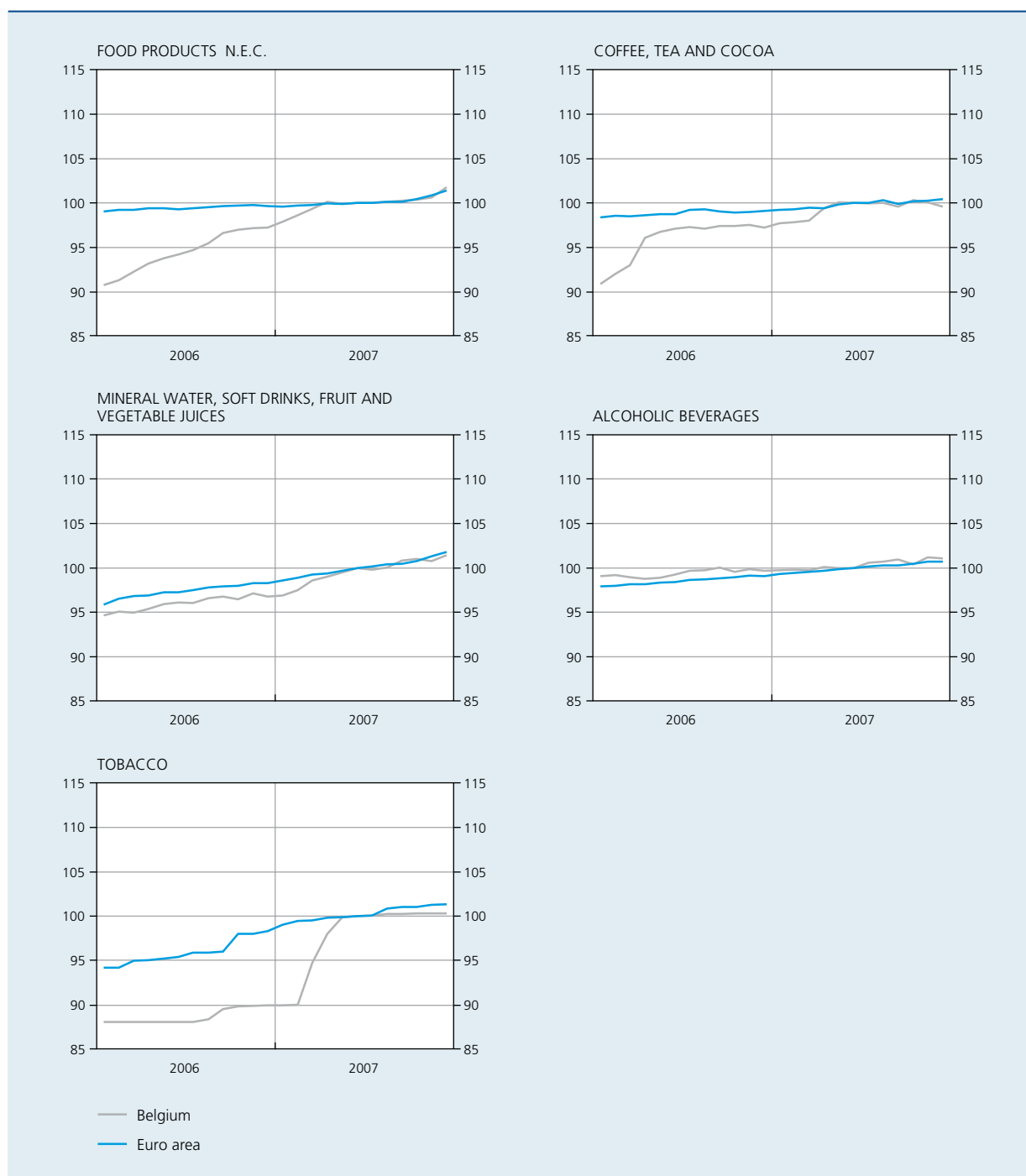
Sources : EC, NBB.

of the sub-components (on which, however, no data are available) may also be a factor. That clearly applies to oils and fats, where the relative importance of butter (which recently recorded a sharp price increase) compared to olive oil (for which substantial price decreases were recorded in 2007) varies greatly between the northern and

southern European countries. There was therefore a downward influence on the movement in the prices of the “oils and fats” component of the HICP at euro area level, whereas that hardly applied in Belgium and Germany.

CHART D1 RECENT MOVEMENTS IN PROCESSED FOOD PRICES (CONTINUED)

(HICP index, base June 2007 = 100)



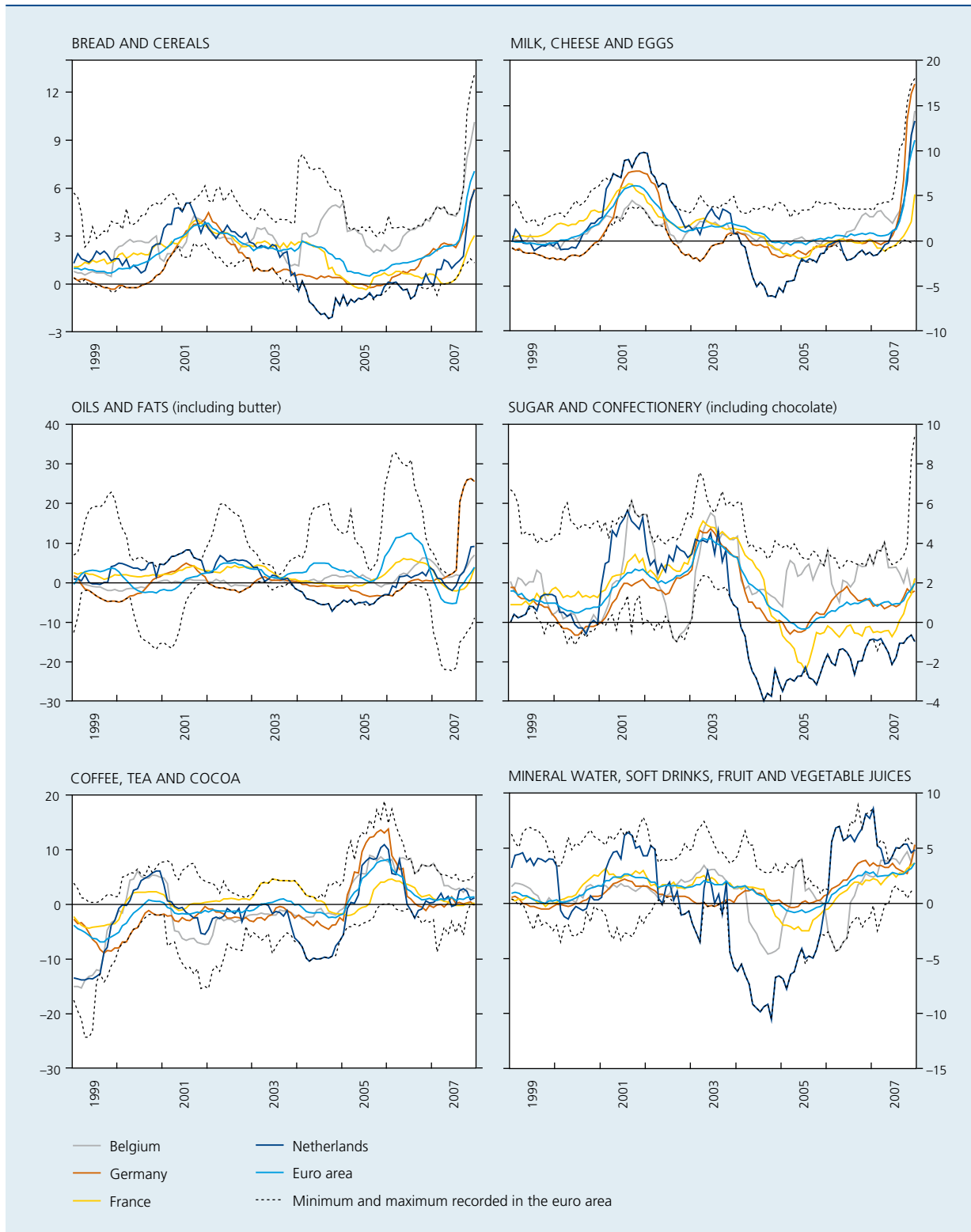
Sources: EC, NBB.

The accelerating pace of processed food price rises in the second half of 2007 is manifestly connected with the recent increase in food commodity prices. On the international food markets, milk, oils and fats, and cereals were also the products recording the largest price increases. Since a detailed analysis of the rising cost of food

commodities is beyond the scope of this study, the reader is referred to the Bank's Report⁽¹⁾ on 2007. However, consumer prices displayed a less marked increase than

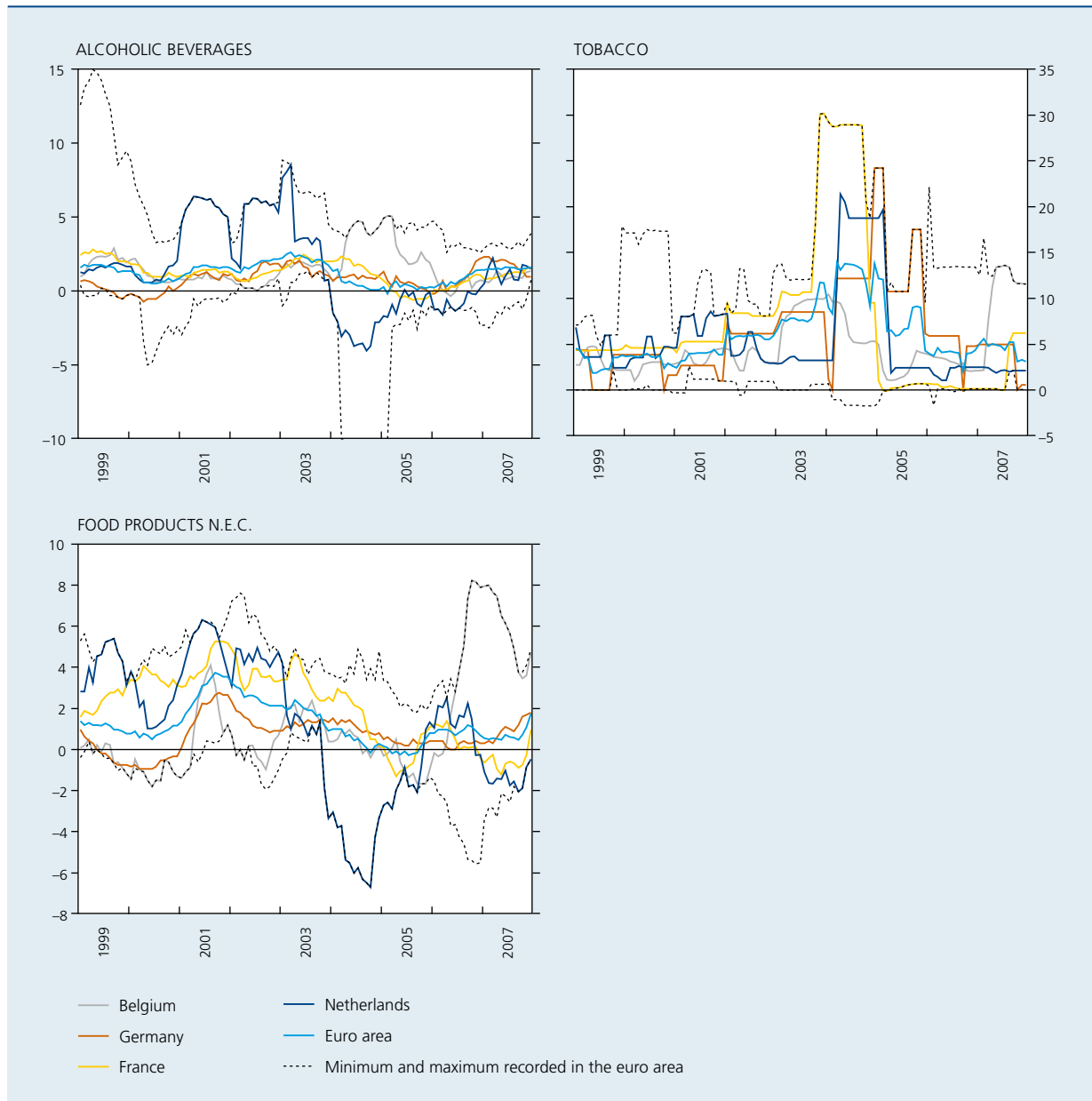
(1) NBB (2008), *The strong rise in food commodity prices: causes and effects*, Box 1, Report 2007, pp. 7-8.

CHART D2 INFLATION IN BELGIUM AND IN THE EURO AREA, PROCESSED FOOD
(percentage changes compared to the corresponding month of the previous year)



Sources : EC, NBB.

CHART D2 INFLATION IN BELGIUM AND IN THE EURO AREA, PROCESSED FOOD (CONTINUED)
(percentage changes compared to the corresponding month of the previous year)



Sources: EC, NBB.

commodities since the latter represent only a modest part of the consumer price, which also depends on the costs of processing, transport and distribution.

Thus, according to the United States Department of Agriculture (USDA), the farm-gate price of the unprocessed agricultural product represents around 19 p.c. of the price which the consumer pays for a food product. The actual price of the agricultural product obviously also includes non-agricultural inputs, such as fertilisers, which – being very energy-intensive – are also among the

reasons for the higher prices of agricultural products. This proportion calculated by the USDA is of the same order of magnitude for Germany; the German Federal Research Centre for Agriculture (*Bundesforschungsanstalt für Landwirtschaft – FAL*) calculated that the price received by the farmer represents about 25 p.c. of the consumer price. The two studies show that there are wide disparities between the various products. Thus, cereals account for a very small percentage of the bread price, partly because energy is a relatively important element of the production costs. In regard to meat, the agricultural value represents

TABLE D1 PROCESSED FOOD
(percentage price increases between June and December 2007)

	With own official weightings	With euro area weightings
Belgium	4.8	4.6
Euro area	4.0	4.0
Germany	4.1	5.6
France	3.8	3.8
Netherlands	3.5	4.1

Sources: EC, NBB.

between 25 and 50 p.c. of the consumer price. For dairy products, that proportion is close to 35 p.c. Conversely, the farm price accounts for a higher percentage of the consumer price of eggs. The European Commission arrived at similar conclusions for the European Union as a whole, but for a smaller number of products.

However, viewed in a historical perspective, the rise in food commodity prices had a particularly significant impact on consumer prices, both in the magnitude of the increases and in the speed of transmission. That is true of the transmission to producer prices for food and the more or less simultaneous transmission to consumer prices. The surprising scale and speed of the transmission suggest that the price increases charged to consumers are excessive and could therefore indicate some widening of

margins in the food processing sector and/or in the distribution sector. Although the available data cannot totally rule out that possibility, the specific character of the current shock to food prices may be the main reason for the scale and speed of transmission. To demonstrate that, this annex uses Vector Autoregression Models (VAR)⁽¹⁾ to compare the current reaction of producer and consumer prices to past reactions. Annex E verifies whether certain assumptions concerning the acceleration of the speed of transmission of the shock can be validated by the micro-

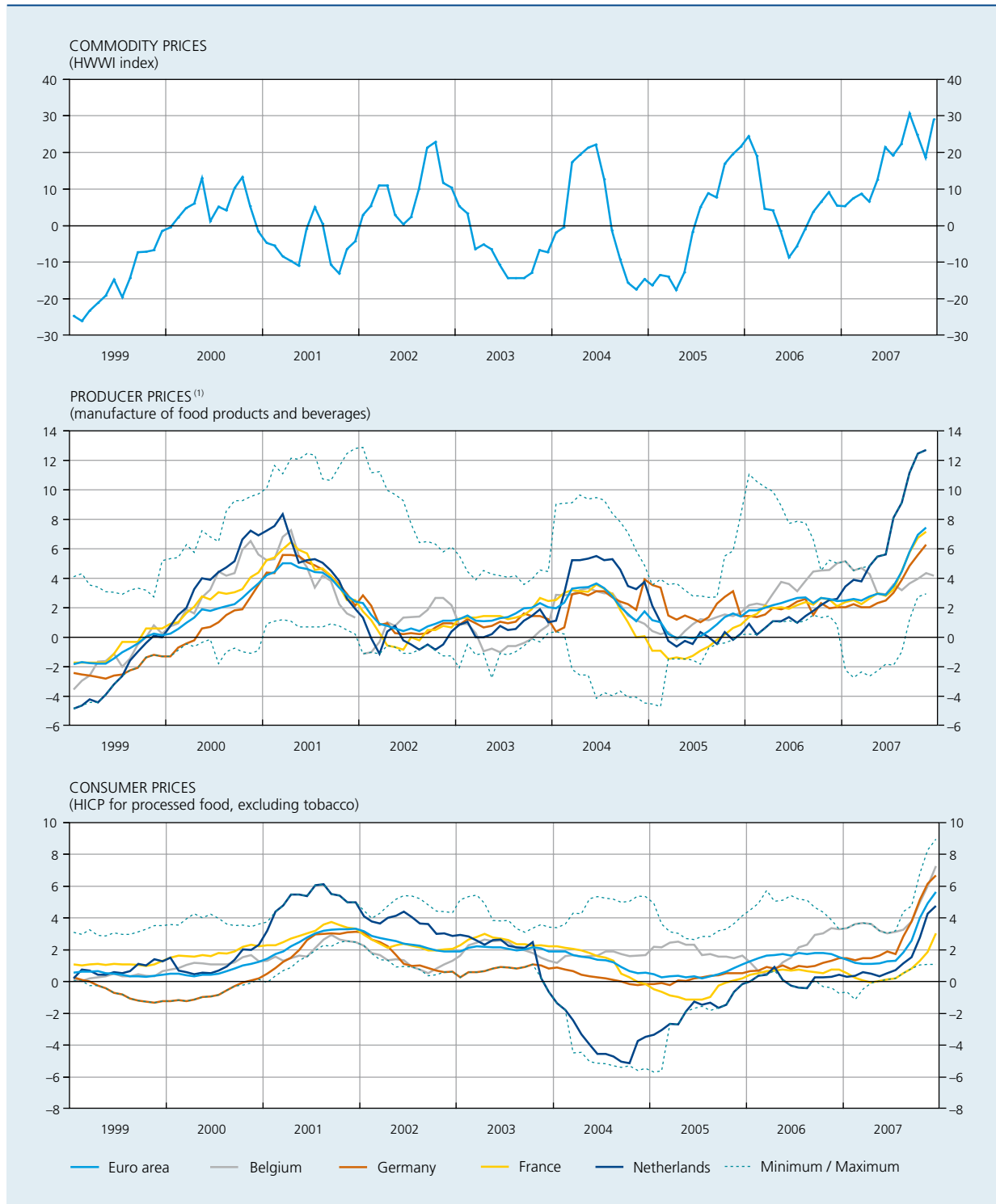
(1) Vector autoregression models estimate the dynamic relationship between a number of variables by means of the least squares method. By formulating specific assumptions, derived from economic theory, it is possible to decompose the residuals – i.e. the movements in the variables which the model does not explain – into shocks which are not mutually correlated. They have a structural interpretation and they can account for the gap between a variable and its trend. In this analysis, the ordering of the variables according to their position in the production chain makes it possible to identify the underlying structural shocks.

TABLE D2 SHARE OF AGRICULTURAL VALUE IN CONSUMER PRICES OF FOOD
(percentages)

	EU	Germany	United States
Bread	4	4	6
Meat		26	
Beef			45
Pork	50 – 70		33
Poultry	50 – 70		43
Dairy products		37	34
Eggs		67	36
Oils and fats			21
Potatoes		16	16
Sugar		38	20
Average		25	19

Sources: EC, FAL, USDA.

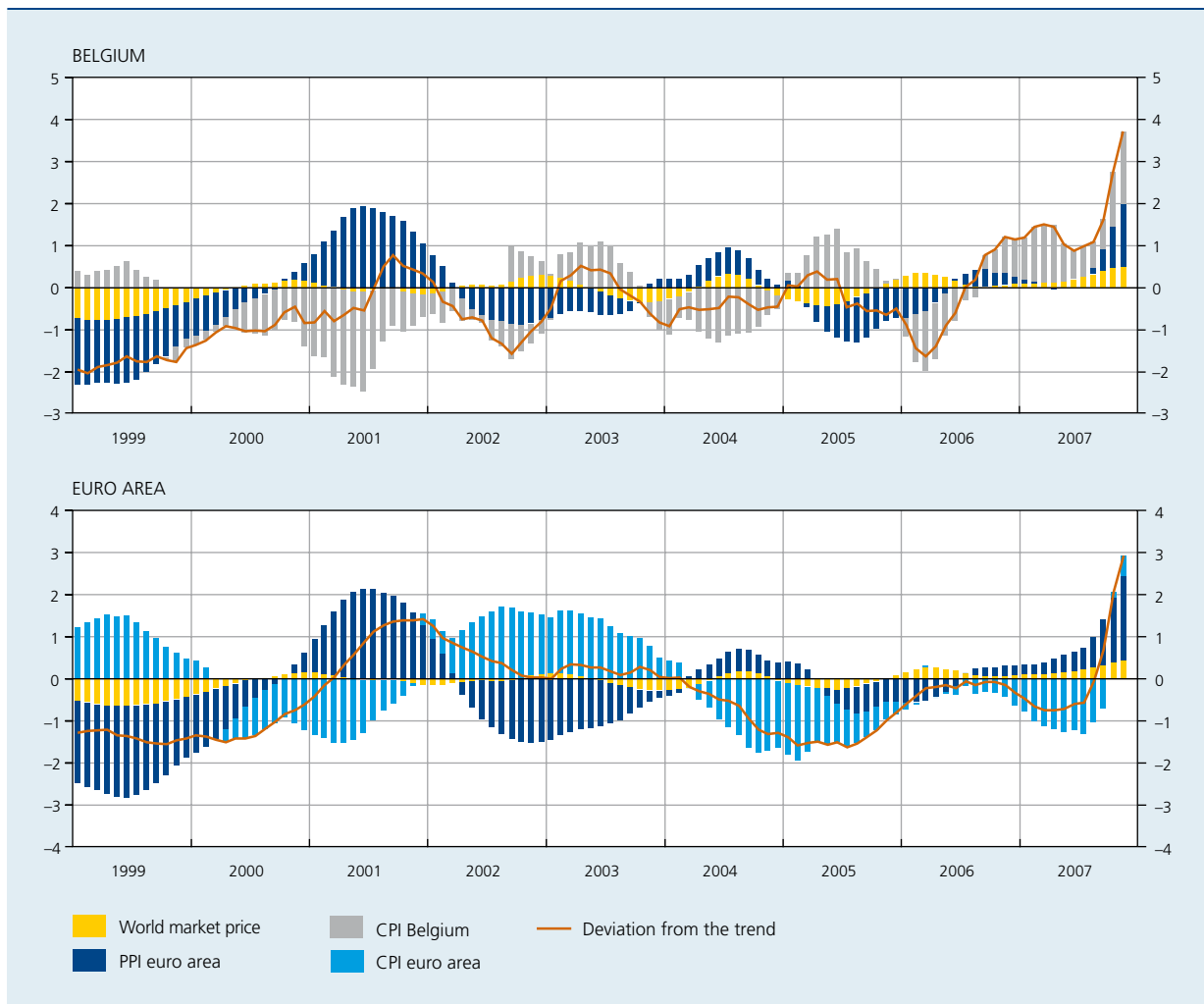
CHART D3 TRANSMISSION OF FOOD COMMODITY PRICE INCREASES
(percentage changes compared to the corresponding month of the previous year, prices in euro)



Sources: EC, HWWI, DGSEI, NBB.

(1) Owing to a change in the methodology of the Belgian index of producer prices on the domestic market, this series contains a break between the old index (base 1980 = 100) and the new index (base 2000 = 100), which has applied since 1 January 2002.

CHART D4 CONSUMER PRICES OF PROCESSED FOOD EXCLUDING TOBACCO AND STRUCTURAL SHOCKS, ACCORDING TO A VAR MODEL⁽¹⁾
(contribution to the deviation of inflation from its trend)



Sources: EC, HWWI, own calculations.

(1) The variables included in the model are, in descending order of exogeneity, the price of food commodities on the world market, the European producer prices for food and beverages (PPI), and the consumer prices of processed food excluding tobacco (CPI for Belgium and for the euro area).

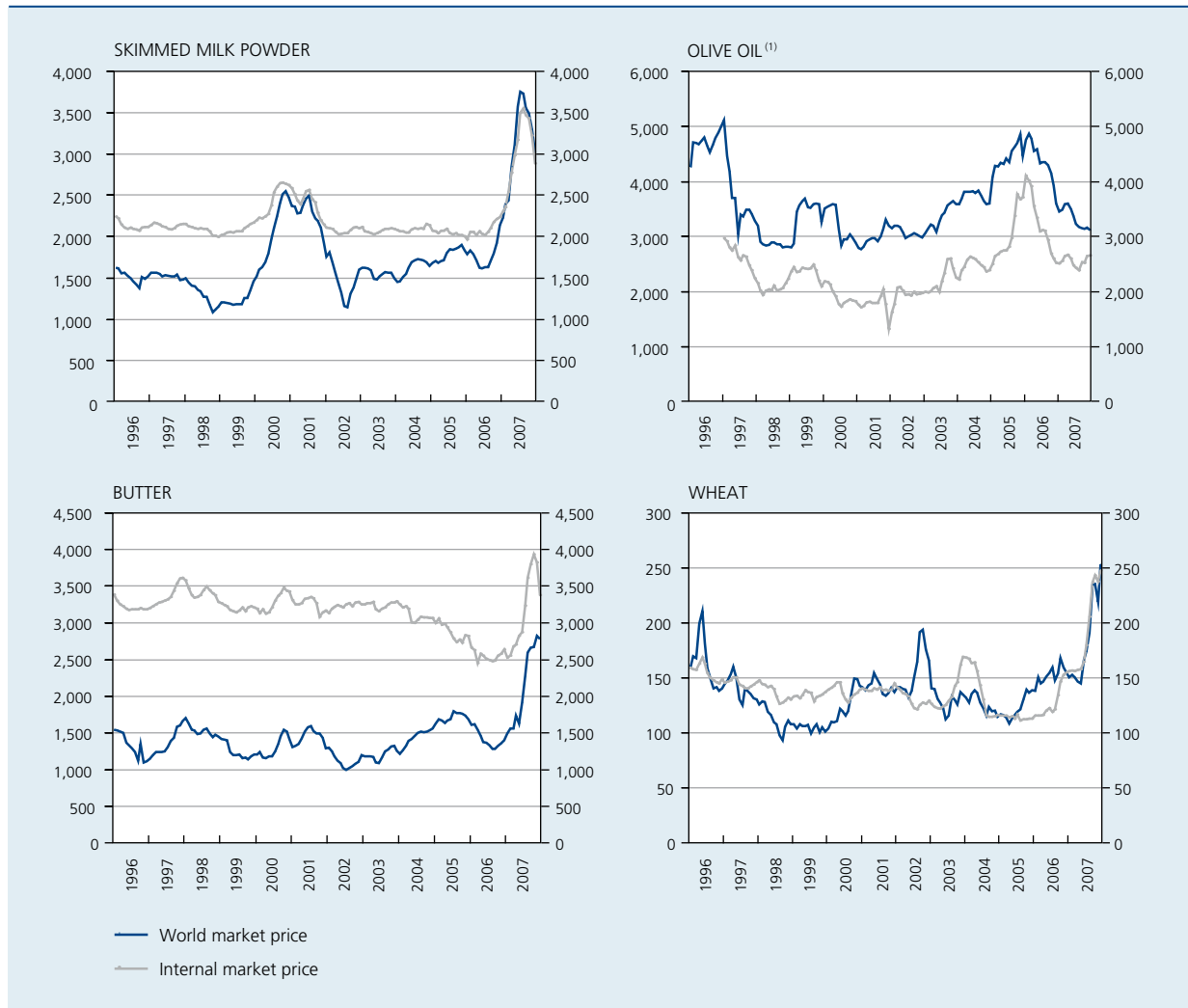
data used by the DGSEI to compile the consumer price index. It also verifies indirectly whether the transmission is due mainly to the effect of the cost increases rather than to increases in the margins. The reason behind this indirect approach is that the data bank used for this purpose comprises prices for individual (but anonymous) outlets, but no indication of the corresponding costs.

First, the surprising magnitude of the transmission is illustrated by means of a VAR model which describes the dynamic relationship between food commodity prices on the world market (HWWI index), European producer prices for food and beverages, and consumer prices for processed food (excluding tobacco) in Belgium and in the euro area respectively. The estimation of the VAR

model was based on monthly data for the period from January 1996 to November 2007 inclusive⁽¹⁾. In each case the food commodity price index is regarded as the most exogenous variable, so that it is assumed that shocks affecting the other variables cannot have a direct effect on it. Conversely, producer prices may be directly affected by shocks affecting world market prices, while the shocks affecting consumer prices cannot have a direct effect on producer prices. The consumer price index is therefore the most endogenous variable in the model, since it may be directly affected by shocks concerning other variables but cannot itself exert any direct effect on the other variables

(1) November 2007 is the latest month for which producer prices were available. In December 2007 and January 2008, however, the pace of increases in consumer prices for processed food continued to accelerate.

CHART D5 WORLD MARKET PRICE AND INTERNAL MARKET PRICE
(euro per tonne)



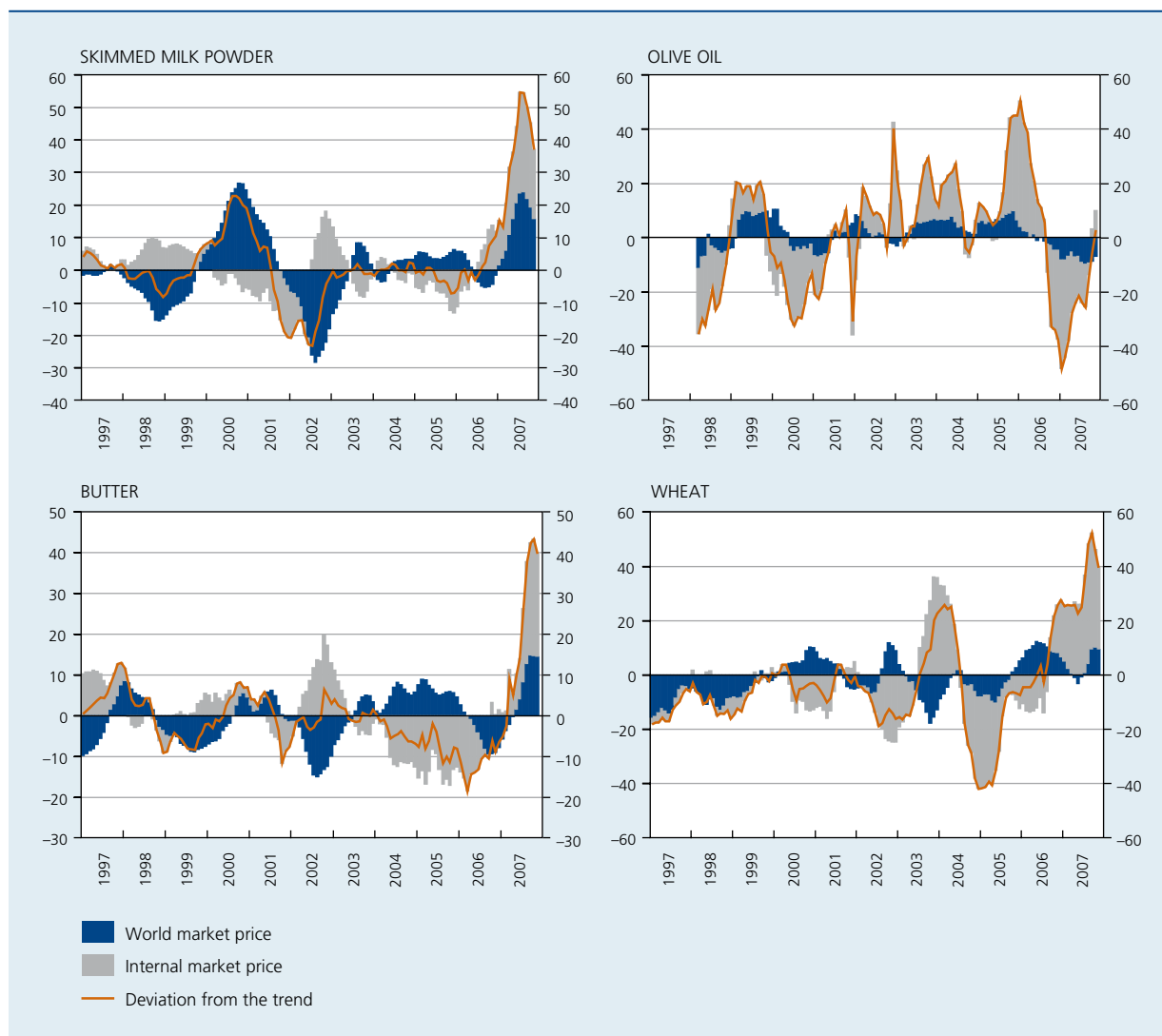
Sources: EC, FAO, IMF.

(1) The chart shows the movement in the price of two slightly different types of olive oil.

in the model. This ordering is logically consistent with the various stages through which food products pass before reaching the consumer: first the commodities, then the processing and finally the distribution to consumers. The VAR model can estimate the contributions of three structural shocks to the inflation gap in relation to its trend: the commodity price shock, the producer price shock (to be interpreted as a shock which determines the movement in producer prices, on top of the normal transmission of the commodity price shock), and the consumer price shock (to be interpreted as a shock which determines the movement in consumer prices on top of the normal transmission of shocks at commodity and producer price level).

According to such a decomposition, only a very small part of the acceleration in processed food price inflation in the second half of 2007 is attributable to the commodity price shock, both in Belgium and in the euro area. Conversely, the acceleration is due largely to the shocks at producer and consumer price level, which, according to a literal interpretation, would mean that the increase in prices occurred primarily at the level of the food processing and distribution, rather than being due to a normal transmission of commodity prices. The contribution of the commodity price shock was also very small in the past, both in Belgium and in the euro area. This bears out the assertion that the transmission of world market food commodity prices to both producer and consumer prices of food has been particularly

CHART D6 INTERNAL MARKET PRICE AND STRUCTURAL SHOCKS, ACCORDING TO A VAR MODEL ⁽¹⁾
(contribution to the deviation of inflation from its trend)



Sources: EC, FAO, IMF, own calculations.

(1) The variables included in the model are, in descending order of exogeneity, the world market price and the internal market price.

substantial by historical standards, and has rightly been seen as such by the consumer.

However, it is possible to gain a better understanding of the considerable magnitude of that transmission if account is taken of the change in the role of the EU common agricultural policy (CAP). In the past, the CAP used to smooth out fluctuations in world market prices, but that is no longer so nowadays, given the strong surge in world market prices and sometimes also the reduction in guaranteed prices on the internal market. This can be illustrated in regard to four food commodities which have had a significant influence on recent developments in food prices. For example, in the case of skimmed milk

powder, the steep rise in the world market price recorded at the start of the new millennium was reflected in a much smaller rise in the internal market price, precisely because that price was already at a high level. In contrast, the current price increases on the world market are being passed on almost in full in the prices charged on the internal market. A similar picture is apparent for butter, where the internal market price actually declined between 2003 and 2006 owing to CAP reforms, whereas the world market price was rising. The CAP seems to have a less marked influence on olive oil prices. Although the wheat price on the internal market mirrors world market movements, the CAP nevertheless appears to have tempered its variability in the past.

These findings are also borne out by the analysis of another VAR model which summarizes the dynamic relationship between world market prices and the internal market price for the four products mentioned. It is possible to decompose movement in prices on the internal market into contributions of a shock to prices prevailing on the world market and a shock to the internal market price. For skimmed milk powder, butter and wheat, the analysis shows that the CAP actually had a major moderating influence on the movement in internal market prices up to mid 2006. Until that time, upward (downward) world market price shocks were generally offset by downward (upward) internal market price shocks, indicating that the CAP had a smoothing effect. However, that compensatory effect disappears in mid 2006, when the contributions of the two shocks together prove to be positive⁽¹⁾. The decline in the butter price on the internal market between 2003 and 2006, which was unconnected with the trend in world market prices, is manifested as a negative contribution of the internal market price shock during that period. As regards olive oil, the CAP does not appear to exert any compensatory effect.

It therefore emerges that it is the internal market price rather than the world market price which is the appropriate variable for studying the movement in processed food prices in Europe. Accordingly, for each product category recording strong price increases since mid 2007 – namely milk, cheese and eggs, oils and fats, and bread and cereals – VAR models describing the dynamic relationship between internal market prices, producer prices and consumer prices will be presented below.

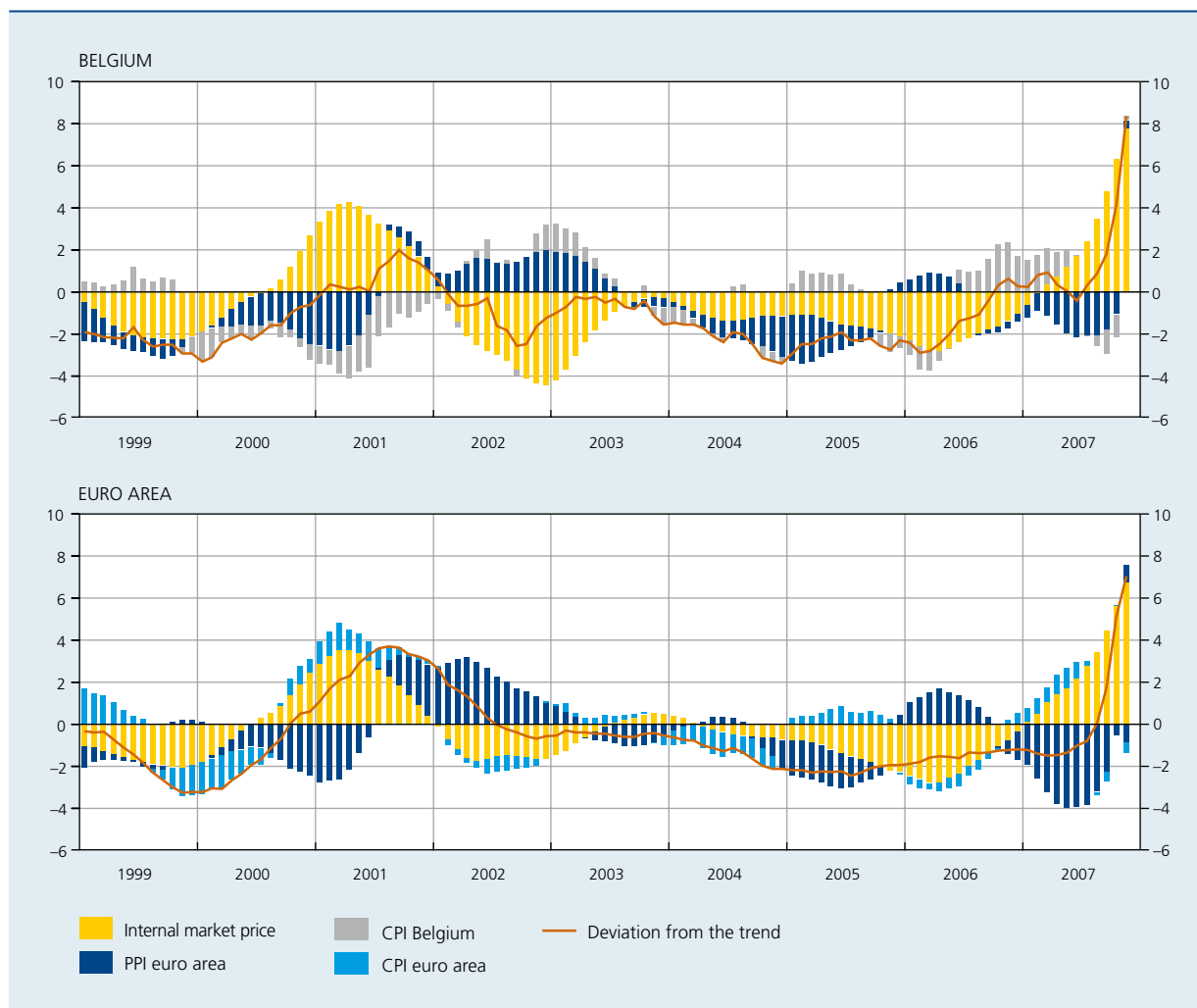
If the internal market price is used rather than the world market price as the determinant variable, it is apparent that, in Belgium as in the euro area, the current acceleration for the “milk, cheese and eggs” category is due largely to the positive contributions of the shock to the internal market price of skimmed milk powder, whereas the shock to European dairy manufacturing prices exerted a downward effect until October 2007 in both Belgium and the euro area. This indicates that the acceleration in inflation is due to the effects of the price increase on the internal market, which in turn reacted more strongly than in the past to fluctuations in prices of skimmed milk powder on the world market. It is only during the final month of the analysis, namely November 2007, that the movement in consumer prices of milk, cheese and eggs was also affected to some extent by an upward producer price shock in both Belgium and the euro area. The same exercise for the three main neighbouring countries gives broadly similar results. However, in the case of France, the slower pace of the price increases can be attributed partly to the fact that, throughout the period, shocks

affecting internal market prices were transmitted on a smaller scale to consumer prices, and partly to a series of negative contributions from shocks affecting consumer prices in France since mid 2006. The marked increase in inflation recorded for dairy products in Germany at the end of 2007 is due to the speed with which German consumer prices reacted to shocks affecting European producer prices. Conversely, the slightly greater inflation in milk, cheese and eggs recorded in Belgium from mid 2006 is a Belgian phenomenon which is due to the continuing positive contributions of consumer price shocks in Belgium.

The higher prices seen in Belgium in recent months in the case of oils and fats are due to substantial contributions from shocks to butter prices on the internal market. It is only during the final month of the analysis, namely November 2007, that the movement in consumer prices of oils and fats was also affected to some extent by an upward shock to consumer prices. In the euro area, the inflation of oils and fats is lower. That is due to compensatory effects, as the positive contributions for butter are offset by negative contributions from the fall in olive oil prices on the internal market. This last fall seems to have a greater impact on the HICP in the euro area than on that in Belgium. That also explains the marginal contribution of olive oil to the inflation in oils and fats in Belgium throughout the period. This same exercise applied to Greece and Italy shows that, for those countries, inflation in the oils and fats category is hardly influenced by shocks affecting butter, whereas shocks affecting the price of olive oil on the internal market have a major impact there. This indicates that the positive differential between inflation in oils and fats in Belgium compared to the euro area is due essentially to the effects of the butter price increase and the substantial weight of butter in the HICP. The same factors also account for the price increases recorded in the Netherlands and Germany, where consumer prices are very sensitive to fluctuations in butter prices on the internal market, especially in Germany. In regard to France, butter and olive oil play a more or less equivalent role even though, as in the case of dairy products, the contributions of shocks to prices on the internal market to the increase in consumer prices there are smaller. That may be a sign of structurally weaker transmission of internal market prices to consumer prices in France.

(1) The VAR models are estimated over the whole of the period from January 1996 to November 2007. This means that no explicit account is taken of the change in the CAP's role in the transmission of world market prices to prices on the internal market. In fact, only one and the same equation is estimated for a period in which the CAP exerts a moderating effect on that transmission and for a period in which that moderating effect has disappeared. Even if that method is not entirely correct from an econometric point of view, it does not really present any problems for the present exercise, since the change in the CAP's role is manifested in a change in the contribution of the shock affecting the internal market price, which can be interpreted.

CHART D7 MILK, CHEESE AND EGGS AND STRUCTURAL SHOCKS, ACCORDING TO A VAR MODEL ⁽¹⁾
(contribution to the deviation of inflation from its trend)



Sources: EC, own calculations.

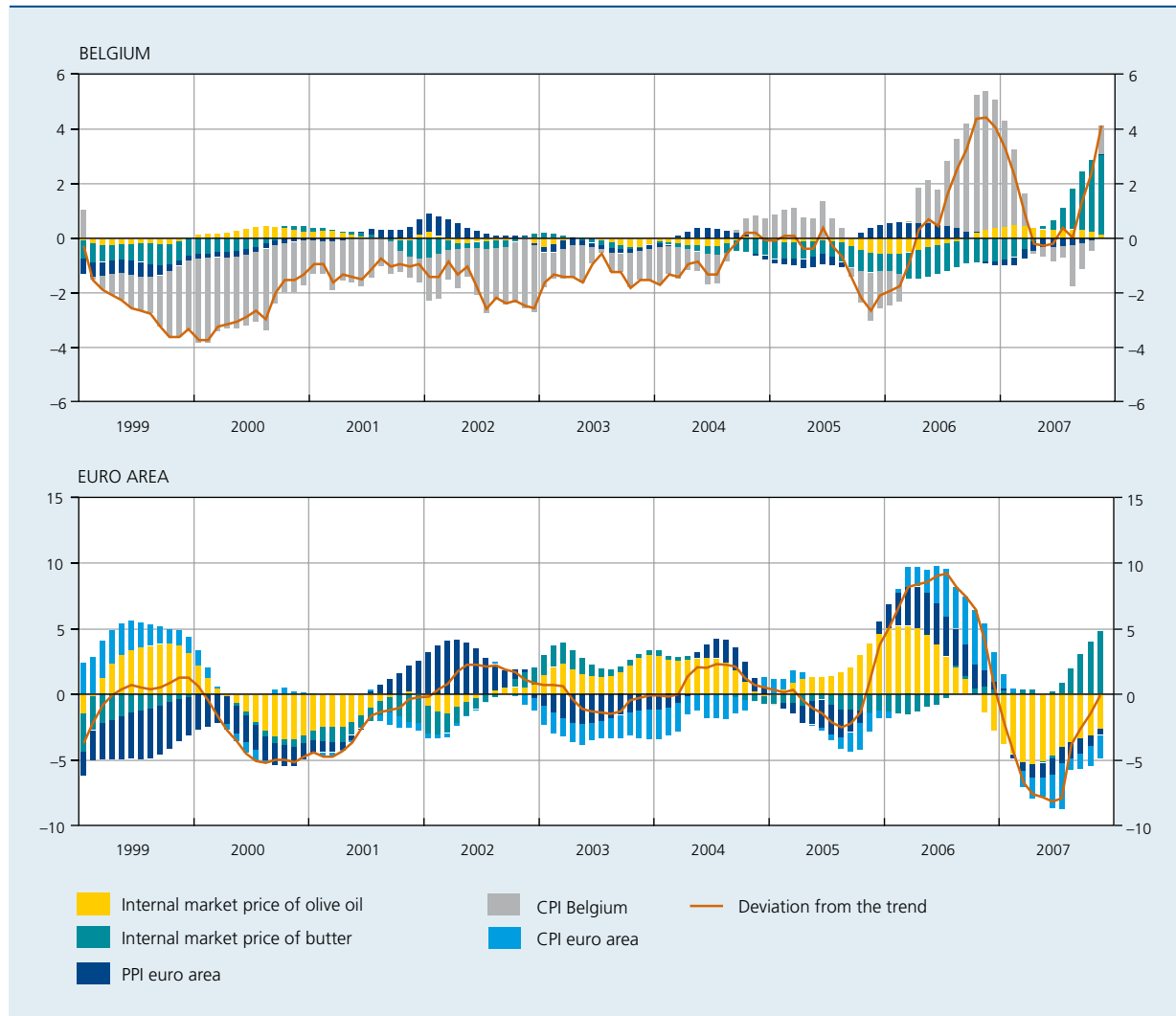
(1) The variables included in the model are, in descending order of exogeneity, the internal market price of skimmed milk powder, the European producer prices for manufacture of dairy products (PPI), and the consumer prices of milk, cheese and eggs (CPI for Belgium and for the euro area).

In Belgium, the movement in consumer prices of bread and cereals in the latest months of 2007 may be due to a combination of contributions from shocks to the price of wheat on the internal market, but also to upward shocks concerning producer and consumer prices in Belgium. In the euro area, too, the shock affecting consumer prices made a positive contribution at the end of 2007, although to a lesser extent than in Belgium. Previously, shocks to producer prices had already exerted upward pressure in Belgium (in 2006 and in the first half of 2007), which is exactly the opposite of what happened in the euro area. Between mid 2004 and mid 2005, the shock to consumer prices in Belgium made a major positive contribution, which could point to some catching up after the deregulation of bread prices in July

2004. The repercussions of that regulation are evident in the fact that, before July 2004, a shock affecting consumer prices in Belgium had tended to offset the effects of the movement in prices on the internal market.

The positive contribution of the shock originating from producer prices and that originating from consumer prices in Belgium at the end of 2007 may indicate disproportionate transmission of the fluctuations in internal market prices for wheat to producer and consumer prices for bread and cereals in Belgium. However, in that regard it should be pointed out that this decomposition could be influenced by the non-stable relationship between internal market prices for wheat and the price of bread in Belgium. That instability could be due to the fact that

CHART D8 OILS AND FATS AND STRUCTURAL SHOCKS, ACCORDING TO A VAR MODEL⁽¹⁾
(contribution to the deviation of inflation from its trend)



Sources: EC, own calculations.

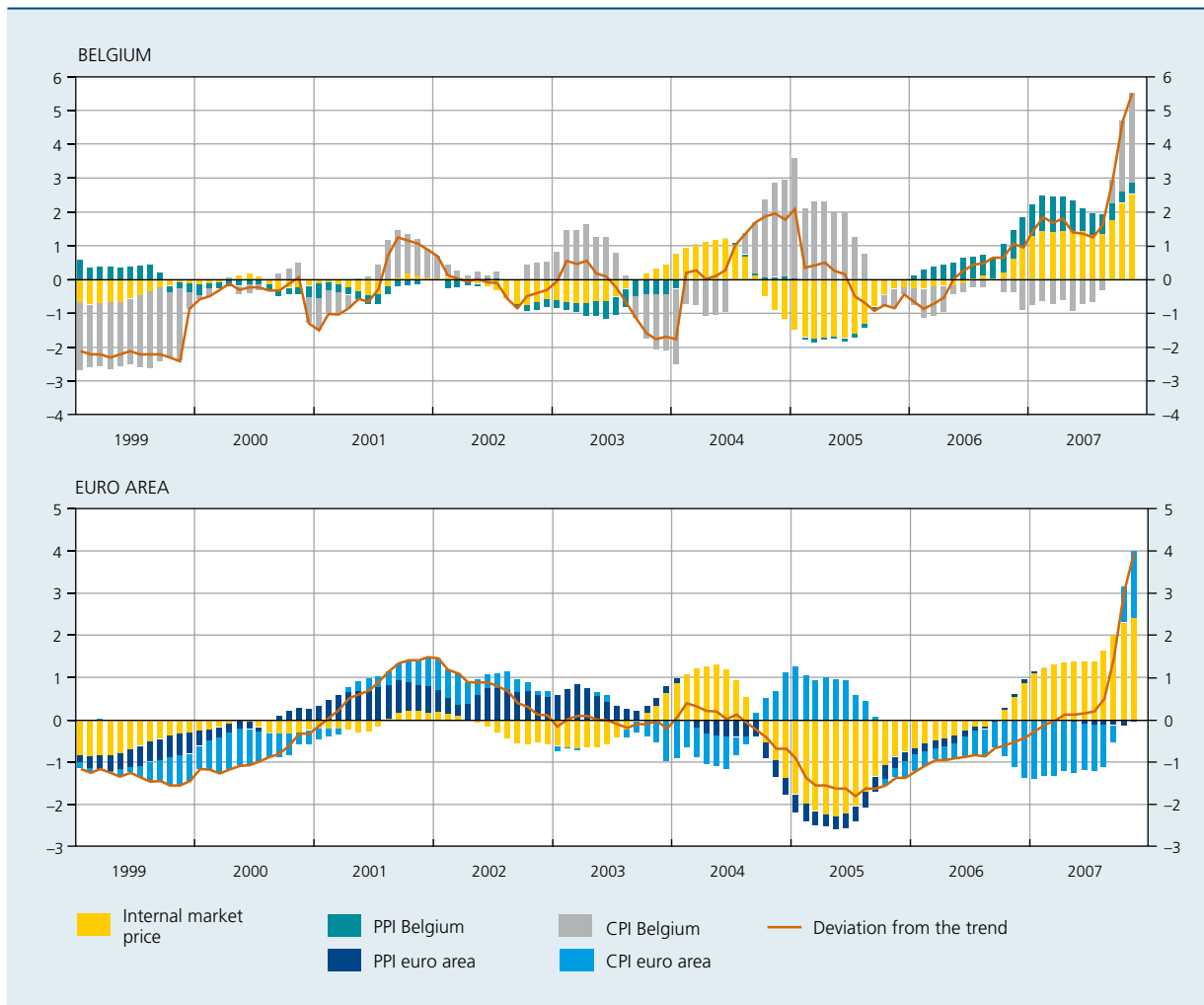
(1) The variables included in the model are, in descending order of exogeneity, the internal market price of olive oil, the internal market price of butter, European producer prices for manufacture of vegetable and animal oils and fats (PPI), and consumer prices of oils and fats (CPI for Belgium and for the euro area).

the bread price was regulated until July 2004, so that, on the basis of the first part of the period examined (up to July 2004), the transmission of commodity prices to consumer prices is estimated to be rather weak. That could in turn imply that, in extrapolating this profile to the second part of the period (after July 2004), part of the increase in bread and cereal prices recorded during that period is wrongly imputed to shocks at the level of producer or consumer prices. In fact, the transmission of the internal market price of wheat to consumer prices seems to be slightly stronger in the euro area, while the contributions of producer and consumer price shocks are traditionally lower there. However, there have recently also been signs that, since the deregulation of bread

prices, the federation of Flemish bakers (VEBIC) has been encouraging members to raise their prices, which has probably contributed to the positive inflation differential observed since then in relation to the euro area and the main neighbouring countries⁽¹⁾. The euro area and the main neighbouring countries in fact recorded smaller increases in bread and cereal prices from the beginning of 2004. That is due mainly to the negative contributions of shocks to national consumer prices and – in both the Netherlands and France – to modest positive contributions from internal market price shocks for wheat. This last

(1) Cf. the Competition Council press release: http://economie.fgov.be/organization_market/competition/press_releases/press_release_28012008_fr.pdf.

CHART D9 BREAD AND CEREALS AND STRUCTURAL SHOCKS, ACCORDING TO A VAR MODEL ⁽¹⁾
(contribution to the deviation of inflation from its trend)



Sources: EC, own calculations.

(1) The variables included in the model are, in descending order of exogeneity, the internal market price of wheat on the domestic market, producer prices for manufacture of bread and fresh pastry goods and cakes (PPI for Belgium and for the euro area), and consumer prices of bread and cereals (CPI for Belgium and for the euro area).

point is perhaps a sign of structurally weaker transmission of internal market prices to consumer prices for bread and cereals in France and the Netherlands.

Finally, it should be pointed out that a positive contribution from producer or consumer price shocks is only a sign of transmission deviating from patterns in the past. That does not necessarily mean that the price change is not justified. It may appear considerable since the shock affecting food commodity prices coincides with an increase in energy costs, a factor which may be important in the processing of certain foods. It is also possible that prices have been adjusted more quickly, since the food and distribution sectors have faced a much greater shock than those generally seen in the past. The Bank's survey of pricing

conducted in 2004⁽¹⁾ in fact demonstrated that price adjustments may suddenly deviate from the normal profile of changes at fixed intervals, and that they may be triggered by specific events if a sufficiently large shock occurs. Annex E will show that, since mid 2007, the frequency of price adjustments has greatly increased for the three product categories examined. The fact that price adjustments were thus more synchronised than in the past may have facilitated the price increase to some extent: individual firms need not then be so concerned about their relative price and hence their competitive position. In

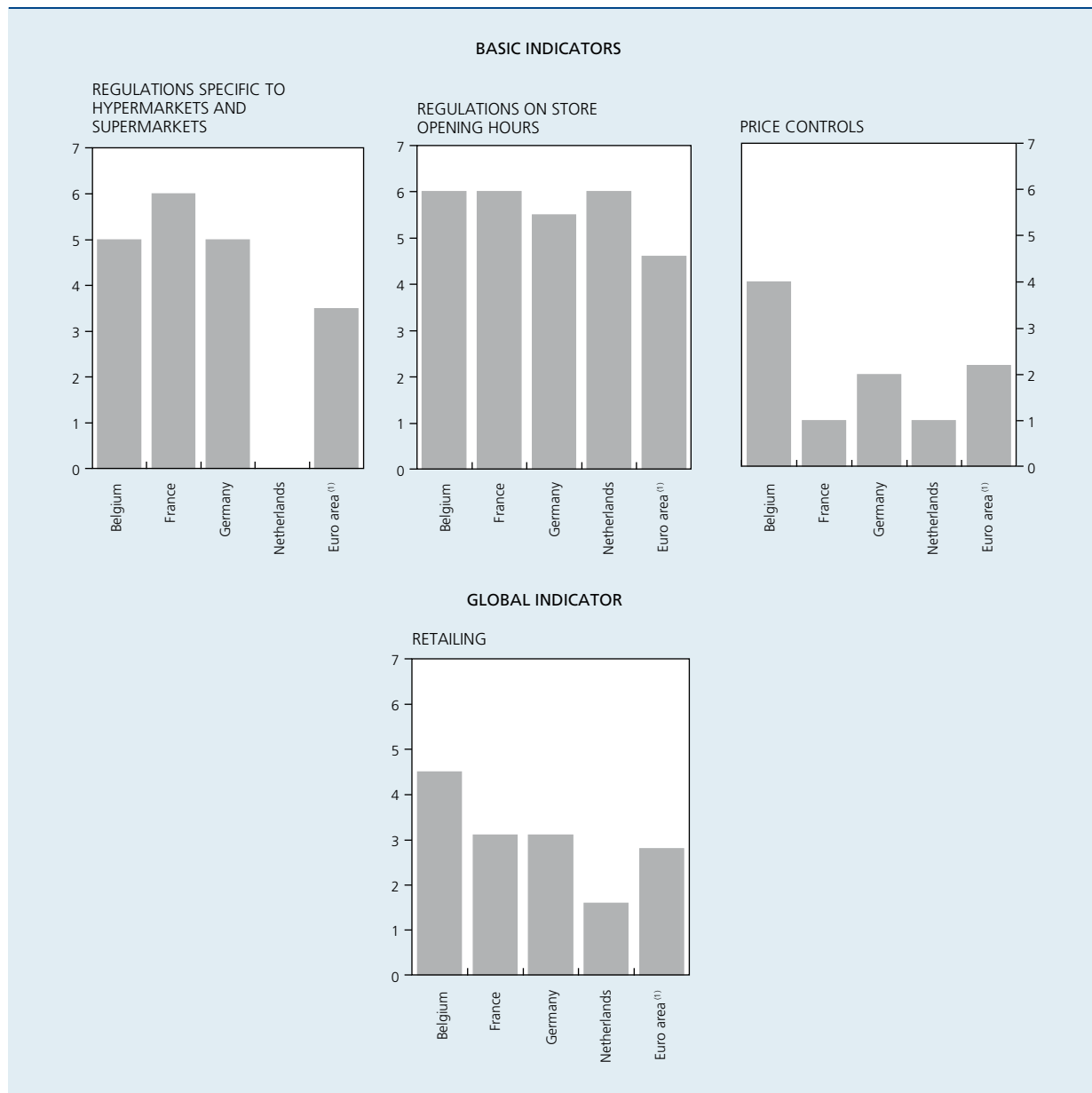
(1) Aucremanne, L. and M. Druant (2007), *Why are prices sticky? Evidence from an ad hoc survey in Belgium*, in eds Fabiani S., C. Loupias, F. Martins and R. Sabbatini, *Pricing decisions in the Euro Area*, Oxford University Press.

addition, the Bank's pricing survey reveals that prices tend to react asymmetrically to shocks. Cost factors are generally more important for price increases than for reductions, while demand developments and competitors' prices are more important for price reductions than for increases.

2. Indicators of the degree of competition in the distribution sector

Since there is no doubt that the reaction of prices to exogenous shocks depends on the degree of competition, two types of indicators of the degree of competition in the distribution sector are examined below. The first concerns

CHART D10 REGULATION IN THE DISTRIBUTION SECTOR IN 2003 (OECD INDICATOR)
(scale from 0 (least restrictive) to 6 (most restrictive))



Source: OECD.
(1) Unweighted average.

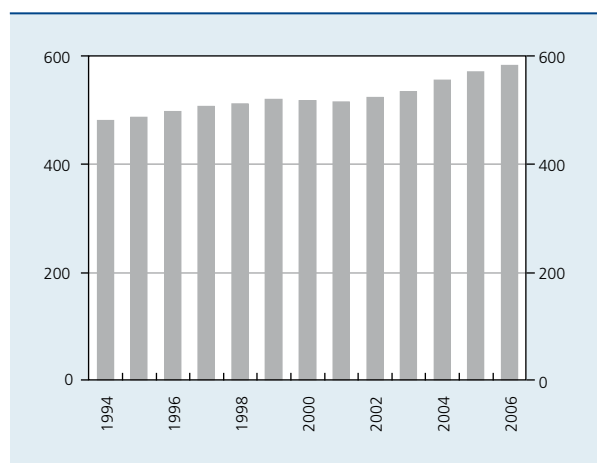
the regulations in force in that sector, and the second is an international comparison of price levels. The analysis here focuses on food prices.

It should first be pointed out that the nature of the link between the degree of competition and the adjustment of prices is not obvious, *a priori*. On the one hand, it is often claimed that a high degree of competition makes it more difficult for firms to pass on cost increases and therefore leads to slower, or even partial, price adjustment. According to this argument, in the current circumstances large increases in producer and consumer prices would indicate a relatively low level of competition. On the other hand, it is often asserted that a high degree of competition causes margins to narrow, so there is limited scope for avoiding or delaying a response to cost increases. Thus, a high degree of competition would lead to swifter price adjustment⁽¹⁾.

2.1 Indicators concerning regulations

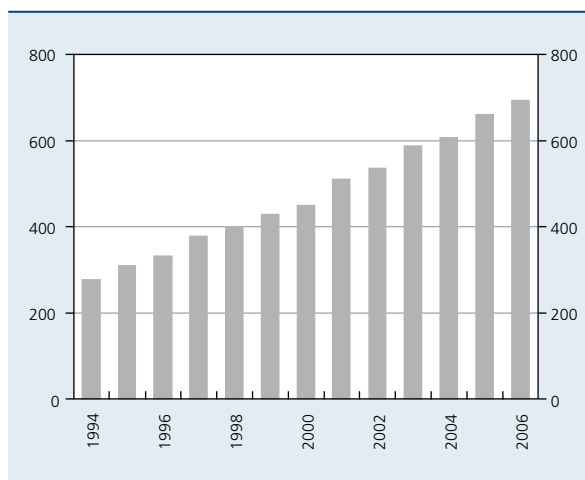
One initial way of assessing the degree of potential competition in the retail distribution sector is to evaluate the current regulations. Various studies have in fact shown that the efficiency of the retail sector is generally in inverse proportion to the restrictive character of the regulations. If the regulations are too restrictive, preventing the entry of newcomers, that slows the modernisation of the sector and places households at a disadvantage, by resulting in a higher average price than in a more competitive situation.

CHART D11 NUMBER OF SUPERSTORES (FOOD)



Source : AC Nielsen.

CHART D12 NUMBER OF HARD DISCOUNTERS (FOOD)



Source : AC Nielsen.

To assess whether the regulations are more or less restrictive, they can be compared with those applied in other countries. As there are wide variations in the forms and levels of regulation, synthetic indicators, which can be compared across countries, are generally used. The only official source here is the OECD database on regulations, in which the latest indicators relate to 2003⁽²⁾, which is probably not a true reflection of the current situation.

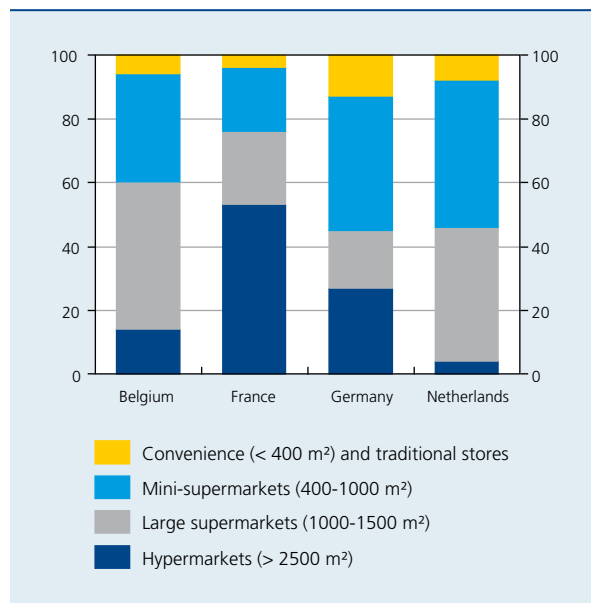
These indicators show that in 2003 Belgium was the country with the most restrictive regulations in the retail distribution sector, mainly because of the fairly stringent rules on the establishment of retail premises, strict rules on promotions and a ban on loss-making sales (clearance). The legislation on opening hours and the existence of regulated prices also contributed to this outcome. Germany and France are also among the countries with restrictive regulations, while the Netherlands is regarded as less restrictive. Despite the limits of this approach, it is difficult to challenge the conclusion that, in 2003, Belgium was among the countries with the most restrictive regulations, even if the exact country ranking may be open to discussion.

On the basis of this finding, international organisations such as the OECD have regularly recommended that Belgium should relax some of these regulations, and progress

(1) In fact, in a situation of perfect competition, economic theory says that the price is equal to the marginal cost, which implies that any change in costs is immediately reflected in full in the selling price.

(2) Conway, P. and G. Nicoletti (2006), *Product Market Regulation in non-manufacturing sectors in OECD countries: measurement and highlights*, OECD Economics Department Working Paper, no. 530.

CHART D13 SHARE OF THE VARIOUS TYPES OF STORES IN THE NON-SPECIALIST FOOD SECTOR
(percentages of market share)



Source : AC Nielsen.

has been made since 2003; the update of the indicators expected during the year should confirm that. However, at this stage it is not possible to quantify the effect of that progress on Belgium's position relative to other countries, and particularly the main neighbouring countries, where the regulations have probably also changed.

The progress achieved in Belgium includes some simplification of the regulations on the establishment of businesses. The legislation on the establishment of retail premises has been relaxed (IKEA law of 13 August 2004, in force since mid 2005), permitting the creation of record numbers of new shops. The increase in the number of food supermarkets (excluding hard discounters) was also greater between 2004 and 2006 than between 1995 and 2003 (source: AC Nielsen). However, the average size of (non-specialist) food retailers in Belgium is smaller than in Germany, and particularly France, but larger than in the Netherlands. In Belgium, as in the Netherlands, the sector consists mainly of large and small supermarkets (from 1000 to 2500 m² and from 400 to 1000 m²). In contrast, in Germany and even more so in France, it is the hypermarkets (over 2500 m²) that have the largest market share.

In regard to opening hours, there has also been some easing of the regulations on night shops (law of July 2006, in force since March 2007). Moreover, the number

of Sundays when shops are permitted to open has increased from three to six per year (Royal Decree of November 2007).

The main changes concerning price control are that the maximum prices for bread were abolished in July 2004, and that the regulations on compulsory insurance have been relaxed.

Despite this progress, the opportunities for new competitors to establish a business in Belgium may still be more limited than in other countries, which could reduce the potential gains obtainable from such additional competition. Nonetheless, there is no information indicating that the operation of the retail distribution market is abnormal in Belgium. One of the striking features of the past decade has been the substantial growth in the number of hard discounters, which seems to point to a certain amount of price competition.

Another factor which to some extent limits the potential impact of excessively strict regulations on competition in Belgium is the country's size. Since Belgium is a small, densely populated country, a fairly large percentage of the Belgian population are likely to do their shopping in neighbouring countries, simply because they live close to the border; this implies an additional source of competition in the border regions, which the introduction of the euro has probably reinforced.

2.2 Comparison of food price levels

In order to compare food price levels between countries, it is necessary to have comparable, good quality statistics on consumer price levels. However, there are not many databases which satisfy that criterion. There are three types of sources: national official publications, private sources and the Eurostat database on purchasing power parities.

Regarding national official sources, some countries such as Belgium and France, but not the Netherlands or Germany, publish monthly average prices according to a concept fairly similar to that of consumer prices, but there is no guarantee that the products and underlying methodologies are comparable between countries. In view of these problems and the difficulties of collecting the information, the use of these data and of those from other private sources would entail a more detailed study which is beyond the scope of this analysis.

Conversely, the Eurostat database on purchasing power parities (PPP) has the advantage of being widely accessible and offering some degree of harmonisation. However, the

TABLE D3 COMPARISON OF AVERAGE PRICE LEVELS IN 2006

(average prices in the euro area = 100)

	Belgium	Netherlands	Germany	France	Average of the three main neighbouring countries
Food products	106	85	101	102	96
Bread and cereals	103	84	101	97	94
Meat	112	96	108	111	105
Fish	125	112	118	104	111
Milk, cheese and eggs	107	77	85	98	87
Oils and fats	110	66	88	106	86
Fruit and vegetables	100	86	111	104	100
Other foods	99	80	98	97	92
Non-alcoholic beverages	104	86	106	86	93
Alcoholic beverages	105	100	88	98	95
Tobacco	102	104	120	134	120

Source: EC.

Eurostat methodological note mentions that these data are not suitable for detailed comparisons of price indices. Given the degree of uncertainty associated with the price data and methods used to compile the PPPs, these indices are suitable mainly for dividing countries into groups with a comparable level, as minor differences lead to insignificant differences from a statistical or economic point of view. Moreover, these data are available only annually, after a minimum delay of one year, so that the most recent data relate to 2006. The methodological reference for the data is that of the national accounts (ESA95) and therefore differs in certain respects from that of the consumer price index. There are also differences at the level of the weightings accorded to the products, which are less detailed for the purchasing power parities. This database therefore also fails to offer all the guarantees of comparability and consistency compared to the harmonised index of consumer prices, which would require a more detailed study that is beyond the scope of this analysis.

Bearing these limitations in mind, the Eurostat data show that, in 2006, average prices of food in Belgium were higher than those in the euro area, and also exceeded those in the three main neighbouring countries. Thus, the index for Belgium was 106, the point of reference being the euro area which, by definition, is 100, while the figure is 85 for the Netherlands, 101 for Germany and 102 for France. However, Belgium, France and Germany are identified by Eurostat as belonging to a group for which the food price index is comparable and within which the differences are not necessarily large. This group is also close

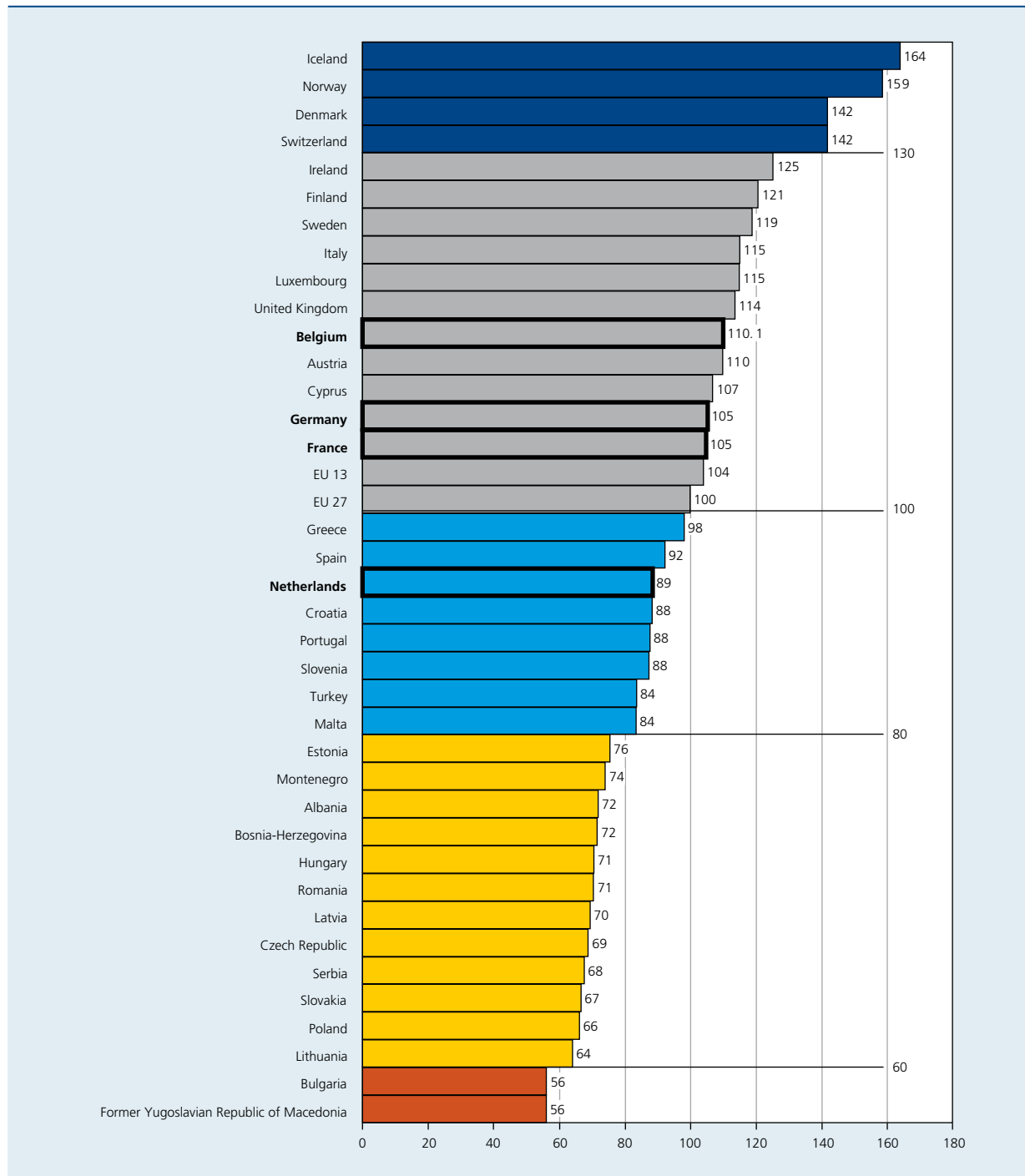
to the average for the euro area (not shown in the chart). Production of a more detailed classification would require a more detailed analysis of the average price differences. The Netherlands forms part of the group with significantly lower prices. That also applies to all the groups of food products presented, except for fruit and vegetables and tobacco. Among the neighbouring countries, the one with the lowest index is generally the Netherlands. The results for the Netherlands are probably due partly to keener price competition between large chains of stores between the end of 2003 and mid 2006.

Differences in VAT rates between countries provide only a marginal reason for some of the differences. For food products (excluding alcoholic beverages and tobacco), that rate is 5.5 p.c. in France, 6 p.c. in the Netherlands and Belgium, and 7 p.c. in Germany. Moreover, in the latter country the standard 19 p.c. rate of VAT applies to non-alcoholic beverages.

3. Conclusions

Since the advent of monetary union in 1999, the cumulative rise in processed food prices in Belgium has been slightly below that seen in the euro area as a whole and in France. The figure has been broadly comparable to that recorded in Germany. Only the Netherlands saw a smaller increase, mainly because the rise in processed food prices there over the past five years has been very moderate (the lowest in the euro area except for Finland). There

CHART D14 PRICE LEVEL FOR FOOD AND NON-ALCOHOLIC BEVERAGES
(indices EU 27 = 100, 2006)



Source : EC.

was in fact a "price war" in the Dutch distribution sector between late 2003 and mid 2006. In the past five years, prices in Belgium have risen faster than in France and at a rate comparable to that seen in Germany.

On the other hand, processed food prices have risen more strongly in Belgium than in the euro area since mid 2006. It is not so much the strong acceleration in processed food price inflation in the second half of 2007 that is atypical, but rather the fact that processed food prices had already

risen sharply in Belgium in the second half of 2006 and the first half of 2007. This was also a more or less general phenomenon, affecting most categories of processed food. This upward movement appears to be unconnected with the movement in commodity prices, an assumption which can be confirmed in a number of cases by a more formal VAR analysis.

The pace of the rise in processed food prices accelerated again in Belgium in the second half of 2007, from 4 p.c. in July to 7.7 p.c. in December. During this period it accelerated almost equally rapid in the euro area, although starting from a lower level. The strongest price rises occurred for milk, cheese and eggs, oils and fats, and bread and cereals. These are also the products which recorded the biggest price rise on the world market. However, the effects of the commodity price increase have been substantial, by historical standards, in both the magnitude and the speed of the transmission. This is true both for the transmission to food producer prices and for the transmission to consumer prices.

The main explanation is that the common agricultural policy (CAP) no longer smoothes the fluctuations in world prices as it used to do. Consequently, fluctuations in world market prices now have a much greater impact on prices in Europe. If this factor is taken into consideration, the major part of the processed food price increases both in Belgium and in the euro area seem attributable to the rise in world market prices. The transmission has been systematically weaker in France than in Belgium and in the euro area as a whole. However, it is still too soon at this stage to know whether that is merely a sign of slower transmission or whether the total magnitude of the transmission is smaller.

Annex E also shows that low-priced products undergo the biggest and speediest price adjustments. Since those products offer the smallest margins, in principle, the upward pressure from costs is felt more keenly. It is therefore logical that these products are subject to the biggest price changes. That is an indirect indication that the main reason for the price increases was the adverse trend in production costs rather than a desire to boost the distributors' margins.

However, there are also some signs of an additional upward adjustment to producer and consumer prices. The employed VAR methodology implies that this transmission is not necessarily unjustified. It may appear considerable since the shock affecting food commodity prices coincides with an increase in energy costs. It is also possible that prices have been adjusted more quickly, since the food and distribution sectors have faced a much greater shock than those generally seen in the past. Annex E in

fact shows that, since mid 2007, the frequency of price changes has greatly increased for the three product categories examined, bearing witness to an acceleration in the speed of transmission. In accordance with this finding, the latest data (for January 2008) also indicate that the pace of price adjustments is slowing down.

The signs of an additional upward adjustment are most evident for the product category "bread and cereals". However, the same applies in the euro area, although to a slightly lesser extent than in Belgium. Moreover, in the past four years bread and cereal prices have risen constantly more strongly in Belgium than in the euro area. This is not due solely to a (short-lived) process of catching up following the deregulation of bread prices in July 2004. It may also be due to inefficiencies in this sector in Belgium, given the large number of small businesses operating there, reflecting at least to some extent the consumer's preference for the "artisan baker".

In 2006, the level of food prices in Belgium was 6 p.c. higher than in the euro area. It was also higher than in each of the three main neighbouring countries. The differential is particularly large in relation to the Netherlands, where, as mentioned above, the increases in food prices have been very moderate over the past five years. However, Eurostat classes Belgium with France and Germany in a group with a comparable level of food prices, taking account of the margin of uncertainty in these statistics. Differences in VAT rates account for little if any of the observed differential.

The Belgian distribution sector is the most strictly regulated, according to the OECD data currently available. The results for Belgium are particularly weak for the establishment of new businesses, opening hours and rules on discounting (waiting period preceding the clearance sales) and price controls. However, these indicators date from 2003, and progress has been made in a number of these areas in recent years. That is the case, for example, with the "IKEA law", the rules on opening hours and the abolition of the regulated price of bread. The OECD is not expected to update these indicators until later in the year, so that it is difficult to obtain an idea of Belgium's current relative position. The regulations in force in the other countries may also have changed between 2003 and 2007. Nonetheless, the expansion in the number of supermarkets has accelerated since 2003 in Belgium, and a growing number of hard discounters are present. Supermarkets in Belgium are smaller on average than those in Germany and France, where there are more hypermarkets.

Analysis of processed food price adjustments at microeconomic level ⁽¹⁾

1. Introduction

The purpose of this annex is to study the microeconomic behaviour which gave rise to the substantial increases in food prices from June 2007.

If the acceleration in inflation recorded for food products can in fact be considered to originate from the developments concerning food commodity prices (cf. Annex D), it is interesting to analyse how this global shock was reflected in consumer prices. This annex will address a series of questions on the way in which food product prices were adjusted. Were prices adjusted at the same rate as in the past, or were firms obliged to make quicker adjustments? Were the price adjustments from June 2007 onwards unusually large? Were prices adjusted gradually? Was there any change in the price distribution?

To answer these questions, this study is based on the analysis of the price data used by the DGSEI of FPS Economy, SMEs, Self-employed and Energy to calculate the consumer price index. Every month, over 140,000 prices are recorded for 507 categories of products, of which 84 are processed food products. The data used, rendered anonymous by the DGSEI, cover the period January 2003-January 2008.

2. Inflation and microeconomic behaviour

Inflation measures the increase in the general level of prices at aggregate level, and in fact represents the weighted average of individual price changes observed in various outlets for a basket of goods. The weight associated with each individual price change reflects, among other things, the product's relative importance in the consumer's basket.

The monthly inflation observed for period t can therefore be estimated as:

$$\pi_t = \sum_{i=1}^N w_{it} [\ln(p_{it}) - \ln(p_{i,t-1})] \quad (1)$$

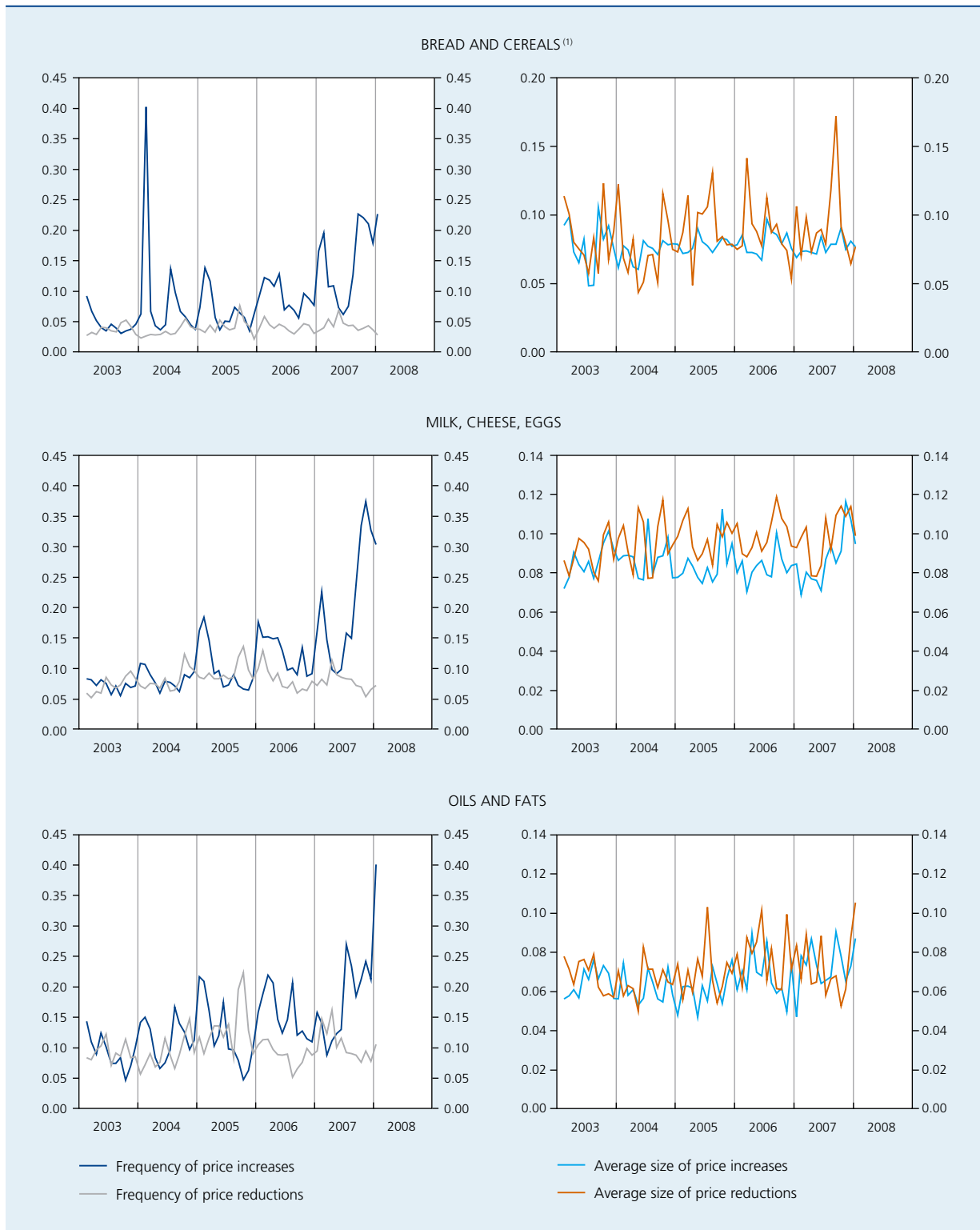
where: p_{it} = the price of a particular product in period t , and w_{it} = the weight attributed to that particular product in the total basket.

Equation (1) offers a simple illustration of the two possible sources of an increase in inflation between two periods. Inflation may increase either because the average size of the price changes becomes larger or because the number of price changes increases.

Owing to the existence of nominal rigidities on the product market (e.g. the existence of implicit or explicit contracts between producers and customers, or the existence of what the literature calls "menu costs" – namely the costs incurred in changing prices), only a fraction of consumer prices is adapted in any month (cf. the studies by Bils and Klenow, 2004, Nakamura and Steinsson, 2008, for the United States, and Dhyne *et al.*, 2006, for the euro area). On the basis of the microeconomic data of the consumer price index for the period

(1) In collaboration with the DGSEI of FPS Economy, SMEs, Self-employed and Energy.

CHART E1 FREQUENCY AND AVERAGE SIZE OF PRICE INCREASES/REDUCTIONS



(1) The peak in the frequency of price increases for the category "Bread and cereals" in February 2004 represents the last change in the maximum bread price before the abolition of central pricing for this product.

January 1989-January 2001, Aucremanne and Dhyne (2004) assess the monthly frequency of price changes in Belgium at 16.8 p.c., which is close to the level of 15.1 p.c. seen in the euro area (Dhyne *et al.*, 2006). This low aggregate frequency conceals very wide variations between sectors. While the prices of petroleum products and certain fresh products are adjusted more or less continuously, the prices of services may remain unchanged for more than a year or two. Thus, Aucremanne and Dhyne (2004) assess the monthly frequency of price changes for petroleum products at almost 70 p.c. and that of services at only 6 p.c. In the case of processed food products, the average adjustment frequency was 14 p.c.

In order to understand what lies behind the rise in inflation in processed food products, it is therefore necessary to determine first whether that increase is associated with an increase in the average size of the price changes or an increase in the frequency of the price changes.

If the first factor proved to play a dominant role, the stronger inflation could persist at a high level for a relatively long period, i.e. the time needed for the entire distribution sector to adjust its prices following a shock. Conversely, if the second factor proved to be very important, the period of high inflation might be relatively short, as the time needed for the entire sector to adjust its prices to a shock of similar size would be shorter.

Section 3 therefore presents the breakdown of the pattern of inflation for the categories of food products experiencing the strongest acceleration in inflation during the second half of 2007.⁽¹⁾ This breakdown makes it possible to determine the extent to which this acceleration in inflation is associated with an increase in the frequency or size of the price changes.

Next, section 4 analyses the way in which the rise in food commodity prices was transmitted to consumer prices during the recent period. In particular, it examines the speed with which the increase in production costs was incorporated in consumer prices, and attempts to assess the relative significance of the price adjustment already made. Finally, it analyses the change in the price distribution during the second half of 2007.

3. Breakdown of inflation for processed food products

As shown by chart E1, the higher inflation from June 2007 recorded in the categories “Bread and cereals”, “Milk, cheese and eggs”, and “Oils and fats” primarily reflects an increase in the frequency of price rises, accompanied by some reduction in the frequency of price cuts. In contrast, the variations in the scale of the price increases for these three categories were relatively small.

This breakdown of inflation between frequencies and amplitudes illustrates the behaviour of Belgian firms in regard to pricing.

Under normal economic conditions, earlier studies have shown that stores generally prefer to adjust their prices at different times from their competitors (Aucremanne, Dhyne, 2004, and Dhyne, Konieczny, 2007) and at regular intervals⁽²⁾ (Aucremanne, Druant, 2005). On the basis of a survey of pricing practices in Belgium, conducted by the Bank in 2004, Aucremanne and Druant (2005) in fact find that, under normal conditions, 65 p.c. of firms in the food and retail sectors revise their prices on a regular basis. Conversely, in the case of a major event such as a significant change in costs, 74 p.c. of firms in these two sectors will revise their prices almost immediately in response to that shock.

The pattern observed for the frequency of price increases in the three categories of products analysed therefore indicates a change in pricing practices in response to the strong increases recorded in food commodity prices, resulting in closer synchronisation of price rises and hence higher inflation.

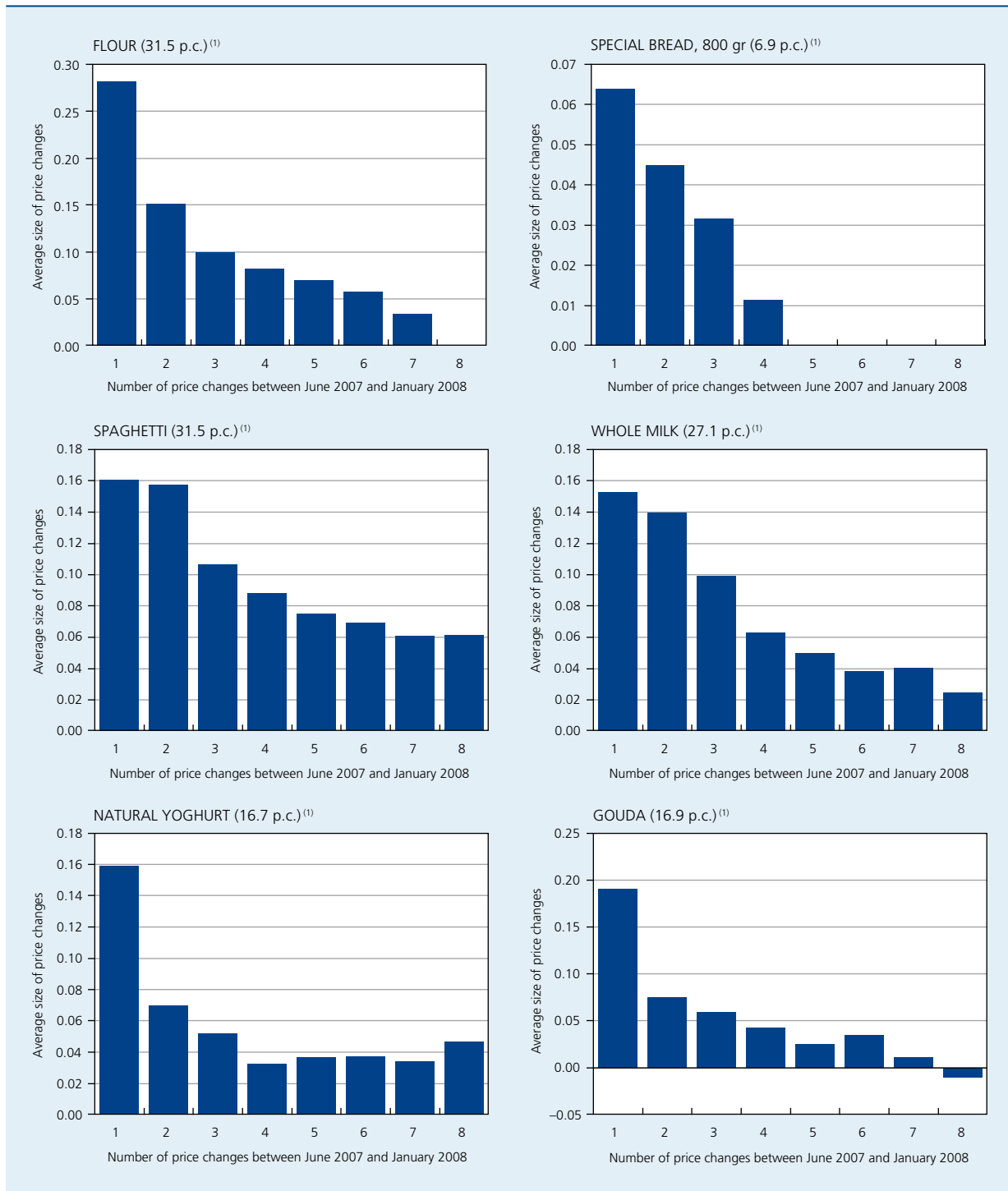
This change of behaviour is not a priori open to criticism. The fact that a firm is quicker or slower to adjust its prices to a shock does not alter the size of the adjustment being made. From an economic viewpoint, it is actually desirable for prices to be adjusted to a shock as promptly as possible in order to avoid a deterioration in trade margins, which could make it difficult for businesses to survive. A swift reaction by prices also enables inflation to revert quickly to a level compatible with the aim of price stability. Moreover, assuming that – following the occurrence of a common shock – firms anticipate the application of the price changes “normally” scheduled according to their old plans for adjusting prices over time, it is conceivable that once all firms have made the necessary price adjustment, inflation for those product categories will be able to drop below its normal level for a time.

(1) The categories are “Bread and cereals”, “Milk, cheese and eggs”, and “Oils and fats”.

(2) For example, every three or six months.

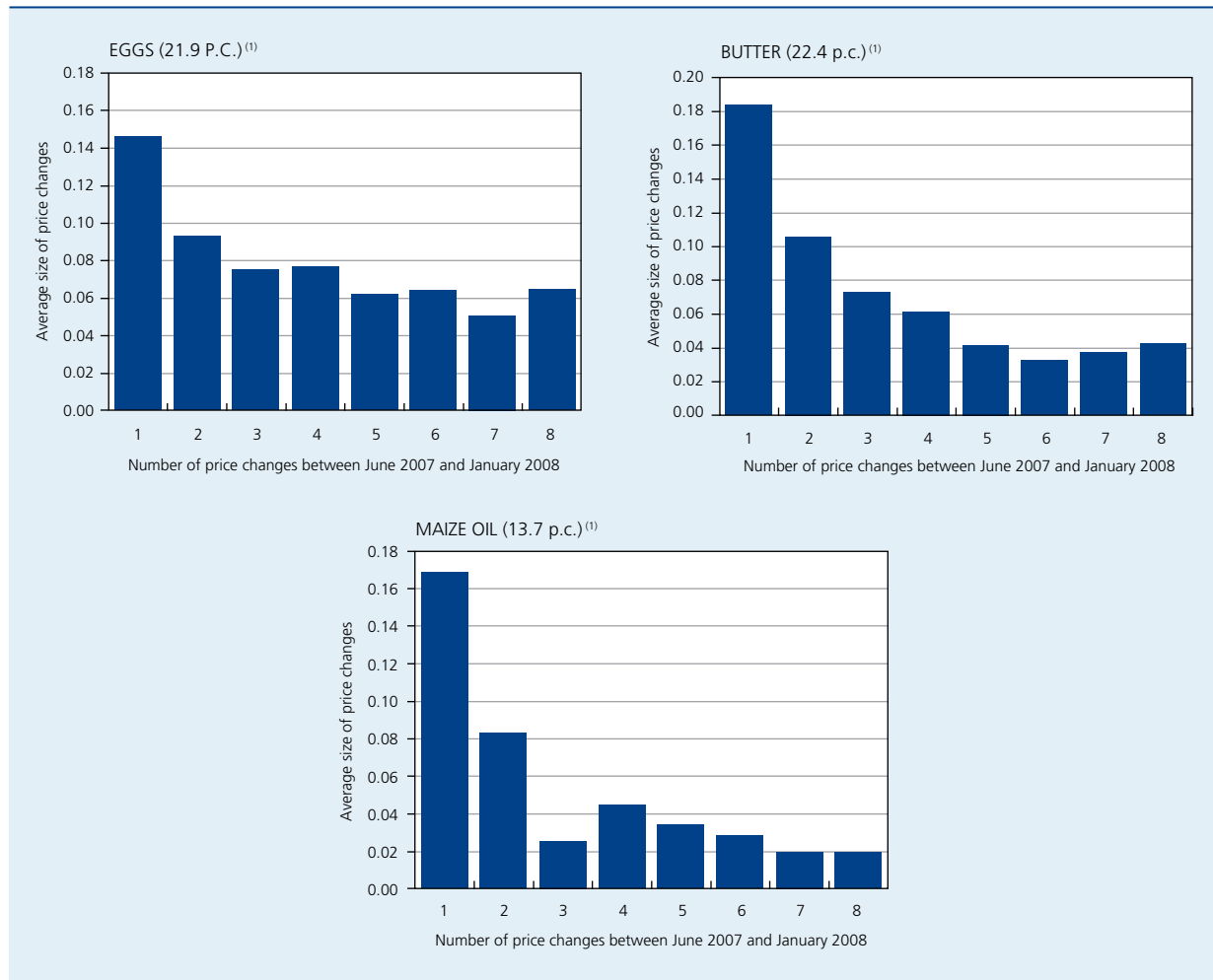
CHART E2

LINK BETWEEN THE AVERAGE SIZE OF PRICE CHANGES AND THE NUMBER OF PRICE CHANGES MADE BETWEEN JUNE 2007 AND JANUARY 2008



(1) Figure in brackets shows cumulative inflation between June 2007 and January 2008.

CHART E2 LINK BETWEEN THE AVERAGE SIZE OF PRICE CHANGES AND THE NUMBER OF PRICE CHANGES MADE BETWEEN JUNE 2007 AND JANUARY 2008 (CONTINUED)



(1) Figure in brackets shows cumulative inflation between June 2007 and January 2008.

4. Analysis of the transmission of the rise in food commodity prices to consumer prices from June 2007 to January 2008

As indicated by the results in section 3, the rise in food production costs observed in 2007 led to an increase in the frequency of price rises for the consumer. The purpose of this section is to analyse in detail how this change took place.

4.1 Were prices adjusted in full or gradually?

In regard to their pricing policy, firms can choose between frequent small adjustments or less frequent but larger adjustments.

On the basis of the anonymous individual price data records from the consumer price index, it is in fact apparent that products whose prices were adjusted between June 2007 and January 2008 generally underwent only one or two price changes during that period. Between 30 p.c. (spaghetti) and 80 p.c. (special 800 gr loaf) of these products underwent only one or two price adjustments during the past eight months, while less than 10 p.c. of products underwent between seven and eight price adjustments over the same period. These results therefore seem to indicate that prices are adjusted in full, following a shock, rather than gradually.

However, a certain gradualism is nevertheless apparent in price adjustments, as the price changes were smaller, on average, in the case of the products which underwent several price changes between June 2007 and January

2008 than for those which underwent only one price change during that same period.

4.2 Did the lowest prices undergo the biggest increase?

Table E1 shows the correlation between the size of the total price adjustment made for a particular product (e.g. an 800 gr bread sold in bakery X) and the average relative position of the price of that product in the price distribution over the period from June 2005 to May 2007, for all processed food products in the categories "Bread and cereals", "Milk, cheese and eggs", and "Oils and fats".

There is evidently a negative correlation (which is significant at the 5 p.c. threshold) between the total size of the price adjustment and the average relative position in the price distribution for 27 out of 41 product categories. Only three product categories display a positive and significant correlation.

These results therefore appear to indicate that the product prices which were in the lower part of the distribution between June 2005 and May 2007 generally recorded a larger increase than those which were in the upper part of the distribution over the same period, which implies that the price distribution grew narrower.

That does not in itself point to any unjustified increase in the lowest prices. In view of the small margins associated with those prices, stores in fact have to pass on the whole of any cost increase in the price, whereas in the case of higher priced products, a shop can afford to pass on less than the whole cost increase by cutting its margins.

4.3 Were the lowest prices adjusted more quickly?

In order to analyse the speed of the price adjustments, for each decile of the average price distribution between June 2005 and May 2007 the percentage of products undergoing a price adjustment in October 2007 and in January 2008 was calculated in the case of six products displaying an acceleration in inflation during the second half of 2007. The results are set out in charts E3. These charts also reveal how many prices were already adjusted in January 2008, providing some idea of how far there is still to go before all the prices have been adjusted.

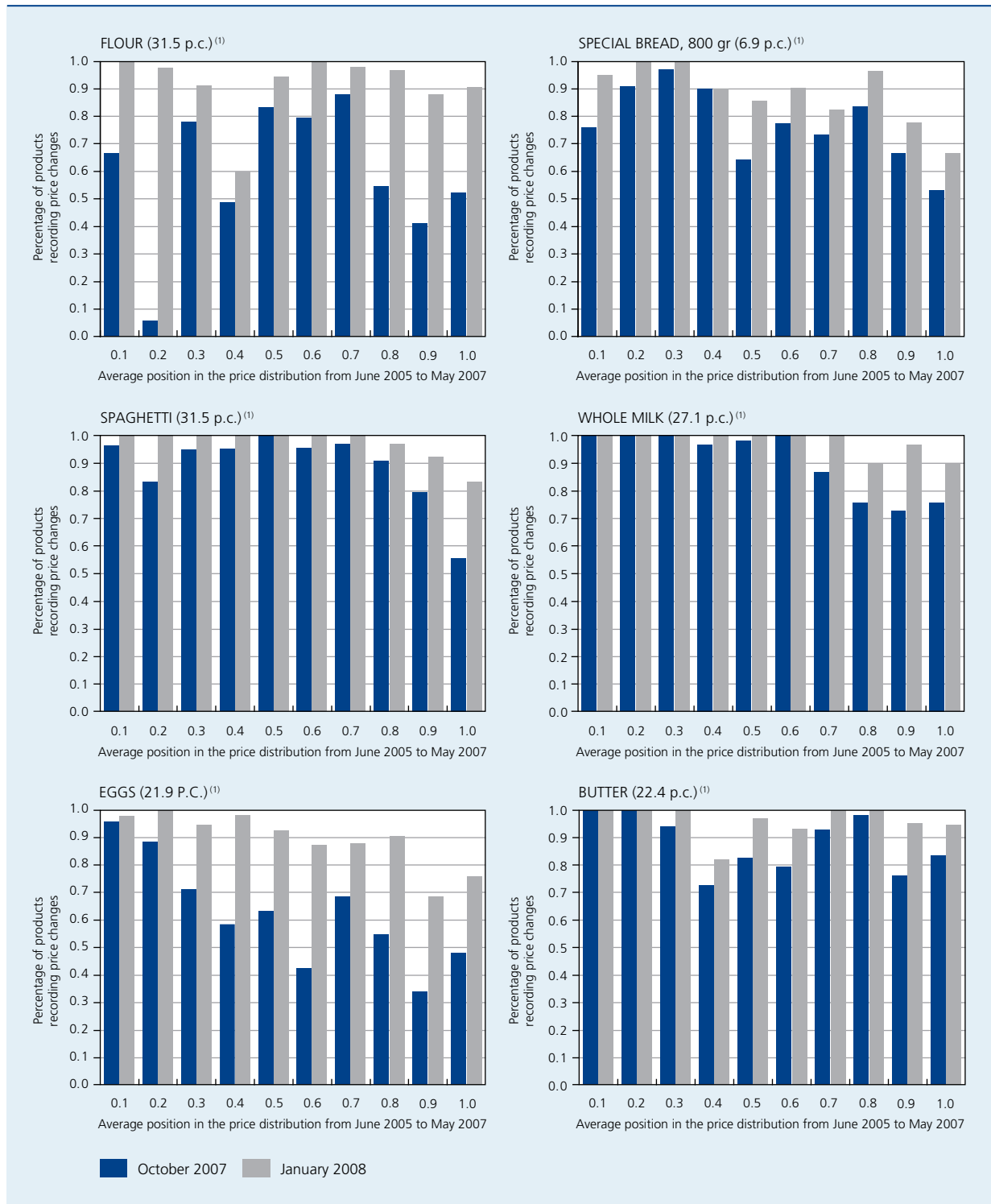
Clearly, it is mainly the lowest prices that were adjusted the most promptly, as the proportion of prices already adjusted by October 2007 is systematically greater for prices in the first decile than for those in the last decile. By January 2008, almost all the prices in the lower deciles had been adjusted. This speedier adjustment of the lowest prices is probably due to the small margins associated

TABLE E1 CORRELATION BETWEEN THE RELATIVE POSITION IN THE PRICE DISTRIBUTION AND THE TOTAL SIZE OF THE PRICE CHANGES MADE BETWEEN JUNE 2007 AND JANUARY 2008⁽¹⁾

Rice	-0.17	Couque Suisse (Belgian bun)	-0.01	Gouda	-0.31
Flour	-0.23	Waffle	0.10	Camembert	0.04
Special bread 400 g	-0.12	Pizza	0.05	Brie	-0.25
Special bread 800 g	-0.30	Spaghetti	-0.48	Low-fat fromage blanc	-0.55
Brown bread 800 g	-0.33	Cornflakes	0.38	Herb cheese	-0.34
Multi-grain bread	-0.04	Custard powder	-0.20	Processed cheese (gruyère)	-0.35
Cramique (bun loaf)	-0.20	Whole milk	-0.44	Eggs	-0.59
Roll	-0.31	Semi-skimmed milk	-0.48	Butter	-0.45
Rice tart	-0.04	Condensed/evaporated milk	-0.26	Ordinary margarine	0.01
Coffee cake	-0.27	Crème fraîche	-0.21	Low-fat margarine	0.13
Fruit tartlet	-0.16	Fruit yoghurt	0.05	Olive oil spread	-0.25
Éclair	-0.10	Natural yoghurt	-0.47	Maize oil	-0.12
Biscuits	-0.17	Grated emmental	-0.34	Olive oil	0.18
Speculoos (biscuits)	0.28	Belgian cheese	-0.24		

(1) In bold, significantly different from 0 at the 5 p.c. threshold.

CHART E3 PERCENTAGE OF PRODUCTS RECORDING PRICE CHANGES BETWEEN JUNE 2007 AND OCTOBER 2007 OR JANUARY 2008, ACCORDING TO THEIR INITIAL POSITION IN THE PRICE DISTRIBUTION



(1) Figure in brackets shows cumulative inflation between June 2007 and January 2008

with those products, requiring the seller to incorporate cost fluctuations promptly in his selling prices. This finding is also an indirect indication that price increases were often motivated by the adverse movement in production costs rather than a desire to boost distributors' margins.

It should be noted that by January 2008 a very large proportion of prices had already been adjusted, whatever the product's initial position in the price distribution. Although it cannot be said that the increases in food commodity prices have already been fully reflected in consumer prices, there is nevertheless hope that, if the future trend in production costs proves favourable, food price inflation will slow down during 2008. The fact that, for bread, milk and butter, there has been some decline in the frequency of price increases since December 2007 seems to lend a little credence to that conclusion, but these initial positive signs will need to be confirmed by what happens in the first months of 2008.

4.4 Has the stronger and quicker price adjustment for the lowest prices altered the price distribution ?

The purpose of this sub-section is to see whether the stronger and speedier adjustment of the lowest prices has led to any change in the price distribution. Were the prices which were lowest during the period June 2005–May 2007 still low prices in January 2008? To answer this question, for each price included in the databank of readings for the consumer price index, the average position held during the period June 2005–May 2007 in the price distribution of a given product (milk, eggs, butter, etc) was compared with the position which that product held in the price distribution in January 2008.

The average position during the period June 2005–May 2007 is assumed to reflect the structural position of each product in the price distribution. For example, if the initial position of a price is equal to 1 p.c., that means that, on average, during the period June 2005–May 2007, that price was among the 1 p.c. cheapest prices. Conversely, if the initial position of a price was equal to 99 p.c., that price was among the 1 p.c. most expensive prices.

As is evident from charts E4, the products sold at the lowest prices (the first 20 percentiles of the distribution) during the period June 2005–May 2007 were generally sold at low prices in January 2008. Similarly, the products sold at high prices (the last 20 percentiles in the distribution) at the start of the period were still being sold at high prices in January 2008.

On the basis of these charts, it therefore seems that the rapid inflation during the past few months has not led to any fundamental change in the price distribution. If this finding is considered in conjunction with the results obtained in sub-sections 4.2 and 4.3, the implication is in fact that the main effect of the stronger inflation has been to shift the whole of the price distribution while reducing the dispersion of that distribution.

Main elements :

1. The stronger inflation seen in the second half of 2007 for food products reflects an increase in the frequency of price rises for a number of products.
2. In general, in the second half of 2007 price adjustments were carried out in a single move rather than gradually. However, there is a small proportion of products for which prices were adjusted by small amounts on several occasions.
3. During the second half of 2007, the lowest prices tended to be adjusted by larger amounts than the highest prices.
4. During the second half of 2007, the lowest prices tended to be adjusted more speedily.
5. Only a small fraction of food prices had still not been adjusted in January 2008.
6. The price adjustments did not alter the price distribution.

CHART E4

CHANGE IN PRICE DISTRIBUTION BETWEEN JUNE 2007 AND JANUARY 2008



(1) Figure in brackets shows cumulative inflation between June 2007 and January 2008



(1) Figure in brackets shows cumulative inflation between June 2007 and January 2008

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Conventional signs

–	the datum does not exist or is meaningless
e	estimate by the Bank
n.	not available
p.c.	per cent
p.m.	pro memoria

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© Illustrations: Image plus
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Cover and layout: NBB TS – Prepress & Image

Published in April 2008