

Impact of the oil price decline on France and the global economy

- After remaining consistently above USD 100 per barrel from 2011 through mid-2014, oil prices have plummeted by more than 70% since the summer of 2014. The decline was initially attributed to a combination of weaker than expected global demand for crude oil and an abundant market supply. Since mid-2015 however, world oil demand has been essentially in line with expectations, and the drop appears more a reflection of the sustained high production quotas applied by the Organization of Petroleum Exporting Countries (OPEC) coupled with North America's strong production of unconventional oil and gas. The International Energy Agency (IEA) believes that oil supply could remain abundant in 2016 because it is taking some time for the price decline to translate to any significant drop in the production of unconventional oil and gas (produced directly from source rock, mainly shale oil) in the United States, and because Iran could boost its production by 20% over the year.
- In the past, lower oil prices have had highly positive consequences for the global economy. The favourable impact on growth has been the result of two factors: the lower cost of an input for firms outside the oil and gas sector and, on the demand side, the redistribution that takes place on a global scale between producing countries and importing countries (commodity exporting countries have historically saved more out of their revenue than other countries).
- The impact of the current oil price decline on the global economy should continue to be positive, but several potentially cumulative factors could limit the benefits: (i) positive effects on importing countries could take longer to become apparent, (ii) weak oil prices have placed a number of exporting countries in an extremely difficult situation, leading them to implement restrictive economic policies, (iii) the curbing of purchases and/or sales of financial assets by sovereign oil funds. Furthermore, the oil price decrease could lower inflation expectations and thereby complicate the task of monetary policymaking. In addition, the U.S. economy is affected by its increased exposure to the energy sector.
- In any case, the current oil price slump is undeniably supporting growth in the euro area, particularly in France. In France, lower prices at the pump appear to be having the direct effect of increasing household purchasing power in the short term. Businesses appear to have the benefit of lower production costs, enabling them to rebuild their margins, increase their investments or cut their prices to enhance their competitiveness. Accordingly, the oil price decline observed since the presentation of the 2016 Budget Bill in September 2015 would account for 0.1 point of additional GDP in 2016 and 0.15 point in 2017.
- However, it is possible that the upsides of lower oil prices could become apparent at a different pace than is usually the case. Indeed, businesses still have margin rates below their pre-crisis level and their debt burdens remain high. This could lead them to allocate a larger share of the gains they derive from lower oil prices to savings rather than cutting their prices. On the other hand, households could spend the additional purchasing power from the oil-price windfall more quickly than usual, especially if economic uncertainties dissipate sooner rather than later.



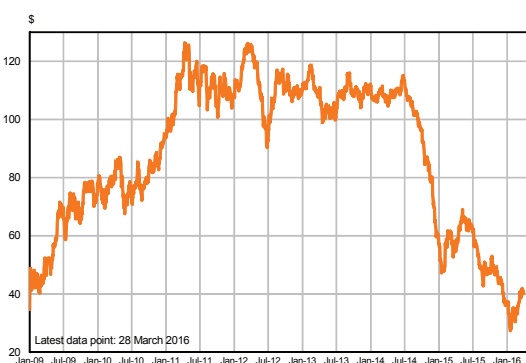
Source: DataInsight.

1. Since the summer of 2014, oil prices have plummeted deeply and lastingly due to the combined effects of a consistently abundant supply coupled with a disappointing demand at least in the early part of the period

1.1 Oil prices have skidded steeply and lastingly, losing more than 70% since June 2014

This significant drop in Brent prices happened in two stages. **The first drop from June to October 2014 could be explained by the combination of weaker-than-expected world oil demand and an abundant oil market supply.** During this period, when oil prices fell from USD 110 to below USD 80, the IMF considers that weak oil demand was the dominant driver of the price decline¹, which is also reflected in the fall in other commodity prices. **This initial drop was followed by a second phase of decline that has lasted since the end of 2014 and is believed to be mainly driven by supply factors.**

Chart 1: Brent price (USD)



Source: DataInsight.

Several factors have contributed to the abundant supply of oil:

- **North American production of unconventional oil** (produced directly from source rock, especially shale, in the United States) **rose steadily from 2009 to mid-2015.** Crude oil production in the United States rose from 5 to 9 million barrels per day (Mb/d) in a five year time². In spring 2015, U.S. production reached a 44-year high.
- OPEC is supplying crude oil markets at a rate of more than 32 Mb/d³. **Despite the first plunge in prices and the abundant supply, OPEC decided in December 2014 not to curb production to support prices as it had done in the past.** In so doing, the organisation may have

been seeking to keep oil prices low in order to slow down investments and exploration in North America's unconventional resources. In an effort to protect market share, OPEC, led by Saudi Arabia, increased production by about 1 Mb/d between 2014 and 2015.

- **In early 2016, markets responded to the agreement on Iran's nuclear programme when it took effect in January, leading to the lifting of international sanctions against Iran (including the oil embargo), which should allow Tehran to increase its oil production and exports to global markets, particularly Europe.**

1.2 In 2016, oil supply could remain abundant and the International Energy Agency does not foresee any rebalancing of the market until early 2017.

- **In North America, and particularly in the United States, the oil price decrease is slow to translate into any significant production cuts.** Although the rig count did indeed decline from 1,600 to about 700 in 2015, the price plunge has also prompted significant cost-cutting measures and production efficiency gains. According to the IEA, several unconventional oil and gas fields in Texas and North Dakota have boosted their production by 25% since mid-2014. After achieving record production of 9.4 Mb/d in 2015, crude oil production in the United States is expected to fall to 8.8 Mb/d in 2016 – still higher than the level at the start of 2014.

Chart 2: Crude oil supply in the United States



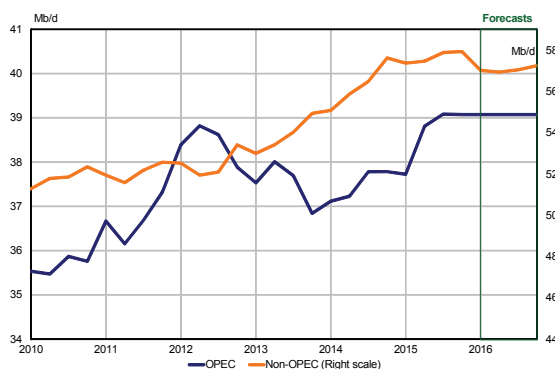
Source: IEA Report, February 2016.

(1) *World Economic Outlook*, International Monetary Fund, April 2015.

(2) *Oil Market Report*, International Energy Agency, July 2015.

(3) Total OPEC production (crude oil, liquefied natural gas and unconventional oil) amounted to 38 Mb/d in 3Q2015, versus a global oil supply of 96 Mb/d.

Chart 3: OPEC and non-OPEC supply of crude oil



Source: IEA February 2016. Total supply for OPEC, for which IEA does not publish a forecast, (i.e., crude oil, natural gas liquids, unconventional) is frozen at the 4Q15 level; IEA forecasts for all other data.

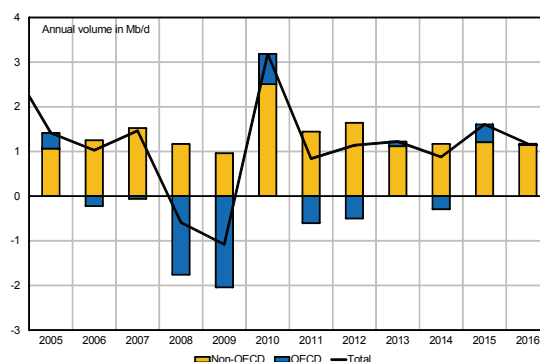
- **OPEC is expected to continue to supply crude oil to markets at a rate of about 32 Mb/d in 2016.** Pursuant to the agreement on Tehran's nuclear programme, Iran's oil production should soon be added to that of Saudi Arabia and Iraq. Iranian crude oil production currently stands at 3.2 Mb/d (40% of which is exported to China) and could increase to 3.8 Mb/d by 2017.
- **The agreement signed in mid-February between Qatar, Saudi Arabia, Russia and Venezuela to maintain production at the January 2016 level and anchor market expectations did not send oil prices back upward:** i) the January production levels of these countries were very high; ii) some observers doubt that Russia will honour its production quota agreements with Saudi Arabia; and iii) Iran is not a party to this agreement at this time.
- **According to the February 2016 IEA report and forecasts, world oil demand growth**

should slightly slow down in 2016. In 2015, global oil demand growth was solid (+1.6 Mb/d to total 94.4 Mb/d) supported by weak prices and a return to growth particularly in the euro area. The IEA sees world oil demand rising more slowly in 2016 (+1.2 Mb/d to reach 95.6 Mb/d).

1.3 However, this outlook remains subject to several unknowns

Several factors could contribute to higher production levels worldwide, such as an increase in production in Iraqi Kurdistan, considered to be one of the world's major crude oil fields, or a stabilisation of Libya's oil production. **Conversely**, an escalation of conflict in Syria and Yemen, and of the tensions between Saudi Arabia and Iran, could send oil prices climbing. Additionally, the IEA reports that investments and capital expenditure in the oil and gas sector contracted by 20% in 2015 as a consequence of falling oil prices, and this decline is expected to become more pronounced in 2016. In the medium term, shrinking investments could constrict world oil supply, creating upward pressure on prices.

Chart 4: Oil demand in OECD and non-OECD countries



Source: IEA February 2016 (demand figures for 2016 are IEA forecasts).

2. Lower oil prices will continue to have upsides for the global economy, but several factors are currently diminishing the benefits, especially in the short term

In the past, a drop in oil prices had a strong positive impact on the global economy. Indeed, lower oil prices mean a lower cost of one factor of production on a global scale. After creating a supply shock with a positive impact worldwide, it leads to lower prices, higher output and lower structural unemployment. If the oil price collapse stems from a positive oil supply shock, it should boost global growth; if it is due to a negative oil demand shock, (such as a slowdown in global growth), then the oil price decline will buffer the negative impact of that initial shock.

The effects of an oil price fall also stem from its redistributive effect between producing and consuming countries. The net effect of this redistribution on global GDP is generally positive because exporters tend to have a low marginal propensity to consume, at least during periods of high oil prices.

In today's context, the impact of lower oil prices on the global economy would remain positive but several potentially cumulative factors could limit this upside.

2.1 The slow rate of diffusion of benefits in importing countries

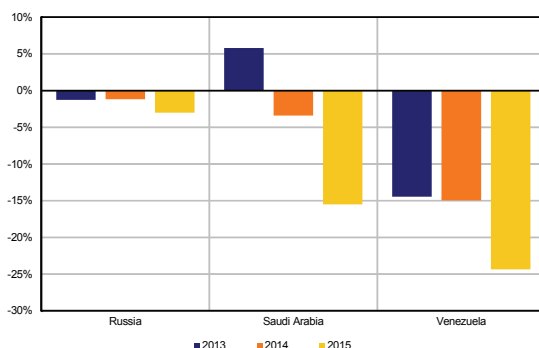
The positive effect of the oil price plunge appears to be spreading only slowly in some oil-importing countries. Businesses in certain countries have taken advantage of lower oil prices to rebuild their margins (e.g., in the euro area and in the United States outside the energy sector) rather than increasing their investments or cutting their prices. Likewise, some countries (Argentina, Brazil, Indonesia) have managed to capture some of the "cheap oil" windfall to consolidate their public finances, by reducing oil subsidies as it was recently the case in Morocco, for example. As for households, a major share of the savings on energy bills appears to have been allocated to savings in a context of uncertainty and debt reduction.

2.2 Negative effects on oil-exporting countries exacerbated by pro-cyclical policies enacted in response to lower oil prices

These very low oil prices are limiting the room for manoeuvre of exporting countries and prompting them to roll out economic policies that cause growth to erode even more quickly. In countries with floating exchange rates, lower oil prices lead to exchange rates depreciation. This allows for an external adjustment but endangers businesses and states that hold foreign-currency-denominated debt. Currency depreciation generates imported inflation, which constrains economic policy. Russia is an example: the rouble's loss in value (55% against the U.S. dollar in 2014-2015) has fanned inflationary tensions and forced the central bank to maintain its benchmark interest rate at a high level (11%), which weighs on growth. In countries with fixed exchange rates, the depletion of foreign exchange reserves poses a threat to parity. In Saudi Arabia, foreign exchange reserves are increasingly being tapped to finance the kingdom's first current account deficit (8% of GDP in 2015) since the end of the 1990s, although they remain adequate in the short term to soften the negative impact of the price decline.

Declining budget revenues oblige exporting countries to implement restrictive fiscal policies. Most of the oil-producing countries are grappling with deteriorating public finances because their economies are not sufficiently diversified and the price of crude oil has plunged below the level needed to balance their budgets. In Russia, the government decided to cut spending by 10% (except for military and social expenditure as well as debt service), but even this measure has not prevented the deficit from widening (3% of GDP in 2015, see Chart 5). Lower motor fuel prices are also allowing some oil exporters (as well as some oil importers) to reduce the energy subsidies they grant. For example, Venezuela has raised prices at the pump for the first time since the 1990s to address the rising public deficit (24% of GDP).

Chart 5: Budget balance as a percentage of GDP



Source: IMF WEO October 2015 for Venezuela, national sources for Russia and Saudi Arabia, forecasts for 2015.

2.3 Transmission of the oil price slump to the financial sector

The decline in oil prices deteriorates the public finances of oil exporting countries. The main sovereign funds have scaled back their asset purchases, and in some cases have begun to sell off some of their assets to finance public deficits without increasing the debt burden excessively. These behaviours – more pronounced than in the past due to the magnitude of the price drop and expectations of lastingly weak prices – may have exerted downward pressure on the price of certain assets, especially bonds, as well as upward pressure on interest rates, which would penalise global growth. However, countries that are benefitting from lower oil prices can stimulate financial investments, which at least buffers the negative impact that a drop in oil prices can be expected to have on asset prices.

2.4 Moreover, the oil price slump could lead to lower inflation expectations, which complicates the task for monetary policy-makers

The fall in oil prices can trigger second-round effects on the overall price momentum that might run counter to the goals of the main central banks. The European Central Bank (ECB) defines that goal as "maintaining inflation at a rate below but close to 2% over the medium term." Even though central banks do not respond directly to oil price movements, they may be forced to intervene when the price movements create a deflationary environment. That kind of environment can be triggered by second-round effects with the oil price decrease spreading to other prices and to medium-term inflation expectations. The fear of this kind of scenario is part of what led the ECB to further loosen its monetary policy in March 2016. In a context where monetary policies are already very accommodating and benchmark interest rates cannot be lowered below certain thresholds, this loosening primarily requires the implementation of non-conventional measures that push central banks beyond their comfort zones.

2.5 An additional factor reducing the positive effects of lower oil prices for the global economy is the fact that the United States now has more exposure to the energy sector

The sharp rise in U.S. oil and gas production since 2009 has made the American economy more vulnerable to an oil price decline. American oil and gas production has levelled off since late 2014/early 2015 as a consequence of falling crude oil prices. In addition, investments in the energy sector have decreased (representing 5% of total investments versus nearly 10% during the period 2010-2014). The crisis in the energy sector also worsens the financial situation of oil and gas compa-

nies and the quality of banking assets. For example, the default rate for high-yield bonds issued by oil and gas operators in the United States hit 11.3% in December 2015 – the highest since 2000 when this

indicator was first established by *Fitch Ratings*. Nevertheless, the overall exposure of the American banking sector remains moderate.

3. Lower oil prices have upsides for the French economy

3.1 The oil price slump leads to a transfer of wealth from the rest of the world to the French economy

Oil price variations directly affect the French economy via the energy bill. With France being a net importer of petroleum products, a reduction in crude oil prices improves the energy trade deficit (see diagram, effect 1) and boosts national revenue. More specifically, an oil price drop has three separate consequences for the French energy bill, before any quantity adjustments: it decreases the cost of crude oil imported by the French economy; the cost of imported refined petroleum products; and the price of French exports of refined petroleum products.

While the Budget Bill for 2016 was based on a crude oil price assumption of USD 55 a barrel, oil prices continued to slide and stood at close to USD 38 a barrel at the end of March 2016. This trend could cut France's energy bill by as much as € 3 bn in 2015 and by about € 13 bn in 2016 (see Box 1). In the short term, about 40% of this windfall (about € 5 bn in 2016) should benefit households directly, in the form of lower prices at the pump. The rest of the windfall should benefit non-financial businesses via a reduction in the cost of their intermediate consumption of petroleum products. Government agencies will also see a decrease in their energy bill, but the windfall will be more marginal given that their activity is less oil-intensive.

Box 1: Quantifying the reduction in France's energy bill

The reduction in France's energy deficit thanks to the lower oil prices observed since the assumptions were defined for the 2016 Budget Bill (in October 2015) was evaluated using an accounting approach. This method entails passing the oil price reduction on to the cost of petroleum product imports and exports taken into account when preparing the 2016 Budget Bill, thereby determining how much of the improvement in the energy trade deficit can be attributed to the oil-price windfall. Applying this method results in a € 3 bn improvement in France's energy trade deficit for 2015 and € 13 bn for 2016 (in level terms).

However, it is important to realise that this method tends to overstate the reduction in the energy bill because the following mechanisms could limit the upside:

- there could be a lag in the adjustment of petroleum product import and export prices to oil price fluctuations;
- the drop in oil prices as compared to other prices can encourage households to consume more petroleum products, especially with the short-term purchasing power gains that results from the lower oil prices;
- macroeconomic feedback effects: lower oil prices have a beneficial impact on growth; this additional economic growth increases the energy requirements of production infrastructure and contributes to a rise in the quantity of petroleum product imports.

An evaluation method that takes these mechanisms into account would result in a somewhat smaller reduction in the energy bill than an evaluation based on the accounting approach.

3.2 Lower oil prices would quickly benefit business margin rates and support household purchasing power in the short and medium terms

The oil price slump benefits businesses by lowering their production costs, which automatically boosts the margin rates of non-financial businesses. However, the oil price decrease does not affect all sectors of the economy in the same way, and diffusion takes place in several stages.

In the short term, the sector that reaps immediate benefits from the drop in crude oil prices is the refining sector, because crude oil accounts for 65% of its intermediate consumption. However, the rise in refining industry margins would only be short-lived, as past trends indicate that the crude oil price drop is quickly passed on to refiners' production costs, which in turn leads to lower prices for

refined products (effect 2). Thus, the lower cost of refined products (whether produced in France or directly imported) benefits user sectors, particularly the ones with the most oil-intensive production processes: manufacturing (especially Chemicals and Plastics), agriculture and transportation. These sectors therefore see declining production costs and their corollary, rising margins, over the short term.

In the medium term, the crude oil price drop is gradually transmitted to the rest of the economy as the sectors directly affected pass the windfall from their intermediate energy consumption on to their selling prices (effect 3). Sectors further downstream in the production chain thus benefit indirectly from the decline in oil prices via the drop in the cost of their own intermediate consumptions (effect 4). The pace at which the directly affected sectors transmit the price reductions to their selling prices is a key determinant of the

macroeconomic effects that the oil price decrease will have: if the pass-through happens quickly, the oil price decline spreads rapidly to the economy as a whole but the rise in margins is only short-lived. Conversely, if the pass-through happens more slowly, then the increase in margins will last longer, but the windfall from the lower energy bill only benefits a small number of sectors.

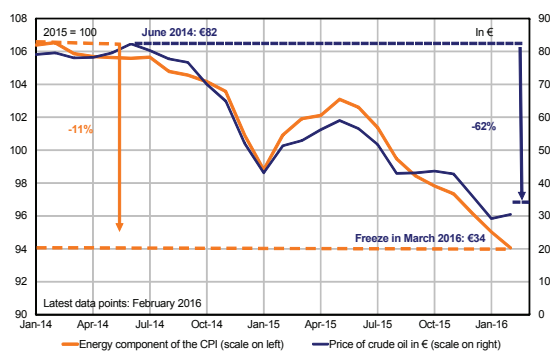
The oil price decline is beneficial to household purchasing power in the short and medium terms, via several transmission channels over time.

Initially, households **benefit directly** from a share of the energy bill windfall by paying a lower price for the petroleum products they consume (see Charts 6 and 7) - mainly motor fuels and heating oil (effect 5 on the diagram). For example, prices at the pump have taken a dive in recent months, and this is the main source of

households' purchasing power gains over the short term (effect 6).

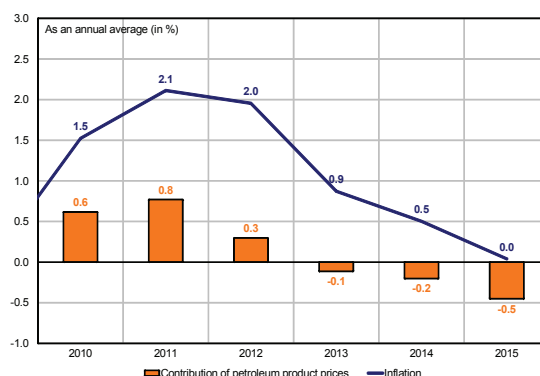
The drop in oil prices also delivers **indirect benefits** to households in particular through goods and services whose prices are indexed to crude oil prices, or which involve an oil-intensive manufacturing process (effect 7). First, the oil price slump affects all energy products, particularly gas prices, through wholesale gas prices because gas suppliers have historically obtained their supply from producers according to pricing formulas pegged to crude oil and futures prices. Next, oil-intensive sectors such as transportation will probably pass on to their selling prices at least part of the windfall on the cost of the intermediate energy used during their production process. Finally, the fall in oil prices helps to moderate rental increases due to specific indexing mechanisms. However, except for energy products, these indirect effects appear much more limited than the direct effects.

Chart 6: Oil price and energy price index



Sources: INSEE.

Chart 7: Contribution of petroleum product prices to inflation



Sources: INSEE.

Over the medium term, lower oil prices would lead to "second-round" effects tied to the wage response to the falling inflation rate and a slower rise in inflation-indexed benefits. This would moderate gains in household purchasing power. Over the long term, real wage levels depend on productivity. Thus, although the downward shock on consumer prices triggers a short-term rise in real wages, it should then lead to a deceleration of nominal wage growth such that real salary levels will realign with productivity levels (effect 8). This slowdown could be more or less pronounced depending on the mechanisms for adjusting wages to prices (an example being the rules for indexing minimum wage). Similarly, the rules for indexing social benefits to inflation would lead to a slowdown in the social transfers received by households (perhaps with a few months' lag). The slower rise in wages and social benefits due to the lower rate of inflation would temper household purchasing power gains (effect 9).

Household purchasing power gains would lead to a gradual rise in consumption, which would revitalise internal demand and accelerate growth. In the short term, households would use some of their additional purchasing power to increase their consumption. The remainder of their "surplus" would not be allocated to immediate consumption, but rather to an increased rate of savings, which would be gradually resorbed. On the whole, this improved economic situation would encourage an uptick in investment and result in higher employment.

3.3 The fall in oil prices also affects our trading partners, generating external effects on the French economy

Lower oil prices have a favourable effect on global demand for French goods and services⁴ because most of our trading partners are oil-importing countries. Oil exporters are seeing their income decline, which hurts the exports of their main trading partners. In contrast, oil-importing economies

are benefiting from lower crude oil prices, thus strengthening internal demand and stimulating their demand for imported goods. As France's exports are mainly targeted at oil-importing countries (OPEC members and Russia accounted for a mere 6% of France's exports in 2014), the oil price shock has a generally positive impact on external demand for French goods. This result is confirmed by NiGEM simulations.

Lower oil prices can have a negative effect on France's competitiveness compared to its competitors. The impact of oil price variations on an economy's price competitiveness depends on the variation of domestic prices relative to prices applied by rival countries. The French economy is less oil-intensive than its main competitors (notably the United States, Japan or Spain). Consequently, as a result of the fall in oil prices, exporters in these countries can cut their selling prices to improve their export competitiveness (effect 11) more than French exporters are able to do (effect 10). This in fact undermines the price competitiveness of France's exports. Thus, the impact of our trading partners' higher demand for our exports is dampened by the fact that the oil price collapse has less of a disinflationary effect in France than in the countries competing for the same export markets.

3.4 The oil price plunge observed since the presentation of the 2016 Budget Bill in September 2015 could account for 0.1 point of additional GDP in 2016 and 0.15 point in 2017

Since the presentation of the 2016 Budget Bill, oil prices dropped by about USD 17 (crude prices hovered around USD 38 in early March 2016 versus the initial crude price assumption of USD 55). **Based on an evaluation carried out by combining the**

Mésange model with the NiGEM model (a "realistic" version that makes it possible to consider the effects on the rest of the world), **this crude oil price decline accounts for 0.1 point of additional GDP in 2016, and +0.15 point in 2017.** Estimations made using other models led either to higher impacts (as with the NiGEM model alone⁵ or the European Commission's QUEST model⁶) or to lower impacts (for example, estimations by the ECB in an article published in 2010⁷).

During the same period, this drop in crude oil prices would reduce inflation by about 0.6 point in 2016 by the two channels described earlier: "direct effects" would account for about 2/3 of the reduction and "indirect effects" for about 1/3.

3.5 The effects of the oil price drop could nevertheless develop at a rate different from the one usually observed

The current financial situation of businesses and the savings behaviour of households could alter the effects of the oil price decrease. Businesses' post-crisis margin rates are still at a lower level than their pre-crisis average. In addition, their ratio of financial debt to added value hit an all-time high in 2014. Accordingly, it is possible that businesses will allocate a larger share of the "surplus" margins achieved thanks to lower oil prices to paying down their debt. Although improving their financial situation would enable businesses to rebuild their investment capacities over the medium term, it would be less favourable in terms of short-term growth. In contrast, households, after sharply increasing their rate of savings in 2015, could allocate more of the oil-price windfall purchasing power gains to immediate consumption, especially if economic uncertainties are dispelled sooner rather than later.

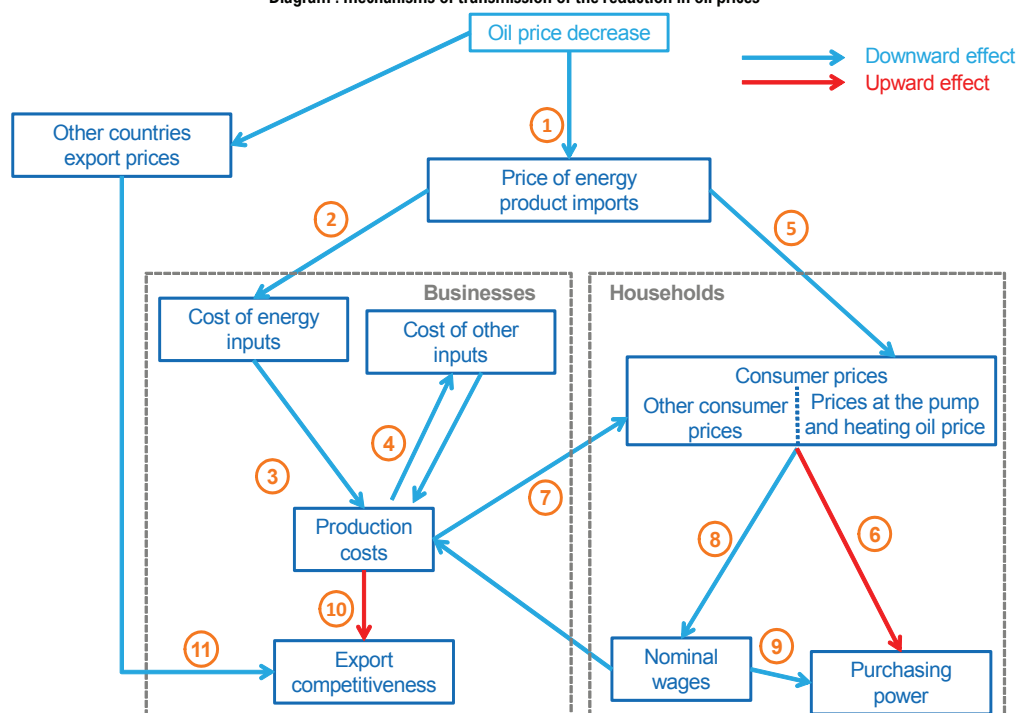
(4) Especially in the present case where the oil price plunge is considered to be a supply shock. If low crude oil prices were believed to stem from weak demand, then the upside in terms of world demand for French goods and services would have to be nuanced.

(5) Notably due to a strong endogenous reaction of monetary policy in NiGEM and a somewhat less precise modelling than in the Mésange model of how the energy factor affects the different behaviours (especially imports).

(6) "Quarterly Report on the Euro Area", 2nd quarter 2011. The Commission presents a negative impact of 0.2 point on European GDP in the year when crude oil prices rose by USD 8, in the case of a supply shock.

(7) "Energy markets and the euro area economy", *Occasional Paper series*, European Central Bank, June 2010.

Diagram : mechanisms of transmission of the reduction in oil prices



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