

Changes in Oil Price and Economic Impacts

Chloé Le Coq and Zorica Trkulja, SITE.
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Oil has for decades been perceived as a necessary and highly addictive energy commodity fueling the world economy. Oil is a crucial input good for most of the net-oil consumer countries, and is an important source of revenue for net-oil supplier countries. This means that a change in the oil price will affect the entire world economy. However, the extent to which oil-price fluctuations matter for the economy depends on the perspective (e.g. that of the macro economy, international trade, firm strategy, or climate economy). In this policy brief, we outline some answers to this question, which were provided at the 9th SITE Energy Day, held at the Stockholm School of Economics on November 5, 2015. This policy brief outlines different answers provided during this event.

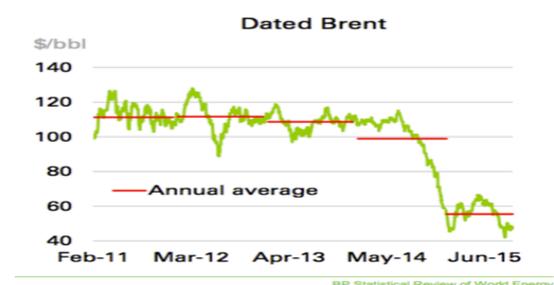
Introduction: Oil Consumption and Price Level

Oil is often perceived as a necessary and highly addictive energy commodity for the global economy. Both oil-consuming and oil-supplying countries are economically dependent on oil. Therefore, any change in the oil price is prone to affect both sides of the market. Moreover, because the oil market can be viewed as a global and liquid market, the world market price for oil is the reference price for many market participants. This implies that many non-oil, but oil-related, markets are interlinked. A change in one of them is therefore likely to affect the others. Finally, the oil market's dynamics have the tendency to change dramatically due to technological changes and political events, resulting in price fluctuations affecting the entire world economy.

It is important to note that there are two different aspects of oil-price changes. As seen in Figure 1, besides a sharp fall in the price level from May 2014 and onwards, the oil

price tends to be highly volatile and unstable throughout the year.

Figure 1. Price Level vs. Price Variability



Source: BP (2015)

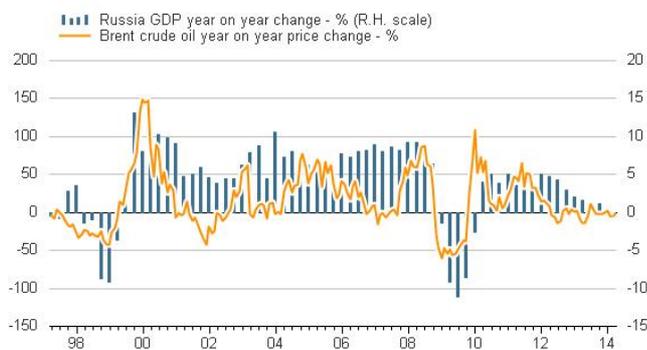
It is unclear whether the level of oil price matters more than the price variability itself when understanding and estimating the economic impacts of oil price fluctuations. This issue was the focus of this year's SITE Energy Day, a half-day conference organized by the Stockholm Institute of Transition Economics (SITE) on November 5, 2015. This policy brief summarizes the discussions on the effects of changes in the oil price level and its variability on macroeconomic fundamentals, international trade, the opportunities to

establish a “green” economy, as well as on the strategy of participants of oil-related markets.

The Effects on the Budget of Oil Consumers and Producers

From a general point of view, the oil price level affects both consumers and suppliers. An oil-consuming country is generally better off with decreasing oil prices, since oil is often a crucial input good in production. As mentioned by **Torbjörn Becker**, Director of SITE, the effects on oil exporters are less clear. A sharp fall in the oil-price level implies declining oil revenues and could deteriorate the budget of oil-producing economies. Figure 2 illustrates the relationship between the oil price and the GDP of a large oil exporting country, namely Russia. As can be seen, there is a positive correlation, although not a perfect one.

Figure 2. The Relationship between Oil Prices and GDP in Oil-Exporting Russia



Source: The Malaysian Insider, March 26 2014

Taking the firms' perspective, the level of the oil price also affects oil-related firms such as retailers or financial actors. **Matteo Manera**, Professor at the University of Milano-Bicocca and Fondazione Eni Enrico Mattei, focused on the relationship between the international price of oil and local retail fuel prices. He discussed the tendency of an asymmetric price transmission between these two sectors, with

an immediate increase of retailer prices in the case of international oil-price increases, but with a much smoother response to oil price decreases (see Bastianin, Galeotti and Manera (2014) for an in-depth analysis on this topic).

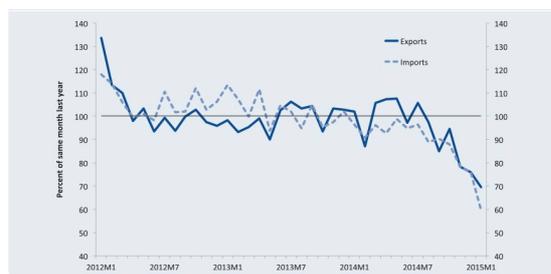
The Effects on International Trade

Natalya Volchkova, Policy Director of CEFIR (Moscow), stressed that any changes in the oil price level affect the economy not only in a nominal way, but also in a structural manner. A change impacts the cost of production in all industries and sectors, as well as the disposable income in the country, but it also affects the exchange rates and the overall uncertainty. This, in turn, affects exports, imports, current accounts, the comparative advantage of countries, as well as the global value chains. In an economy where labor, capital and energy are inputs to production, and capital/labor and energy are complements, a sudden oil price increase is likely to be compensated by labor adjustments. Thus, there might be a structural effect on employment, affecting the entire economy.

Furthermore, there are also large exchange rate devaluations associated with a drop in oil prices, creating import substitution and export expansion for oil-exporting countries like Russia. Lastly, Volchkova concluded that the negative effects of oil price shocks on trade balances could be dealt with by suitable policy measures diversifying the commodity composition of trade as well as the geographical composition of trade partners.

The case of Russia is again an interesting one to consider. As illustrated in Figure 3, both exports and imports in Russia have decreased since July 2014 – after the sharp fall in oil price occurred.

Figure 3. Exports and Imports in Russia 2012-2015



Source: Becker (2015)

In addition, there are also direct externalities of oil-price changes on the trade between Russia and Commonwealth of Independent States (CIS) countries. Becker mentioned that the CIS countries' share of trade with Russia has decreased by 40% between June 2014 and 2015, which is a larger fall than the sanctions-related fall of 34%. Many of the CIS countries have strong export relationships and financial ties with Russia, which together make up a large share of their respective GDP. For instance, remittances from workers in Russia to countries in the CIS-region have fallen substantially during the last year. This, Becker concludes, shows that countries outside the energy-exporting sector fare badly when oil prices fall due to their trade and investment links with oil exporters. This conclusion can also be seen in Table A below, where the net energy-importing countries show real GDP decreases in 2014 and 2015.

Table A. Low Oil Price, Real GDP and Consumer Prices of Russia and CIS-Countries

(Annual percent change, unless noted otherwise)

	Real GDP			Consumer Prices ¹		
	2014	2015	2016	2014	2015	2016
Commonwealth of Independent States⁴	1.0	-2.7	0.5	8.1	15.9	8.9
Net Energy Exporters	1.5	-2.3	0.4	7.5	13.9	8.4
Russia	0.6	-3.8	-0.6	7.8	15.8	8.6
Kazakhstan	4.3	1.5	2.4	6.7	6.3	8.6
Uzbekistan	8.1	6.8	7.0	8.4	9.7	9.2
Azerbaijan	2.8	4.0	2.5	1.4	5.0	4.2
Turkmenistan	10.3	8.5	8.9	6.0	7.0	6.0
Net Energy Importers	-2.6	-5.5	1.1	12.2	30.9	12.6
Ukraine ⁵	-6.8	-9.0	2.0	12.1	50.0	14.2
Belarus	1.6	-3.6	-2.2	18.1	15.1	14.2
Georgia	4.8	2.0	3.0	3.1	3.7	5.0
Armenia	3.4	2.5	2.2	3.0	4.3	3.4
Tajikistan	6.7	3.0	3.4	6.1	10.8	8.2
Kyrgyz Republic	3.6	2.0	3.6	7.5	8.3	9.0
Moldova	4.6	-1.0	1.5	5.1	8.4	7.4

Source: IMF World Economic Outlook October 2015

The Opportunity to Engage in Energy Reform

A change of the oil-price level impacts the fueling countries' economies as well as their trade partners, but it also affects the trade-off between "dirty" and "green" energies. According to **Luca De Lorenzo**, Senior Researcher at the Stockholm Environment Institute (SEI), cheaper oil shapes opportunities for a transition to a new climate economy and for reforming energy markets. Based on Klevnäs, Stern and Frejova (2015), De Lorenzo mentioned that there is an opportunity to engage in reforms of the energy market while oil prices are low. He pointed out that low oil prices might be an opportunity to "correct the course": When the price of oil is low, the time for energy transition is right. De Lorenzo suggested removing oil subsidies and introducing a price of carbon as a short-term measure to make this transition happen. Moving away from fossil fuels will also be a way to avoid the usual swings in commodity prices.

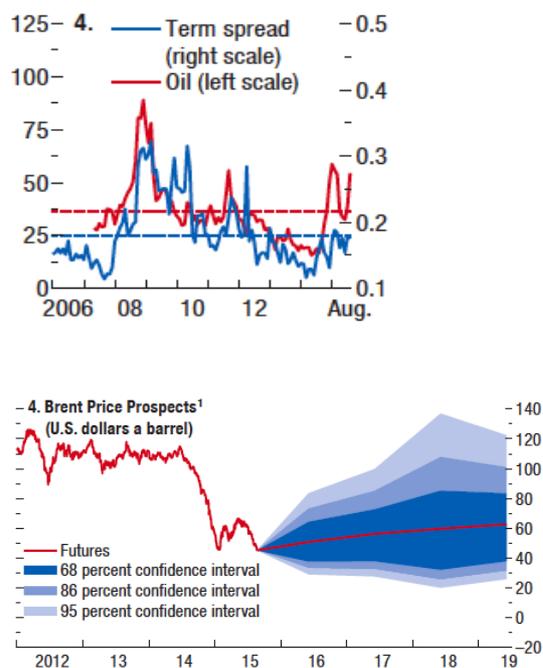
From Price Variability to Price Uncertainty

So far, we have discussed how economies are affected by a change in the oil-price level. However, some might argue that it is rather the oil-price variability and the uncertain forecast possibilities of the oil price that hurt the economy.

The oil price is indeed difficult to predict. As an example, Becker illustrated the growing uncertainty of future oil prices with the large width of the confidence intervals of the IMF's World GDP growth projections in their latest World Economic Outlook (IMF, 2015). The price per barrel fluctuates within an interval of \$20 per barrel to up to \$140 per barrel in the 95% confidence interval (see Figure 4, lower panel). Becker argued that there is a lot of

uncertainty regarding the supply side in the future, and related this back to the large volatility observed in the oil price during the past months. The difficulty of predicting the oil price poses major challenges for policy makers around the world in making their forecasts.

Figure 4. Volatility in Oil Prices in the Past and in the Future



Source: IMF World Economic Outlook October 2015

As pointed out by Becker, a country will, irrespective of its stand as an oil importer or an oil exporter, be affected by the uncertainty in oil prices due to its trade and capital-flow links with other oil-exporting countries. Moreover, international trade is affected by the uncertainty and volatility of oil prices in terms of increased risks facing both importers and exporters. Volchkova mentioned that the competitive advantages of both net-oil exporting and net-oil importing countries could fall quite substantially as a result of oil-price fluctuations (Aziz, 2010).

Financial institutions are perhaps best equipped to deal with oil-price uncertainties and volatility. This point was discussed by **Hubert Roslund**, Senior Strategic Risk Manager at Nordea. Roslund proposed an

“analytical toolbox” that would equip financial institutions with the tools needed in order to deal with external risks connected to fluctuations in the oil price. This toolbox would consist of two main approaches, where the first would involve reduction of the portfolio in relative terms by selling off the exposure to oil. The second, and more ambitious approach, would be to have long-term plans and to start preparing back-up plans as well as amortizations and repayment plans even if the organization is satisfied with the prevailing risk levels.

Conclusion

A change in the oil-price level as well as its variability poses many challenges to a diverse range of actors in the global market: Governments and institutions meet increasing difficulties in predicting the oil price and reacting to its changes; financial institutions have put forth specific efforts to hedge themselves from the risks associated with variability in oil-prices; and globalization and international trade fares badly in times of large oil-price variability. While researchers have put much effort into refining the techniques for predicting the oil-price level, challenges to forecast it accurately still remains.

The overall effect of changes and uncertainties in oil prices on the economy as a whole depends on many parameters, including a country’s position in the oil market, its degree of competitiveness, the very composition of its competitive advantage, as well as the specific nature of the oil price shock.

Importantly, the effects of severe oil price changes do not have to be only negative. Low oil price opens up for the opportunity to “correct course” through investments in greener technology and energy systems. In this way, economies might be able to hedge themselves from the harm that oil price fluctuations make to their markets and

economies — irrespective of their stand as oil consumers or oil importers — and simultaneously take steps towards building a new climate economy.

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Chloé Le Coq

Ph.D., Assistant Professor

Stockholm Institute of Transition Economics (SITE)

Chloe.LeCoq@hhs.se

<https://www.hhs.se/SITE>

Chloé Le Coq is an assistant professor at the Stockholm School of Economics at the Stockholm Institute of Transition Economics (SITE) since 2007. Her main research interests are industrial organization and behavioral economics. Her current work focuses on consumer financial behavior, experimental analysis of energy markets, financial and non-financial support for social enterprises.

Zorica Trkulja

Research Assistant

Stockholm Institute of Transition Economics (SITE)

Zorica.Trkulja@hhs.se

<https://www.hhs.se/SITE>

Zorica Trkulja is a research assistant at the Stockholm institute of Transition Economics (SITE) since August 2015. She holds a MSc in Economics from the Stockholm School of Economics, since June 2015. Her main research interests are development economics, environmental economics and political economy.