



Munich Personal RePEc Archive

# **Food and energy prices, government subsidies and fiscal balances in south Mediterranean countries**

Albers, Ronald and Peeters, Marga

European Commission - General Directorate Economic and Financial Affairs

January 2011

Online at <https://mpra.ub.uni-muenchen.de/28788/>

MPRA Paper No. 28788, posted 17 Feb 2011 19:21 UTC

# EUROPEAN ECONOMY

Economic Papers 437 | February 2011



## Food and Energy Prices, Government Subsidies and Fiscal Balances in South Mediterranean Countries

Ronald Albers  
and Marga Peeters

**Economic Papers** are written by the Staff of the Directorate-General for Economic and Financial Affairs, or by experts working in association with them. The Papers are intended to increase awareness of the technical work being done by staff and to seek comments and suggestions for further analysis. The views expressed are the author's alone and do not necessarily correspond to those of the European Commission. Comments and enquiries should be addressed to:

European Commission  
Directorate-General for Economic and Financial Affairs  
Publications  
B-1049 Brussels  
Belgium  
E-mail: [Ecfin-Info@ec.europa.eu](mailto:Ecfin-Info@ec.europa.eu)

This paper exists in English only and can be downloaded from the website  
[ec.europa.eu/economy\\_finance/publications](http://ec.europa.eu/economy_finance/publications)

A great deal of additional information is available on the Internet. It can be accessed through the Europa server ([ec.europa.eu](http://ec.europa.eu))

KC-AI-11-437-EN-N

ISSN 1725-3187  
ISBN 978-92-79-14923-8  
doi: 10.2765/47828

© European Union, 2011

# FOOD AND ENERGY PRICES, GOVERNMENT SUBSIDIES AND FISCAL BALANCES IN SOUTH MEDITERRANEAN COUNTRIES

Ronald Albers and Marga Peeters<sup>1</sup>

January 2011

## Abstract

*Just before the global crisis soaring commodity prices pushed up inflation significantly, not least in EU neighbour countries at the Mediterranean. These price shocks affected public finances in the southern Mediterranean region, notably via government subsidies. Partly due to lags in the transmission of commodity prices into prices for final users the subsidies burden continued to be felt, despite the price falls registered in the wake of the credit crisis. We show that downward price rigidities play a role. Recently, commodity price pressures have re-emerged. We focus on food prices and analyse recent developments in food inflation in Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, the occupied Palestinian territories, Syria and Tunisia in comparison with other middle income economies. Subsidies on food and fuel are quantified per country for the period 2002-2010. The incremental government subsidies entail an estimated deterioration of the government balances of up to more than 2% of GDP in 2008 and, for most countries only slight improvements in the global recession year 2009. Ensuing longer-term challenges for public finances remain as inflation rises on the back of higher global economic growth. As recent events in Tunisia illustrate, these can have important political implications. Finally, the paper discusses some options that can lead to more efficient government spending, even in the event of sharp swings in prices of basic necessities.*

---

<sup>1</sup> European Commission, Directorate General Economic and Financial Affairs, correspondence at [Ronald.Albers@ec.europa.eu](mailto:Ronald.Albers@ec.europa.eu) and [Marga.Peeters@gmail.com](mailto:Marga.Peeters@gmail.com). An earlier version of this paper was presented at the Mediterranean Research Meeting at the European University Institute in Florence in 2008. We thank the participants of this workshop for their comments and our colleagues Antonio de Lecea, Stylianos Dendrinis, José Eduardo Leandro, Maria Inmaculada Montero Luque, Andreas Papadopoulos and Sirpa Tulla for their input. All errors are ours. *Disclaimer:* The views presented are those of the authors and do not necessarily reflect those of the European Commission.

## 1. Background – challenges to fiscal policy due to surging prices

In the first part of 2008 the sharp upsurge in inflation, to a large extent driven by a strong acceleration in food and energy commodity prices, posed important challenges to policy makers across the globe, not least in the southern Mediterranean (MED) region.<sup>2</sup> In that region, persistent fiscal deficits and high public debt stocks had resulted in debt accumulation and structural pressure on public budgets. Sharp swings in prices, driven by commodity prices, added to strains on the public budget in the period just preceding the global financial crisis. The seriousness of the strains can be traced back to more serious structural vulnerabilities in the area of public finances pre-existing in the southern Mediterranean . Although recently encouraging public finance reforms have been initiated in the region, public finance reform still remains high on the agenda in most Action Plans agreed under the European Neighbourhood Policy and has been a prominent topic on the agenda of the ECOFIN ministerial meetings with southern Mediterranean counterparts held so far. In Rabat-Skhirat (2005), Ministers agreed that fiscal consolidation and improving budgetary institutions and systems were among the four priority areas for reform<sup>3</sup> in the Mediterranean countries. To a large extent, the challenges faced by MED countries in designing and controlling public expenditure are not unlike those in the EU and this is echoed in the policy debate on public finance reform that is ongoing both in the EU and in partner countries. The global crisis did change the emphasis and urgency of the debate on both sides of the Mediterranean in different ways, but the broad common challenges remained in place.

In a nutshell, this debate has led to two main conclusions: first, fiscal consolidation should be part of a broader process of structural and institutional change aimed at lifting the obstacles to growth and employment - encompassing both the public sector and product, labour and capital markets; and second, fiscal consolidation should go hand in hand with strengthened budget management systems and institutions.

---

<sup>2</sup> In this paper, references to the southern Mediterranean (or MED) countries or region refer to countries that are part of the Euro-Mediterranean Partnership: Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, the Occupied Palestinian Territories, Syria and Tunisia. Libya is an observer. Albania and Mauritania and the very recent additions to the circle of countries covered by the in 2008 restyled Barcelona Process: Union for the Mediterranean now formally encompassing the Euro-Med process are therefore not included

<sup>3</sup> The four priorities are: (i) improving the business climate; (ii) further liberalising trade and opening the economy while protecting the most vulnerable groups of the population; (iii) upgrading public institutions and governance systems; and (iv) consolidating macroeconomic stability and public finance management.

However, the sheer size of the price and terms-of-trade shocks that the MED region has suffered in the wake of the historically huge swings in food and energy commodity prices witnessed recently have added a new dimension to the policy debate. Soaring prices have not only had a sizeable macroeconomic and budgetary impact, but also a distributional effect and likely led to a more skewed income distribution. Under prevailing policies the upsurge in prices also heavily affected government budgets in the southern Mediterranean region, notably via subsidy systems. Admittedly, the impact of price shocks in the MED countries has been differentiated according to the structure of public spending in individual countries, and also in function of past and ongoing reforms. Nevertheless, in view of the relatively high prevalence of subsidies in the MED region, the impact on public finances has been large by comparison to other regions in the world. The sharp fall of the world economy into recession in the latter part of 2008 and 2009 led to a sudden and sharp reversal of commodity prices which to an extent mitigated the acute strains that had arisen. Whereas falling commodity prices in first instance add to purchasing power and relief strains on the public purse, the eventual effect is more uncertain. To the extent that the upsurge and subsequent downswing in prices reflected a global boom-bust cycle that impacted on the MED region, incomes and public sector accounts suffered from the economic slowdown in 2009. But, the impact of the lower global commodity prices on government budgets could be expected to be beneficial. On the back of the acceleration of economic growth global commodity prices started rising again in 2010, arguably initiating a similar dynamics as in 2008. The relief brought about by the impact of the global crisis thus appears to have been temporary. This underlines the importance to the policy debate.

This paper aims to shed more light on the impact of the recent price swings on the economies in the southern Mediterranean region, with a heavy emphasis on the feed-through to public finance, in particular government balances. The main purpose of this contribution is relatively modest: it aims to take stock of the issues involved, which could be built upon in subsequent work. It further raises some issues for the policy debate. Due to data constraints, the evidence most strongly documents the effect of the strong upsurge in prices until the middle of 2008. As the subsequent decline and then rebound are still unfolding, the impact of these recent developments is more difficult to judge due to the lags involved. The preliminary nature of the work presented precludes the drawing of any firm policy implications. Nevertheless, the final section presents some issues for future consideration.

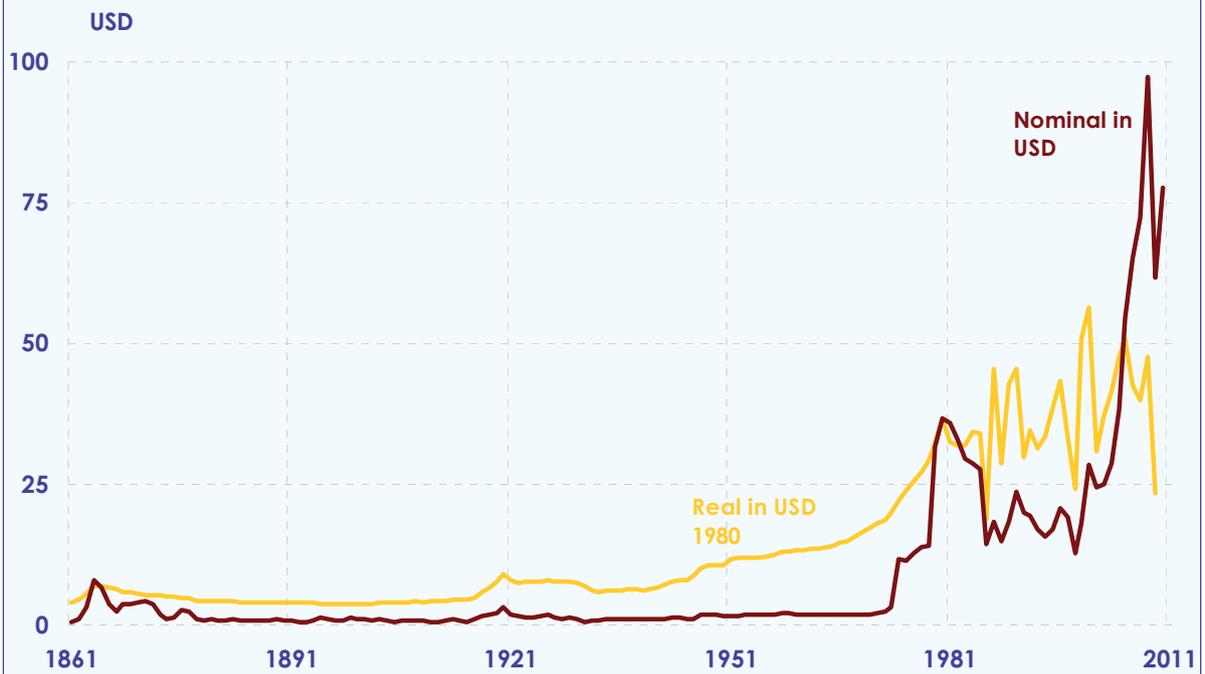
The outline of this paper is as follows. Section 2 puts the recent global food and fuel prices shocks in a historical perspective and describes some of the main macroeconomic policy lessons from the oil and food crises in the 1970s. Section 3 documents the impact of the food price shocks on the individual ENP Mediterranean countries and compares this with the effects on other middle income country groups. In section 4 the impact of commodity prices on government budgets in the ENP Mediterranean countries is analysed in depth. Whilst acknowledging the pitfalls in making such comparisons across countries, we quantify the direct fiscal impact of soaring commodity prices because of the high relevance for the fiscal stance, and briefly discuss prospects. Finally, section 5 lists some main issues for policy discussion and proposes some issues for future research.

## **2. High inflation – an historical perspective**

This section limits itself to a broad brush review of commodity price shocks in a longer time perspective. Exploring the reasons behind the price surge and the fall thereafter in the wake of the unfolding credit crisis is a separate research topic. Suffice it to say that the long cyclical expansion on the back of increased globalisation that first came to an end in the course of 2008, the surge, fall and subsequent increase again in commodity prices, and the financial boom-bust are obviously interrelated phenomena. In other words, the so-called food and energy crises partly were linked to exuberant expectations and excess demand that were among the root causes of the credit crisis. However, the re-emergence of commodity price pressures suggests that this is only part of the story and that secular trends as well as cyclical and financial factors play a role in shaping commodity prices.

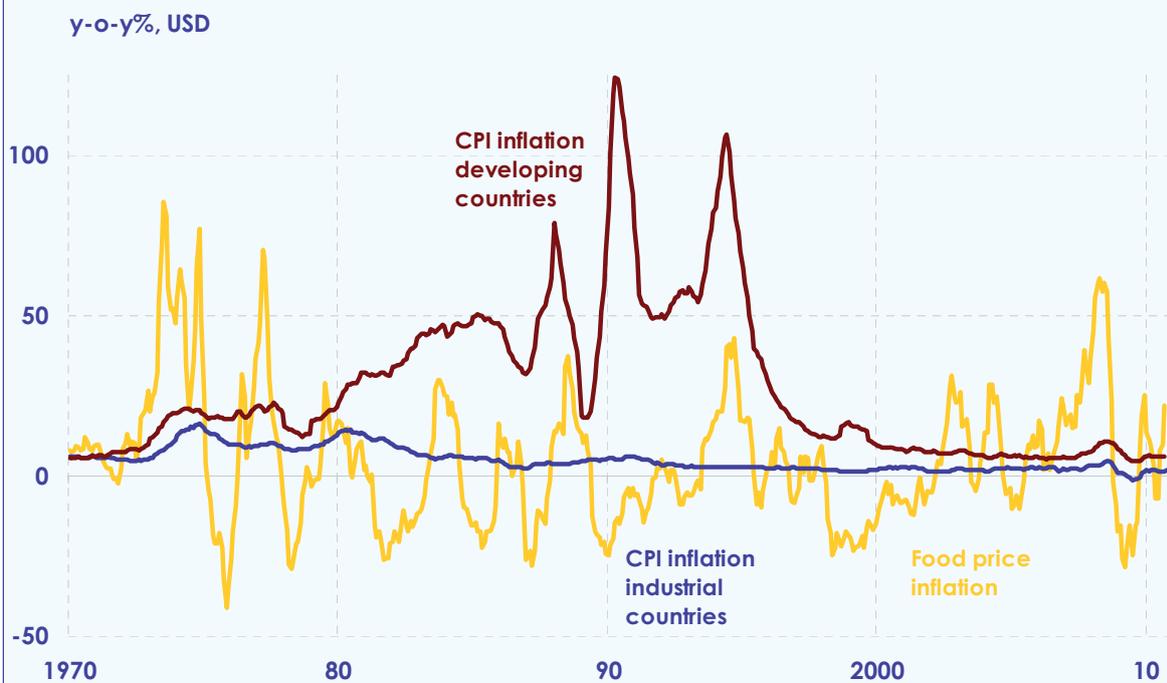
From a longer time perspective, the recent surges in fuel and food prices are not unprecedented. Some parallels can be drawn with the developments in the 1970s. Of course, such comparisons should be made with due caution, given the momentous changes in the political landscape, in technologies, in the degree of global financial and economic integration. Moreover, there is large uncertainty over how the opposing forces of global recession on the one hand and economic catch-up and supply bottlenecks on the other will play out in the medium to long run. Even so, purely in terms of their size, it can be concluded that the most recent fuel and food price shocks are quite comparable to those that occurred in the 1970s.

Graph 1a: World crude oil price 1861 - 2010



Source: British Petroleum.

Graph 1b: World food inflation and world CPI inflation 1970 - 2010



Source: IMF IFS, HWWA.

The first oil crisis in 1973 quadrupled the nominal price of oil denominated in US dollars (graph 1a). Shortly thereafter, the second oil crisis that started in 1978 almost tripled the nominal oil price. In contrast, in the run-up to the peak in 2008 the price of oil “only” roughly doubled in nominal terms, to double again after the dip reached at end-2008.

The recent shocks in food prices were also not wholly unprecedented (graph 1b). Food price inflation expressed in US dollars peaked at more than 50% in the course of 2008, only to fall steeply afterwards as the downturn took hold and to pick up again to double-digit figures in the wake of global recovery. Even so, the rates of food inflation remained below the peaks recorded in the 1970s.<sup>4</sup>

As in the 1970s and, to a lesser extent, during intermediate episodes in the 1980s and 1990s, the fuel and food price shocks of the last few years significantly pushed up total inflation. This was even more the case in emerging and developing countries than in industrial countries.

After a steady period of historically relatively low – single-digit – inflation since 1999, several emerging and developing countries had once again entered double-digit inflation territory around the middle of 2008 as industrial countries also witnessed marked increases in inflation in comparison with the 'Goldilocks' 1990s. These price increases confronted policy makers with serious challenges, most obviously for commodity importers. But commodity exporters too, whilst benefiting from large terms-of-trade gains, faced important policy dilemmas. For them potentially unsustainable revenue flows needed to be channelled whilst avoiding financial and real bubbles and symptoms of Dutch disease – posing challenges to the competitiveness of other traded sectors. The sudden reversal in global commodity prices alleviated part of the strains faced by net commodity importers but led to financing problems among some exporters. And the most recent price swing brought to the fore again the same challenges stemming from terms-of-trade effects as on the eve of the global crisis. At any rate, the question how to respond to such extreme price volatility remained on the top of the agenda, most pressingly for emerging markets that heavily rely either on commodity imports or exports.

---

<sup>4</sup> See also IMF (2008) on the commodity price developments in an historical perspective.

The question arises what experiences one can draw from policy responses to strong price volatility in the past. With the benefit of hindsight, informed by advances in economic theory and thought, these past responses have often been misguided, aggravating and prolonging the fall-out from the initial shocks.

In the 1970s and 1980s, the dependence of many countries on crude oil and basic food imports meant that sharp price increases for these items put strong upward inflationary pressure on their economies. Economic activity suffered immediately from the declines in the terms of trade while inflation becoming entrenched in expectations led to even more serious consequences over the longer run. The combination of persistent inflation and real economy stagnation – stagflation – posed a major dilemma for the oil- and food-importing countries in terms of the then prevailing paradigm on the conduct of macro policy. On the one hand inflation needed to be contained, but on the other, it was generally felt that combatting inflation aggressively via the interest or exchange rate instruments would be too detrimental to economic activity to pursue. The tale is a familiar one. Without going into great detail, we would like to briefly review some key lessons learned from these episodes.

One was drawn by some of the oil-importing countries with a fixed exchange rate peg to the effect that the price shocks added to other pressures on the exchange rate set-ups. For many countries, the collapse of the *Bretton Woods* system aggravated the impact of the oil crises.

Another lesson learnt was that second round effects of initial price shocks can be detrimental if they are not quelled in the early stages. In the 1970s, countries suffering sharp negative terms-of-trade losses from commodity prices witnessed wage increases accompanying or following price increases, with the aim of compensating households for the fall in purchasing power. This triggered a wage-price spiral that was hard to stop. Higher wages acted as a negative externality, boosting the production costs of goods and services and pushing consumer prices further up. Breaking the wage-price spiral required government intervention on employees' wage developments to recover an optimal balance. In some countries, the situation became so unsustainable that only the sharp surge in unemployment rates and the ensuing adjustment in wages did trigger a break in the wage-price spiral.

A third lesson drawn from these earlier episodes concerns the interference of governments with the pricing of market goods. The recessions in the countries concerned, triggered by rises

in world commodity prices, were further exacerbated by government price controls. In the US, for instance, there were price controls on oil. Newly found oil was rewarded with higher prices than the oil already on the market from existing sources, the idea being to stimulate oil exploration. But the opposite happened. Oil became scarce, and further rationing led to increased disruption in the economy, counter to the expected reaction.

Despite the apparent parallels between the recent commodity price shocks and those during the oil price crises in the 1970s, there are many important differences. While this paper does not aim to be exhaustive, we can mention the following: the causes of the initial price shocks, their direct effects on the economies concerned, the speed at which the cyclical downturn is translating into price declines, the macroeconomic policy reactions at the national and international level in view also of the evolving paradigm of appropriate policy reactions, and the degree of globalisation (prompting a much larger structural increase in commodity demand from leading emerging economies). Changes in the global production structure, in relative development levels among countries, in energy intensity and the propensity to consume basic food stuffs, in global financial and trade integration, and in transport and communication all make for a different setting for the conduct of policy.

More concretely, at the current juncture one important issue is that the volatility of commodity prices occurred against the backdrop of exuberant growth (notably in emerging markets) turning swiftly into deep recession as the ongoing global financial crisis was pulling global economic activity down, only to be followed by a steep but highly uneven rebound. The severe financial strains from the crisis entail a serious risk that the negative effects will be long lasting, with rounds of feed-through to the financial and real spheres of the global economy still not completed. Countries that at first sight seemed relatively shielded from the fall-out of the crisis, such as in the southern Mediterranean, did feel the effects with a lag. The region's limited financial integration acted as a partial buffer to the negative growth impact (despite the arguable large foregone growth opportunities due to the same relative isolation). The export mix of southern Mediterranean countries also helped limit the impact. The region's exports are concentrated in products (oil, materials and light manufactures) that were not as sharply affected by the crisis as capital goods. Reflecting a muted downturn, the region's recovery was also more subdued than for other developing regions and this is expected to hold true for the next few years.

The ultimate sensitivity to global crisis of even less integrated regions has been exacerbated by the fact that the process of globalisation during the last few decades has made economies more interdependent and integrated, so that national policies such as rationing and price controls impact trading partners more quickly and sometimes also more severely. This has been illustrated by the large impact of some measures taken by big food staple exporting countries around the commodity price peak (such as export rationing). These measures triggered substantial reverberations in the global markets for those commodities.

### **3. Food and total consumer price developments in the Mediterranean region**

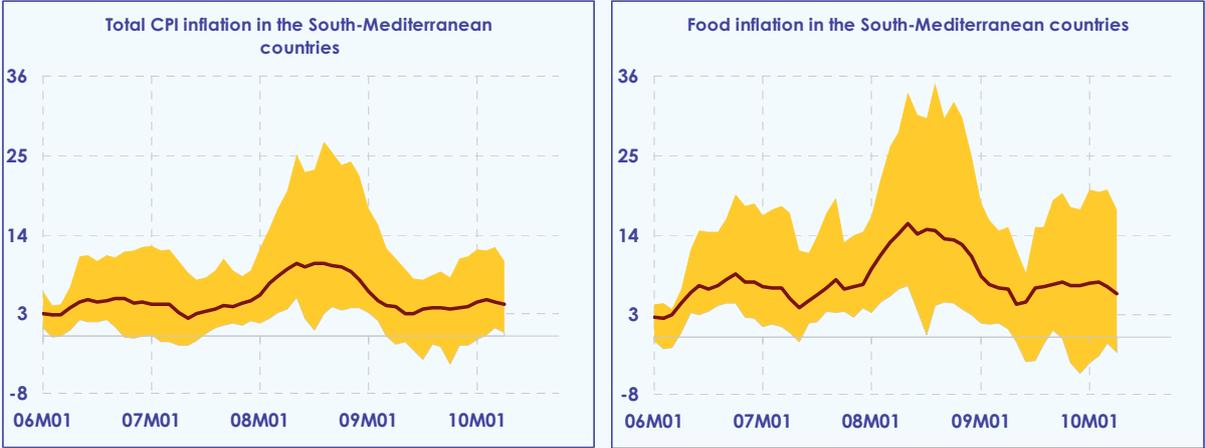
An upward trend in food and energy inflation started to emerge worldwide in the course of 2007, just before the global crisis. This trend was interrupted by the global crisis but re-emerged more recently. But it continued in the course of 2010. The causes and policy reactions of the soaring prices have been hotly debated (Peeters and Strahilov, 2008). Whereas it is outside the scope of this paper to investigate in detail, price increases are generally seen to have been the result of a complex combination of both structural and temporary factors. In a nutshell, an increasing world population, a growing demand for higher “value added” food (including meat and dairy) products in emerging economies in fast catch-up as well as the emergence of alternative market outlets (in particular for biofuels) all contributed to dynamic demand for agricultural commodities outstripping the growth in global supply. This led to tight agricultural commodity markets with historically low levels of international stocks that have apparently been unable to cushion a string of major weather-related supply shortfalls in important producing countries. Further contributing factors have been the surge in energy prices, export restrictions imposed by a number of countries to avoid domestic shortages and the depreciation of the US dollar. Speculation has also been mentioned as a potential factor, although so far there is no conclusive evidence that it has had a structural as compared to transitory impact on food prices (or on commodity prices more generally). The subsequent fall of food and commodity prices in the second half of 2008 in the wake of global crisis in 2009 is generally seen as a response to the rapid cooling of global demand and easing of expectations, still leaving the question of what structural driving forces would determine price trends once cyclical conditions get more stable.

Benchmarking the swings in global food price inflation depends very much on the time perspective. Food prices as measured by the HWWA index in dollars were on average 33% higher in 2008 than in 2007, having no less than some 60% between June 2006 and June 2008 (when the peak was reached). By end-2008, the average index of food commodity prices had declined by a third from the summer peak, , testifying to the speed of the price decline. However, as recovery took hold, global food prices also increased again and by end-2010 the HWWA food price index had reached again the nominal level of the earlier peak in mid-2008, indicating substantial price pressures in the pipeline.

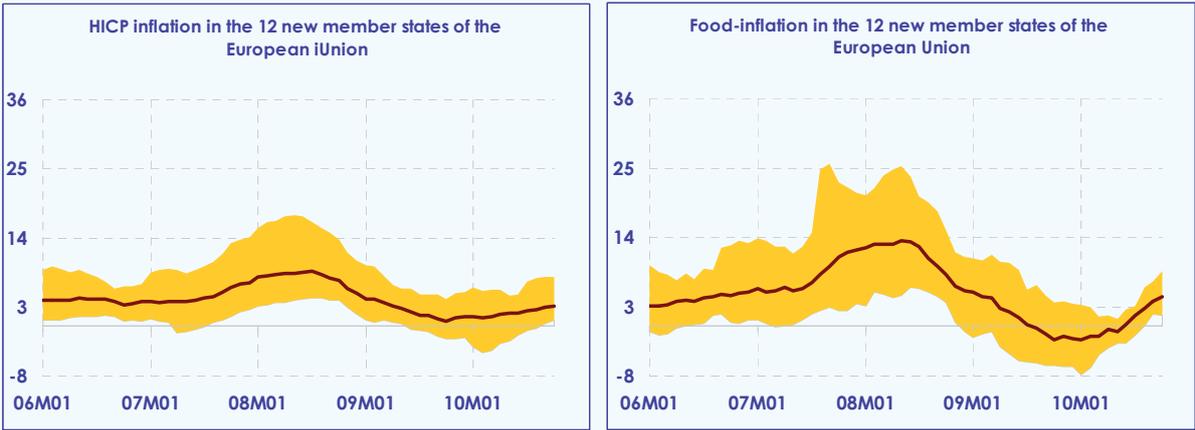
Food and overall inflation in the southern Mediterranean countries are very much driven by international developments, but with some differences in timing and obviously with country-specific factors causing disparate impacts across the region. Notably, price subsidies for food staples have been an important determinant. On average, food prices exhibited strong increases outpacing the growth of overall inflation between end-2005 and mid-2008. Average overall consumer price inflation in the ENP Mediterranean countries was 3.4% in July 2007 and it increased almost 7 percentage points to 10.0% in July 2008 (left graph in upper panel in Box 1). This was to a large extent caused by the sharp rise in food prices by 9% points, from 5.8% to 14.8%, during this 12-months period (right graph in upper panel in Box 1). In middle income ENP Mediterranean countries (apart from Israel) real GDP has been growing faster than in developed countries and faster growth tends to go hand in hand with higher inflation. Nonetheless, an increase in inflation of 7% points during one year is substantial and can not only be accounted for by catch-up related factors. Inflationary pressures eased in the second half of 2008, reflecting the drop in global food and commodity prices and the onset of the financial crisis. However, the decreases was mitigated by downward price rigidities (box 2). Since, food inflation in the southern Mediterranean region picked up again on average albeit with a large spread. Pipeline price pressures stemming for food and fuel price increases on globalo markets in the latter part of 2010 seem to indicate further inflationary impacts ahead.

While agricultural commodity prices were the key driving force for food price developments in the MED region, there are visible divergences in price developments across countries. Over the period examined, food prices in Algeria, Egypt, Israel, Jordan, Lebanon and the oPt have shown stronger increases than in countries such as Tunisia or Morocco where the agricultural sectors are larger. Government subsidies on food products have mitigated the price rises, so that actual agricultural commodity prices had soared even more in case these subsidies would not have been provided.

**Box 1 Developments of food and total inflation for the South Mediterranean countries and the EU12**



These graphs illustrate the developments in inflation measured as the annual growth rate of the consumer price index at a monthly basis, for total CPI and food prices respectively, since January 2006. The “total – Mediterranean” and “food – Mediterranean” (in the upper graphs) are calculated as the simple averages of the national price indices of the Med countries Algeria, Egypt, Israel, Jordan, Morocco, the oPt and Tunisia. Similarly, the indices “CPI – EU12” and “food – EU12” (in the lower graphs) are simple averages of the respective indices of the 12 most recently acceded EU member states. The measurement of “food” here mostly includes non-alcoholic beverages, but excludes alcoholic beverages and tobacco. The ranges indicate the minima and maxima inflation across the countries.



The price index for the 12 most recently acceded EU countries is the official Harmonised Index of Consumer Prices (HICP). Food prices include both unprocessed and processed food.

*Sources: National Offices of Statistics of the respective Med countries and Eurostat.*

The sharp fall in oil and agricultural commodity prices in the wake of the financial crisis has already resulted in a sharp deceleration of inflation in the twelve most recently acceded EU countries (graphs in lower panel of see Box 1). Average food inflation was in the group of these countries even negative, for some months in a row, and average HICP inflation dropped until 0.6%. In sharp contrast, the downward adjustment of inflation in the Mediterranean region was less pronounced pointing at stickiness or downward rigidities in prices. In Egypt total inflation hardly dropped under 10%.

The information in Box 1 further shows that not only average inflation is far higher in the South-Mediterranean countries than in the most recently acceded EU countries, but that also the dispersion of inflation within the groups of countries is larger. Although the group of Mediterranean countries only counts seven countries, while the EU12 contains 12 countries, the range is wider. This points at big differences in price dynamics across the South Mediterranean countries. In particular, in times where average inflation goes up, the dispersion increases substantially across the South-Mediterranean countries.

Total CPI inflation goes up substantially more in case of positive shocks than it goes down in case of negative shocks. According to the results in Box 1 this seems to hold more for the South Mediterranean countries than for the EU12-countries. For the Med evidence for downward price rigidities is econometrically confirmed (see Box 2).<sup>5</sup> In case prices do only react strongly to upward pressures, the primary aim for the central bank of price stability is hard to achieve. Such monetary instability is not helpful and can easily have a detrimental impact on the real side of the economy. Moreover, higher world food prices translating in higher consumer price inflation put pressure on the fiscal authorities to alleviate the higher cost from a social perspective.

Empirical evidence has shown that people tend to spend relatively less on certain goods and services – what are often called “inferior” goods and services – in case their disposable income increases. In line with this, the relation between the share of food in the consumer price basket and income, measured as GDP per capita, at the national level, is also negative (see Graph 3).

---

<sup>5</sup> Our econometric results are partly corroborated by Crowley (2010), who also estimates CPI inflation for South Mediterranean countries. In addition to Crowley’s analyses we however distinguish here between food price increases and food price decreases.

## Box 2 Downward rigidity in consumer price inflation in South Mediterranean countries and the EU12

Consumer price inflation in South Mediterranean countries goes quicker up than it goes down. This phenomenon of downward stickiness implies that negative shocks to CPI inflation do not lead to a downward adjustment of consumer prices. In sharp contrast, positive shocks to CPI inflation lead to upward adjustment of consumer prices.

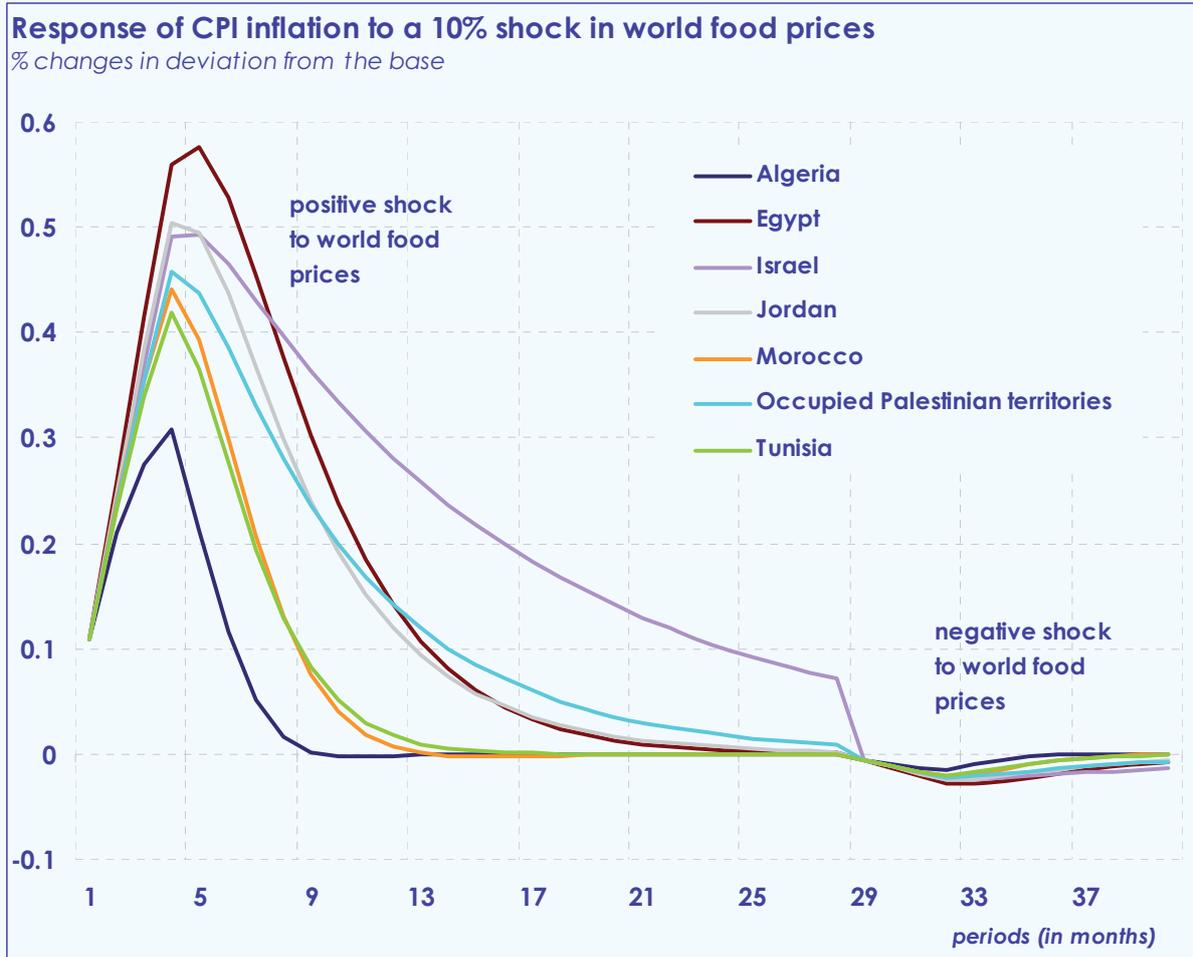
This follows from our estimation results for seven South Mediterranean countries as presented in the table here below. We test in particular for the effect of world food prices on CPI inflation, split into positive and negative shocks in these food prices. It follows that a 10% positive shock in world food prices leads almost immediately to an almost 1% increase in CPI inflation. On the contrary, a 10% negative shock in world food prices does not depress CPI inflation.

### Econometric results of a system of CPI equations estimated by Seemingly Unrelated Regressions

	Algeria	Egypt	Israel	Jordan	oPt	Morocco	Tunisia
$D_{12}LOG(CPI)_{t-1}$	0.93 (8.35)	1.38 (12.7)	1.21 (11.1)	1.28 (11.8)	1.20 (10.1)	1.17 (11.4)	1.15 (8.05)
$D_{12}LOG(CPI)_{t-2}$	-0.27 (-2.45)	-0.48 (-4.57)	-0.26 (-2.44)	-0.39 (-3.61)	-0.39 (-3.31)	-0.28 (-2.70)	-0.34 (-2.36)
<i>constant</i>	0.01 (3.18)	0.01 (2.40)	-0.00 (-0.29)	0.005 (1.53)	1.17 (11.4)	0.00 (1.60)	0.006 (2.36)
$P*D_{12}LOG(FOOD)_{t-1}$	0.011 (3.60)						
$N*D_{12}LOG(FOOD)_{t-1}$	0.001 (0.92)						
<i>Number of obs.</i>	50	50	50	50	50	50	50
<i>Adjusted R<sup>2</sup></i>	0.47	0.94	0.94	0.91	0.79	0.92	0.84

Note: The endogenous variables are the twelfth difference of the logarithm of the consumer price index for each of the countries, denoted by  $D_{12}LOG(CPI)_t$ . Explanatory variables are, as denoted above, the first and second lagged endogenous variable, a constant and the world food prices split into increasing and decreasing prices.  $P$  is a dummy that equals one in case the twelfth difference of the food price index is positive and zero otherwise.  $N$  is a dummy that equals one in case the twelfth difference of the food price index is negative and zero otherwise. The  $t$ -values are reported in brackets. The two lagged endogenous variables are included per country to account for residual autocorrelation. In addition to this, across the equations the restriction that the reaction coefficient of the world food price is the same for all South Mediterranean countries is imposed in order to have sufficient degrees of freedom for estimating this system of regressions. The sample period is March 2006 – April 2010.

- This is Box 2 continued from the previous page -



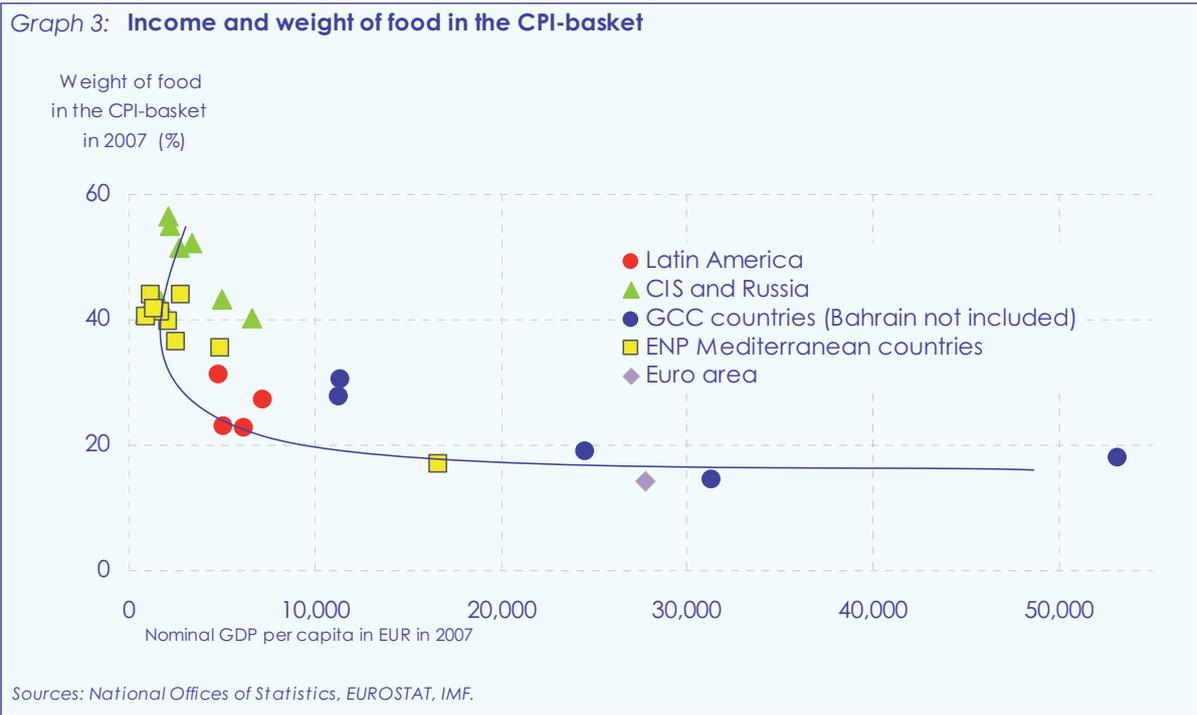
On the basis of our econometric results the response of consumer price inflation in the South Mediterranean countries to shocks in the world food price is illustrated in the graph above. A shock of 10% in comparison with the baseline is simulated in periods 0 to 3. It follows that this shock puts pressure on consumer price inflation in comparison with the baseline. CPI inflation in Egypt reacts strongest with up to 0.7% in comparison with the baseline. CPI inflation in Algeria increases the least. In Israel and the oPt the impact of the shock on CPI inflation lasts longest.

This same graph illustrates the response of consumer price inflation to a negative shock in world food prices of 10% in comparison with the baseline. The simulated shock takes place in periods 28 to 31. This hardly leads to a decrease in consumer price inflation (but is insignificant according to the estimation results). This underlines the downward rigidities in consumer price inflation in the South Mediterranean countries.

*Source: Own calculations, that are available upon request.*

With the exception of Israelis, people in the ENP Mediterranean countries spend a relatively large share of their income on food: 35% to 55%. In Israel, this number is far lower, at 17%, but it has a higher GDP per capita (comparable with Slovenia). The share of food inflation in total inflation in the region has been extremely high at some points during the price upsurge, as much as 60% and 80%. This shows once more the extent to which food inflation had put considerable upward pressure on total prices in the ENP Mediterranean countries.

In some countries the situation became extremely difficult when food and fuel prices soared. Shortages on the primary food product markets, such as bread and rice, have had an immediate and drastic impact on the ability of households under the poverty line to meet their basic needs. In addition to these problems, the soaring consumer prices have been forcing countries to make strategic policy choices. The decline in prices for commodities and agricultural staples since the middle of 2008 brought some relief. But the more recent turnaround in prices suggests that this relief for a part may only have been partial. Moreover, because of delays in the pass-through to consumer prices, consumers have been the last to reap the benefits from the easing of commodity and staple prices in the wake of the global crisis. The next section investigates whether the fiscal authorities managed to gain fiscal breathing space from the decline in commodity prices in terms of lower subsidy outlays.



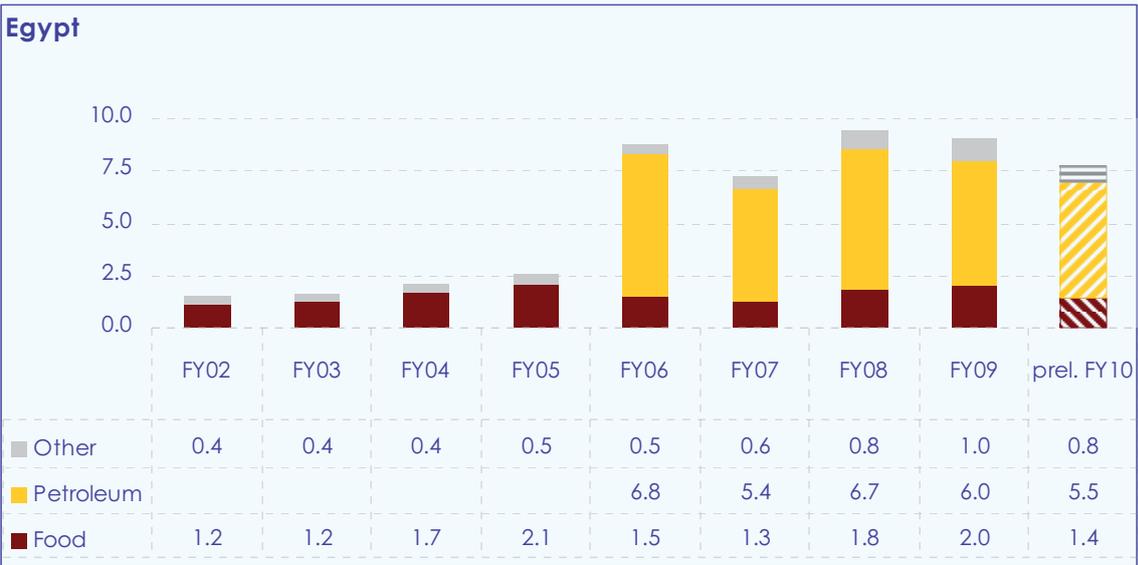
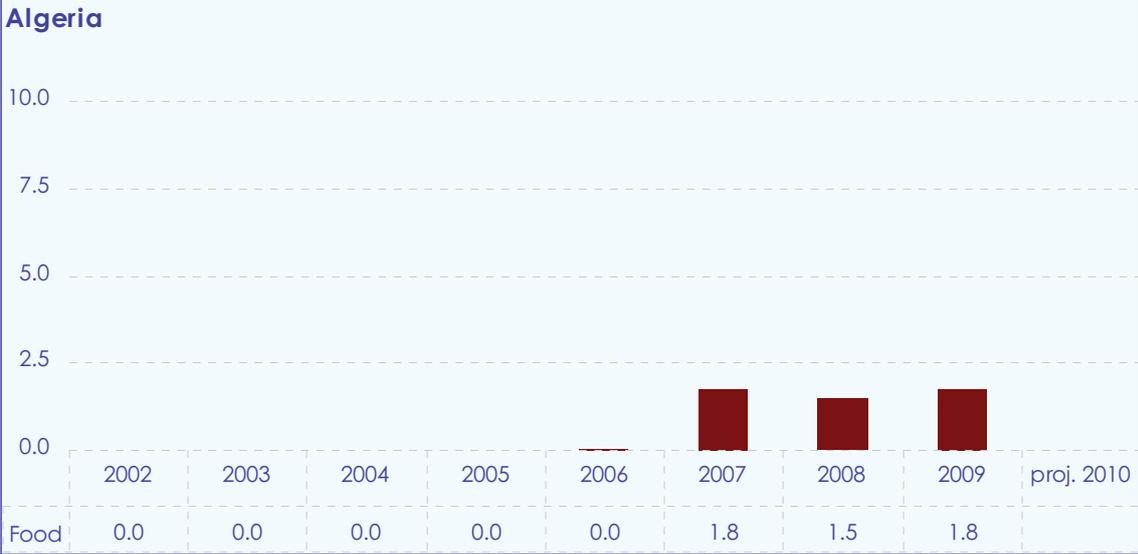
#### 4. The impact of food and fuel prices on government budgets and subsidies

Government subsidies, in particular on food products, have played an important role for decades in most of the ENP Mediterranean countries. Subsidies were stepped up in the 1970s. Although largely unaffected by the oil price shocks during the two oil crises, some countries were nevertheless faced with a sharp food price crisis at the end of the 1970s. Food policy was oriented towards “food security” and food management institutions such as the so-called *Caisses Générale de Compensation* (CGC) were set up or reorganised and intensified across the region in that period. The CGCs make up the difference between the market price and the fixed, below market, price set for these food products to compensate food distributors.

In the southern Mediterranean region, the food subsidy system is therefore still a major component of the social safety net for the poor, guaranteeing the availability of affordable staples, helping to reduce infant mortality and malnutrition and mitigate the adverse effects of economic reform and structural adjustment. The history of how the currency subsidy systems came into being puts their size in perspective. Because of their institutional entrenchment, only pre-announced and carefully communicated steps will make it possible for the governments to successfully and smoothly reform the subsidy systems.

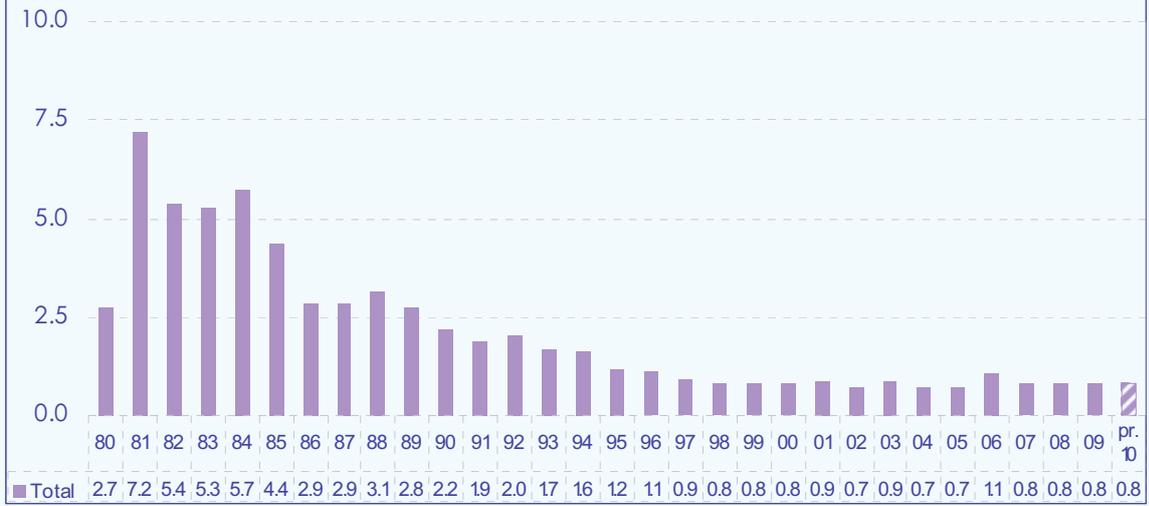
In reaction to the surge in food and fuel prices that culminated initially in 2008, governments were faced with higher outlays for subsidies, notably on food products and energy. Apart from the higher-than-planned fiscal expenditures on food and fuel subsidies, several governments in ENP Mediterranean countries took other policy measures to counter the price impact. These consisted of a varying mix of measures, including the diminishing or abolishing of tariffs and duties on imported food, the imposition of export taxes on certain grains or even the banning of exports of certain grains. Several of these proved ill-conceived and arguably heightened overall distortions in the economy. Also, some countries in the region switched to a more flexible exchange rate arrangement, so that the macroeconomic effects of the initial shock on the domestic economy could pass through in a more mitigated and cushioned way.

**Box 3 Food and fuel subsidies in the individual South Mediterranean countries as percentage of GDP**

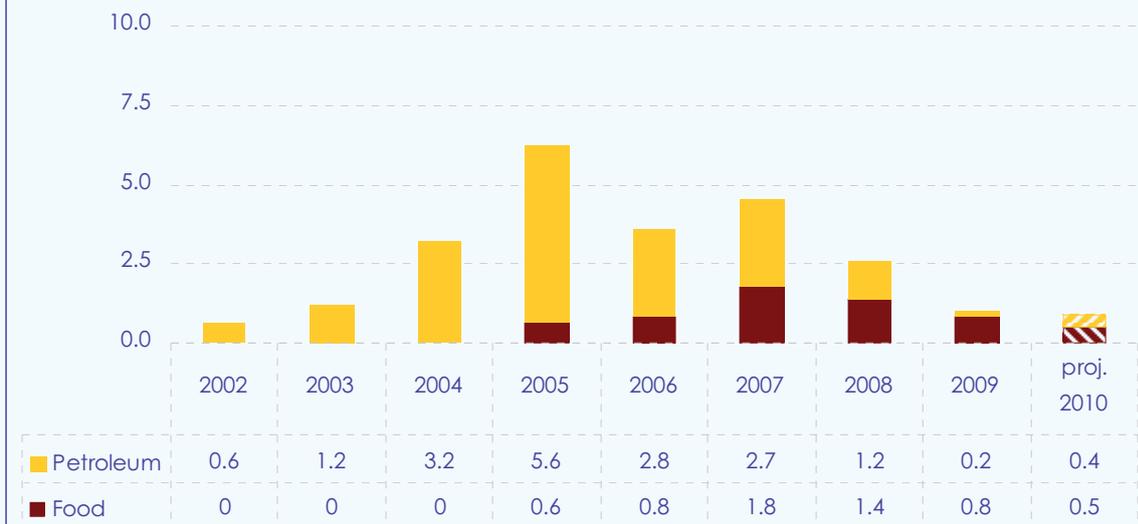


- Box 3 continues on the next page -

### Israel



### Jordan



- Box 3 continues on the next page

### Lebanon



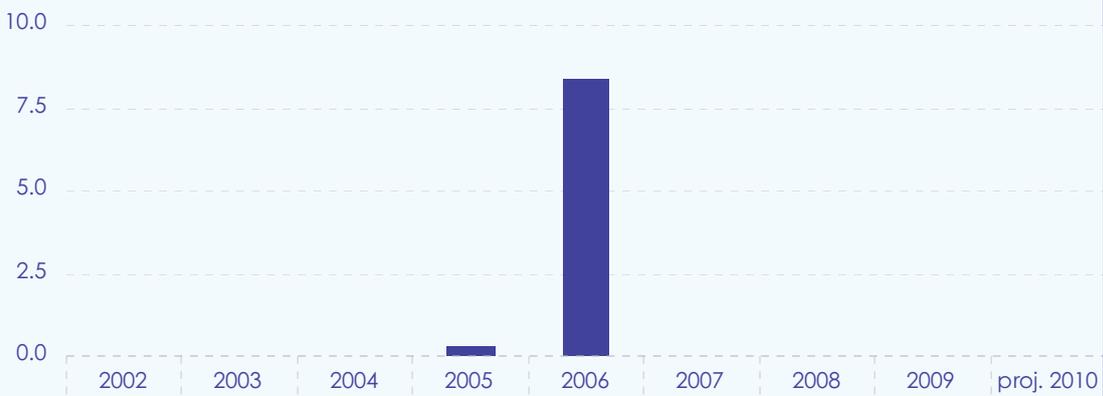
Year	2003	2004	2005	2006	2007	2008	2009	proj. 2010	
Unclassified treasury expenditures (including fuel subsidies)	0.0	1.4	2.5	2.6	10.9	10.8	12.0	10.8	11.1

### Morocco



Year	2003	2004	2005	2006	2007	2008	2009	proj. 2010
Petroleum	0.6	1.1	1.4	1.3	3.9	3.7	1.5	1.2
Food	0.4	0.4	0.7	1.0	-1.2	0.8	0.1	0.6

### Occupied Palestinian Territories



Year	2002	2003	2004	2005	2006	2007	2008	2009	proj. 2010
Total	0.0	0.0	0.0	0.3	8.3	0.0	0.0	0.0	0.0

- Box 3 continues on the next page -

### Syria



Explicit food			2.5	2.1	2.0	2.0	2.1	2.8		
Explicit total			2.6	2.4	2.3	2.3	2.6			
Implicit petroleum			3.3	6.4	9.6	10.2	10.3	12.9	4.9	
Total (explicit and implicit)			5.9	8.8	11.9	12.5	12.9	9.1		

### Tunisia

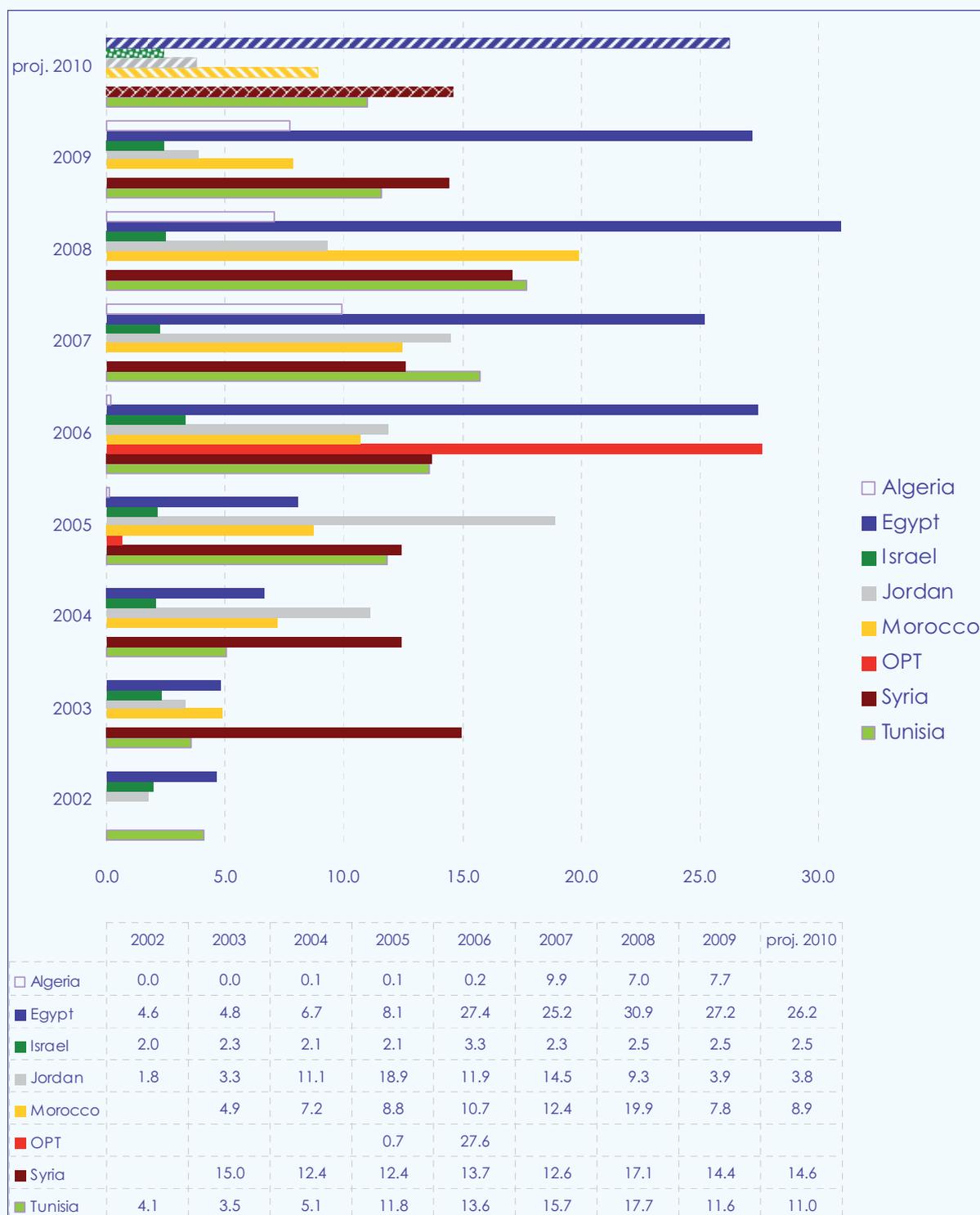


Petroleum			0.0	1.0	1.1	1.0	1.6	0.8	1.0
Food	0.6	0.5	0.6	0.6	0.7	1.2	2.1	1.6	1.4

Note: Empty cells are years for which information is not (yet) available. Background information and all presented statistics are available upon request.

Sources: Ministries of Finances and Central Banks of the respective Med countries, IMF Article IVs and own calculations.

### Box 4 Food and fuel subsidies in the individual South Mediterranean countries as percentage of current government expenditures



Note: Empty cells are years for which information is not (yet) available.

Sources: Ministries of Finances of the respective Med countries, IMF Article IVs, own calculations.

The developments show that many countries have faced higher food and fuel subsidies in 2007-2008 – as could be expected because of the upward price trends for these products– in comparison with the preceding years. For food, this is evidently the case for Algeria, Jordan and Tunisia. Fuel subsidies mainly started increasing recently in Morocco. Another distinguishing feature is that Jordan and Tunisia spend more on food subsidies than on fuel subsidies.

Expressing subsidies in terms of the current government expenditures shows the potential room for manoeuvre for other expenditures (see Box 4). In 2007, subsidies on food and fuel in the ENP Mediterranean countries ranged from 2.3% of the current government expenditures in Israel, to more than 25% of the current government expenditures in Egypt. Also, the oPt and Syria spend more than 20% of their current expenditures on subsidies. Perhaps surprisingly, for most countries the weight of government outlays on fuel subsidies has been notably higher than on food. In general, for energy subsidies, targeting would typically be less easily achieved. Hence, the scope to reduce distortions by reforming subsidy systems appears greater for energy than for food.

On the basis of currently available information<sup>6</sup> it is clear that the uptrend in food and energy prices led to notable increases in subsidies paid out by governments in the southern Mediterranean region, in particular in the few years just before the global crisis. In the wake of the strong surge in prices in the first half of 2008, budgets in several countries were adapted to take the expected impact on outlays into account. Yet, in several south Mediterranean countries concerns about possible social and political ramifications may have induced reluctance to quickly overhaul the subsidies system.

The peak in commodity prices subsided at the onset of the global crisis and the response subsidy flows is difficult to gauge. National budgets were adjusted during the global crisis year 2009 and the data indicate an easing of the fiscal burden. Yet, , for many countries, the

---

<sup>6</sup> This paper uses multiple data sources, including information from the Ministries of Finance, the country Article IVs and Government Finance Statistics (GFS) from the IMF. In some countries, EU Delegations assisted in gathering data. The cross-country and cross-time comparability of the different data sets is complicated by presentation of data at different levels of aggregation, sudden changes in classification, interruptions in the time series, extra-budgetary accounts and, sometimes, missing information for specific budget items or recent years. Unfortunately, this contribution does not cover the whole period 2002-2009 for each of the countries due to the lack of information on subsidies in the (draft) budgets. Moreover, a note of caution must be given concerning the definition of “subsidies” and the blurred distinction between subsidies, transfers and other fiscal instruments (like “other” or “tax arrears” or “negative taxes”). Against this background, in our view government subsidies will be far higher than shown in the figures here.

lower commodity prices did only lead to slightly lower subsidies as a lower GDP than in 2008. For some countries, the lower commodity prices even went hand in hand with higher government subsidies to government expenditures (Algeria). Price increases for food and commodity during the recovery from the crisis in 2009 and in particular in 2010 suggest a marked increase in public outlays on subsidies will again occur, if no compensatory measures are taken.

At the same time, the higher food and fuel prices did not always have a negative impact on the government budget. In Egypt in FY08 and Jordan in 2008, in particular, fuel subsidies as a percentage of GDP diminished by almost 1 percentage point despite the fact that total inflation rose by respectively 6.7 and 4.9 percentage points at an annual rate. These may be seen as the effect of successful reforms in the subsidy systems achieved in difficult conditions.

There are different degrees to which countries succeeded in implementing reforms, . Some countries have reduced their subsidies in nominal terms. Others managed to achieve a nominal stagnation in their subsidies, which translates in terms of the ratio to GDP into a rather big improvement. On the other hand, some countries may have started reforms in their subsidy systems that do not yet show up in the figures presented above.

Data issues hinder the comparability of the figures presented. The issue of administered prices is not incorporated in the estimates presented below. In Algeria, for instance, the government budget does not show energy subsidies while the authorities provide energy price “support” or “implicit subsidies” by keeping energy prices fixed at prices that are lower than the market prices.

Nonetheless, the bottom line emerging from the data gathered is quite clear. Soaring commodity prices in 2007-2008 entailed a substantial increase in subsidies and the government balances in some countries. The burden that subsidies impose on the government balances had already been heavy in most countries in the region before the price surges, but became even heavier. The future will show to what extent the latent soaring commodity prices after the global crisis may bring additional pressure on government budgets.

The importance of subsidies for government finances and economic policy in the southern Mediterranean is underlined by international comparisons. In general, the expenditure on subsidies in the region is high compared to other groups of middle income countries. Just to take the EU as a reference, in the 10 Central and Eastern European Countries (CEEC) countries that joined the European Union in 2004 subsidies were also key elements of the centralised system of economic planning. Subsidy reform in these countries started in the early 1990s. From 1995 until 2005 the CEEC countries reduced subsidies on average by almost 50%, from 2.1% of GDP to 1.2%. Of these countries, Slovakia had the heaviest subsidy system and reformed most, from 4.7% to 1.3% of GDP (so 3.4 percentage points) in a decade (see Mulas-Granados *et al.*, 2008).

## 5. Overview of subsidy systems

In order to recommend policy makers on the policy options concerning subsidy systems that are most cost efficient and fairest from the point of view of income distribution, this section gives an overview of a spectrum of systems. Due to the complexity of possible subsidy systems this overview is neither complete nor exhaustive. Instead, the aim is to describe the key mechanisms of subsidy systems, pointing out the pros and cons from the point of view of cost efficiency and income distributional fairness in order to have the main ingredients for a subsequent discussion.

Empirically, this basic question is already difficult to frame in a theoretical approach. Given the many nuances in the systems that prevail in the Southern Mediterranean region the blurred line between subsidies, direct and indirect price support, administrative controls, trade and market interventions and transfers cannot be drawn without leaving room for interpretation. For the purposes of our argument, we classify both untargeted direct price subsidies as well as so-called self-targeted subsidies (for goods or varieties of which consumption declines with rising income) as clearly falling within the definition. Also included (albeit of a different nature) are what one could call indirect or implicit subsidies via price controls (benchmarked against world market-based yardsticks) and import or export restrictions or monopolies directly controlled by the government (already here the distinction can easily become blurred in practical terms). In the region, many countries operate some form of equalisation or special funds which pool centralised budgetary resources and direct them to specific uses (often

channelled via various layers of administration) that fall within our broad definition of subsidies. Obviously, the complicated operations involved blur the distinction between subsidies and other public financial operations. So does the interpretation of a subsidised 'shadow price' calculated against world market benchmarks. Evidence on quotas (or rationed subsidies) via targeted and limited access to subsidised items (e.g. via vouchers) is more rare. Conversely, transfers or income support that are not directly linked to the consumption of goods and services would clearly fall outside the scope of subsidies as defined for the purpose of this paper, even if in the statistics the dividing line between subsidies and transfers cannot always be clearly made.

Despite these caveats, the various subsidy forms outlined above can be identified to a substantial degree. The next issue is to examine what purpose they serve and how they would be impacted by changes in the system.

In case a country has a heavy subsidy system in place, with a substantial burden on public finances, it will be hard to abolish the system within a certain time horizon. For such a country a gradualistic approach seems the only feasible one and initially it will typically be easier to move to an “intermediate” kind of subsidy system. For this reason we wish to review the (dis-)advantages of the different types of subsidy systems from one extreme (very costly and/or unfair) to the other extreme (least costly and/or fair).

From a theoretical perspective, the rationale for subsidies stems from some form of market failure that they aim to address, that is when a difference exists between the actual price without government intervention and what is deemed the socially optimal price, for instance due to externalities not fully reflected in market prices. Subsidies can also be considered as a second-best solution in cases where other instruments to correct market failures would be less optimal. In any event, for policy makers it is also important to consider the implementation and transaction costs associated with subsidies. For instance, administrative hurdles in identifying target groups can pose burdens while indentifying recipients of subsidies and implementing subsidies in such a way that abuses are avoided are not costless. Set-ups where these costs of implementation are minimised reduce distortions. In addition, flexible systems that can be adjusted relatively rapidly - also to reduce the costs to the public budget – help mitigate the budgetary impact of unforeseen adverse shocks to the system.

Most countries that provide food price subsidies maintain a *universal system*. In its most basic form it means that the subsidy applies to anybody buying the product.

A main disadvantage of universal price subsidies is that price signals are distorted. Also, there is no distributional fairness as richer people can also buy the product at the lower price. As another disadvantage, this system can be costly for governments because of the incentive for people to take advantage. The economy-wide distortions associated with such a system tend to be large.

A universal system can also be targeting *implicitly* certain income groups. This happens in case a product is targeted which is disproportionately bought more by poor households.

Here similar disadvantages in terms of cost inefficiency and distortions apply as under the universal system, although the extent to which they occur will be less.

In a *targeted* subsidy system the subsidies are only paid to those that can afford the least to pay for the scarce products (e.g. basic food or fuel). Among the targeted subsidy systems there is the *administered targeting* approach and, even better, the *self-targeted* approach.

The advantage of the self-targeted system is that the households themselves determine whether they need the subsidy or not, while the government decides on their eligibility. This has the preference over an administered targeting approach, where the government will decide on the eligibility of households for a subsidy, for instance on the basis of their income. A self-targeted subsidy system outperforms other subsidy systems in terms of distributional fairness<sup>7</sup> and costs to the government, but is quite hard to implement.

In general, short-term compensatory measures for poorer households should preferably focus on income transfers to reduce the loss in real income due to higher commodity prices. Optimal interventions thus steer away from subsidies. Direct income transfers should be preferred to measures such as food or fuel vouchers. For fuel this seems to be even more clearly the case than for food. In the case of fuel, vouchers provide no signal coming from

---

<sup>7</sup> We see “distributional fairness” as the case where low-income households receive a higher percentage of subsidies in terms of their income than high-income households and where at the same time the low-income households consume the major share of the total amount of subsidies. If not, the subsidy system is regressive (implying that rich people have a bigger advantage than the needy).

higher energy prices and, hence, reduce incentives (such as to save energy and use it more efficiently). Short-term measures to help the weakest groups could also be complemented by more structural measures to reduce the energy demand from these households, e.g. support for investments in better insulation and more energy-efficient appliances.

Anyhow, substantial reforms in subsidy systems will only be possible gradually. This holds in particular for food subsidies, as past experiences have shown that the social consequences can be quite far-reaching, with potential implications also on the political side. The recent unrest in Algeria and in particular the sweeping political changes in Tunisia were protests over high prices were among the triggers underline the point. In this sense policy makers will have to take not only the economic, but also the political consequences into account. Moreover, the institutional capabilities of government to improve targeting and let it go had in hand with reduced market imperfections are an important factor determining success.

## **6. Summary of findings and policy issues**

In many developing countries, in particular in South-Mediterranean countries, energy and consumer food subsidies are a major part of the social security safety net schemes. The upward trend in food and energy prices that started to emerge worldwide in the course of 2007, just before the global crisis, caused riots in the streets of Egypt until the Egyptian authorities intervened by among others the army baking additional bread. In the course of 2010, during the recovery from the global crisis, basic commodity prices started rising again on the back of the upsurge in global demand and were among the reasons for uproar in Tunisia and Algeria, finally leading to regime change in Tunisia. The eruption of social unrest is one of the tangible externalities of the scarcity of food and energy. In several countries, concerns about for the potential social and political effects of a rapid overhaul of the subsidy system may in part account for inertia in implementing reforms.

In spite of such incidental eruptions of social unrest, South-Mediterranean countries have by and large succeeded to maintain the purchasing power of subsidy recipients in the wake of soaring prices and economic slowdown. Nonetheless, the existing subsidy systems in the region have also proven inefficient and are putting an increasing burden on government budgets, especially in view of the increase in world commodity prices in recent years (despite

a brief pause during the global crisis years 2008 and 2009). Maintaining the current subsidy systems seems fiscally unsustainable in light of the downward rigidities in prices what seem to be structural supply shortages of basic commodities, unless countries make their own provisions. Potential macro-economic implications are wider and include the impact on external balances, the financing of fiscal deficits, and on the development of the financial sector. Deteriorating public finances, possibly in combination with political economy risks, may increase financing costs and limit access to foreign sources of public funding. This might induce further financial problems by increase in local market funding, possibly crowding out private investment, with also knock-on effects on financial integration and financial sector development.

This paper provides a comparative analysis of food and fuel subsidies and price impacts across Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, the occupied Palestinian territory, Syria and Tunisia for the period 2002-2010. The nominal and real value of these subsidies turns out to be substantial and, for some countries, even usurping a worryingly large share of the current government expenditures of up to more than 10% in recent years. This is very high in comparison to other regions in the world and indicates quite substantial distortions in the region's economy. The South-Mediterranean countries have a high potential to catch up with the developed economies. But in order to help achieve this, the fiscal burden of the subsidies needs to be reduced to create more fiscal space and possibly more room for additional spending on growth-enhancing measures. This is the main policy recommendation of this paper. There are several ways of pursuing this policy objective, mainly through improved targeting. As public sector energy outlays are higher than food outlays, the largest achievements can be made by reforming energy subsidies.

As far as possible policy implications are concerned, below we raise some additional issues for discussion in relation to soaring prices, notably as regards the challenges to macro, in particular fiscal, policies. We do not claim to offer a comprehensive framework to inform a policy discussion, or to put forward prescriptive policy options. Rather, our aim is to distil some broad themes and tendencies from the empirically-oriented approach offered in this paper. Needless to say, the appropriate response for any particular country is determined to a large extent by country-specific (also political) circumstances that impact the trade-off between short- and long-term considerations. With these caveats in mind, relevant issues for discussion may include the following:

- In the short term, under unchanged policies the strong terms-of-trade shocks stemming from high volatility in food and energy prices puts government finances under strain from the impact on subsidies. Rigidities to downward price adjustments heighten the challenges. To the extent that structural factors would precipitate a continuing global uptrend in commodity prices when cyclical conditions normalise, this would put an increasing burden on public expenditure under unchanged policies.
- In the near term, marked swings in real disposable income to the whole economy cannot be fully avoided, even though they may be cushioned by subsidies. In general, relative prices should be allowed to adjust to terms-of-trade shocks, while allowing some cushioning against the impact of short-term over- and undershooting of prices for traded items.
- However, it should be acknowledged that in some cases there is an imperative need to cushion the impact on a subset of domestic agents.
- Reforms in the subsidies systems may occur along several dimensions for those governments with high levels of subsidies in terms of spending as a share of nominal GDP. Phasing out the subsidies over several years seems to be a promising avenue. Safety nets can be re-designed to improve targeting (where possible by promoting self-targeting) in such a way that regressive effects are phased out. In this way only the most needy will be protected from excessive price rises. This could also help reduce price distortions which invite overconsumption of subsidised items and induce substantial distortions and static and dynamic inefficiencies in the macro economy. Reforms in subsidy systems would have to go hand in hand with reforms of administered (food or fuel) prices.
- Subsidy reforms and improved targeting could help reduce rigidities in the government budgets and alleviate the fiscal burden, creating more fiscal room for manoeuvre. Such reforms should be accompanied by improved administration capabilities in order to be effective.

- Subsidies impact the whole energy and even more complex food supply chain. The length of the chain should be reduced as much as possible. Long and cumbersome chains invite corruption and impose a higher administrative burden, thus putting upward pressure on market prices. Moreover, they may contribute to increases in margins along the supply chain that would inhibit a swift adjustment of final consumer prices to input prices and would thus become a source of price rigidities.
- There is a need to try to avoid second round effects of terms-of-trade shocks that can trigger a wage-price spiral and/or staggered responses of margins that would entail welfare losses. Measures to avoid such a dynamic can contribute to profitability, fiscal sustainability and job and growth prospects.

While the short-term impact of adverse shocks cannot be fully avoided, their long-term consequences can be in principle addressed by a supply response. In this respect, enhancing food supply is an obvious candidate and should be stimulated as much as possible. Supply can be boosted both by increased production on the one hand, and by more efficient distribution and improved market access on the other. For energy, improvements in energy efficiency would constitute a key supply response.

- In order to achieve a supply response, the price mechanism should work in as uninhibited a way as possible. Arguably, relatively high prices for basic agricultural products in domestic markets, with the least possible government financial aid, will give an incentive to the agricultural sector to explore new and expand existing opportunities to cultivate basic and/or alternative food products. Targeted measures to compensate the associated losses in purchasing power for specific groups in society appear to be a logical complement. That said, it is understood that the structure and functioning of the middle-income countries in the region is quite different from advanced economies, shaping a different supply response. In particular, important institutional rigidities would have to be overcome to ensure an improved supply/demand balance.
- It is critical to avoid the transmission of distorting price shocks via international trade channels, for instance through ill-designed protectionist measures.

- On a similar note, it may be worth also considering the of monetary policies and the exchange rate regime, in particular as regards the effect of exchange rate policies on the pass-through of commodity price shocks.
- It is imperative to exploit the opportunities from financial and economic integration in a well-sequenced way to cushion the negative impact of terms-of trade shocks on the real economy, on balance sheets, and on confidence. This must be accompanied by adequate supervision in order to avoid imbalances in the national and global systems.

## Key references

- Adams, R. H.**, 2000, *Self-targeted subsidies – The distributional impact of the Egyptian food subsidy system*, The World Bank, Policy Research Working Paper n° 2322.
- Dabrowski, M.**, 2010, Global food price shock and the poor in Egypt and Ukraine: A comparison of impacts and policy options, Research n° FEM33-14, FEMISE Research Programme 2008-09.
- European Commission**, 2008, *The Quality of Public Finances – Findings of the Economic Policy Committee-Working Group (2004-2007)*, European Economy Occasional Papers 37.
- European Commission**, 2008, *European Neighbourhood Policy: Economic review of EU neighbour countries*, European Economy Occasional Papers 40.
- European Commission**, 2009, *Impact of the global crisis on neighbouring countries of the EU*, European Economy Occasional Papers 48.
- European Commission**, 2009, A better functioning food supply chain in Europe, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions.
- European Commission**, 2010, *The EU's neighbouring economies: Emerging from the global crisis*, European Economy Occasional Papers 59.
- International Monetary Fund**, 2008, Fuel and Food Price Subsidies: Issues and Reform Options.
- International Monetary Fund**, 2008, Food and Fuel Prices – Recent Developments, Macroeconomic Impact, and Policy Responses.
- International Monetary Fund**, 2008-2010, Article IVs of the respective countries.
- Mulas-Granados C., T. Koranchelian and A. Segura-Ubiergo**, 2008, *Reforming Government Subsidies in the New Member States of the European Union*, IMF Working Paper No. 165.
- Nawar, A.-H. H.**, 2007, Reforming the domestic market of natural gas in Egypt: Lessons from selected countries experiences, SSRN Working Paper 1018577.
- Peeters, M. and K. Strahilov**, 2008, Macro-economic policy reactions to soaring food prices in Mediterranean countries, Russia, the CIS and the Gulf Cooperation Council countries, working paper European Commission.
- World Bank**, 2009, Global Economic Prospects, Commodities at the Crossroads.