

The Impact of Higher Oil Prices on Low Income Countries and the Poor: Impacts and Policies

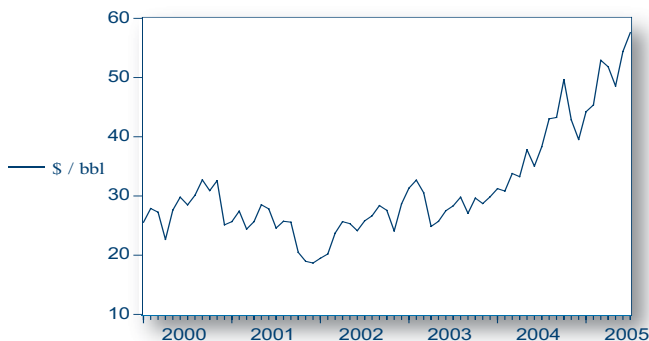
by Robert Bacon

This note is designed to provide a brief of how the current oil price increases are expected to impact low income countries and poorer households. By tracing the transmission mechanisms of the shocks it points to areas where mitigating policies for the present and for the future can be focused.

THE OIL PRICE SHOCK

Oil prices have climbed steadily from a monthly average low of US\$ 18.7 a barrel for Brent crude in December 2001 to a peak of \$57.6 in July 2005 (figure 1).

Figure 1: Monthly Average Price for Brent in US\$ per barrel



Such a large percentage increase, in a commodity that is a major import for many countries and an even more dominant export for several oil producing countries, can be expected to have major impacts on low-income countries and on poor households.¹

To appreciate the magnitude of this impact, and to formulate policies to ameliorate these effects, a number of key questions need to be asked.

¹ *Understanding Oil Prices*. Christopher Gilbert, presentation at the World Bank, February 2005.

² Methodology and calculations based on a World Bank study carried out by DEC prospects group.

ESMAP is a global technical assistance program managed by the World Bank Water and Energy Department that promotes the role of energy in poverty reduction and economic growth in an environmentally responsible manner. Its work applies to low-income, emerging, and transition economies and contributes to the achievement of internationally agreed development goals.



This paper addresses these questions and raises a number of issues to better understand the possibilities for reducing vulnerability to oil shocks, and the policies for encouraging this.

How large is the effect of the recent oil price rise on developing countries and do the lowest income countries suffer the most?

The direct effect on an economy is felt through the worsening of the balance of payments and the subsequent contraction of the economy required to restore balance of payments equilibrium. The impact of the shock is proportional to the percentage rise in oil prices times the ratio of net imports of oil and oil products to GDP. Based on a starting price of \$23 a barrel, the impacts of a sustained \$10 a barrel increase were calculated for 131 countries, and the results are shown in Table 1.²

Table 1: Percentage Change in GDP Required by a US\$10 a Barrel Rise in Oil Prices (grouped by income levels)

Per capita income (1999-2001 US\$)	% change in GDP
Net Oil importers	
< 300 [18 countries]	-1.47
> 300 and < 900 [22]	-0.76
>900 and < 9000 [36]	-0.56
> 9000 [21]	-0.44
Net oil exporters	
< 900 [10]	+5.21
> 900 and < 9000 [17]	+4.16

In addition, world GDP is expected to be reduced by about 0.5 percent of where it would have been without the shock, so that most countries will suffer a further reduction in GDP as their exports decline. The table shows that the lowest income countries experience the largest proportionate loss of GDP, being most dependent on oil imports. Oil exporters experience very large gains. With a sustained price rise of \$20 a barrel relative to 2003 the figures in the above table would be doubled.

Which policies will mitigate the effects of higher oil prices on GDP?

To deal with the current shock, governments have little room for maneuver in the short run. The use of foreign exchange reserves and increased borrowing or grants may give short term relief for countries in a favorable position, but this is not a sustainable option.

Countries need to look for policies that gradually reduce the impact of the current shock and that strengthen their ability to weather future shocks.

- Growth will provide a reduced vulnerability since there is a tendency for the share of oil imports to decline as incomes rise, but this effect is weak and requires very sustained and substantial growth to have a large effect. An increase in per capita income of \$1000 is calculated to reduce the impact of \$10 a barrel oil shock on GDP by 0.04 percentage points.



- Hedging against future oil shocks is a policy untried by oil importing countries and unlikely to provide long term effective relief. It also requires substantial domestic capacity to oversee such a program and could prove very expensive if poorly managed.
- The vulnerability of oil importing economies to oil shocks is related to the degree of oil self sufficiency, the degree to which the economy depends on oil as a primary fuel, and the average level of energy intensity. Policies related to the impact of these factors can reduce, over the long run, the vulnerability of the economy to the present and future shocks. Where these factors are responsive to the market signal of higher oil prices, then less intervention by the government will be required to encourage further changes.

How large are price elasticities of demand for oil? Will the market signal result in a rapid reduction in oil import dependence?

- Evidence for both developed and developing countries indicates that the short run own price elasticities of demand for oil are extremely low, being in the range of 0.05, so that in the first year of a sustained oil price rise the demand for oil may fall only five percent in response to its increased costs. This indicates that oil users (whether households or businesses) will experience the full force of the oil price rise, unless domestic prices are subsidized by the government.
- Over the longer run, price elasticities for O.E.C.D. countries may be as high as 0.5, but the limited evidence for developing countries suggests that much smaller responses are typical, with the elasticity being as low as 0.2. Such low values indicate a weak market response to higher oil prices and a need for active policies to reduce oil dependence.

What policies are available to reduce oil import dependence?

- At present some 54 countries are substantial oil producers, with 19 producing more than one million barrels a day. There is global interest by oil companies (from developed and developing countries) in increas-

ing production, so the challenge for governments, where there are oil prospects, is to obtain beneficial deals for the country, and to ensure that the resulting oil revenues are used for the benefit of the country. Responsible fiscal management, which may include the creation of dedicated oil funds, and transparency of oil revenues are two key elements in this approach.

- Dependence on oil as a source of primary energy is very weakly correlated with the level of GDP, so that the portfolio of energy inputs is largely determined by other factors. Substitution to other fuels may be limited by the extent to which fuel prices tend to move together – gas in particular tracks the oil price closely – resulting in little market incentive to switch fuels. The size of the recent oil price increase may give opportunities for the exploitation of renewables, hitherto not financially viable without sustained subsidies. Policies to enable such applications to get started, through access to capital, start up grants, and improved information, can complement the market incentives now being experienced.
- The volatility of oil prices (as distinct from changes in the trend) has an important effect on decisions to diversify energy inputs. Until there is increased certainty that current prices are likely to be permanent, firms (especially small and medium size enterprises) and households will be reluctant to incur the capital costs of changing fuel source, and governments equally reluctant to provide infrastructure opening the market to different fuels (especially gas and coal). Recent estimates suggest that around 50 percent of oil price changes are “transitory”.
- Energy efficiency has slowly but steadily improved since the oil shocks of the 1970s and 1980s, but surprisingly there is only a weak correlation between energy efficiency and the level of GDP per capita taken across the sample of 131 countries surveyed. Policies to complement the disincentives of higher fuel prices are required, but these need to result in outcomes that are sustainable without permanent financial support. Country based studies are required to identify where there are opportunities for efficiency and hence which policies might be appropriate.



Do lower income households feel the effect of higher oil prices proportionately more than better off households?

Households are affected by the rise in petroleum product prices (which respond to higher oil prices unless subsidized by the government) both directly through their purchases of kerosene, LPG and gasoline, and indirectly through the impact of transportation fuel prices on transport costs, and of higher transport costs on processed food prices etc. Studies based on analysis of the impact of higher energy prices on the prices of all goods, and the impact of these prices increase on household expenditures, indicate that the lowest income groups do indeed suffer the greatest proportionate rise in their cost of living. Table 2 (see page 4) presents data for the highest and lowest decile groups for a projected series of product price increases in Yemen, and indicates that the poorest suffer proportionately twice as much as the highest income group.³

Data from other studies confirms that kerosene prices are especially important for the poorest households, as well as the indirect impact of changes in diesel prices, so that low income groups tend to be impacted most by changes in world oil prices.

³ Household Energy Supply and Use in Yemen. ESMAP report, December 2004.

Table 2: Estimated Percentage Changes in Household Expenditure for Decile Groups in Yemen

	Kerosene	LPG	Direct Diesel	Indirect Diesel	Total
Decile 1	2.4	6.5	0.4	5.1	14.4
Decile 10	0.1	2.0	1.6	3.4	7.1
% price increase	152	211	134	134	

What policies could mitigate the impacts of higher oil prices on low-income households?

- Many governments are already subsidizing petroleum products, holding prices below import or export parity. In November 2004 some 32 countries (out of a sample of 171) had diesel prices at least US 5¢ below the parity of 42¢ a liter (the most extreme were charging only 1¢ or 2¢ a liter), and many more were giving smaller subsidies. As international oil and product prices rise, governments are faced with the choice of increasing the subsidy, thus protecting households and businesses but worsening the fiscal balance, or suddenly exposing households to a large increase in the cost of living. In the longer run, failure to expose households and businesses to market prices results in over-consumption and higher energy bills, thus worsening the impact of future shocks.
- Targeted subsidies for liquid fuels, aimed at supporting the lowest income households, are difficult to apply successfully. Across the board subsidies for kerosene benefit all income groups since kerosene can be used to adulterate transportation fuels, and liquid fuels are relatively easy to smuggle, thus increasing demand and the cost to the government. Voucher schemes require accurate household targeting, and

efficient distribution systems, which is difficult in many low income countries.

- Where calculations reveal that the impact of the higher oil price is indeed having a major effect on low income groups the simplest approach for the government may be to utilize some form of income related support, which avoids the problems referred to above.
- Where governments decide to remove petroleum product subsidies in an attempt to introduce a response to market signals, experience has shown in a number of countries that this is politically a very contentious issue, often provoking reaction from the better off as well as the less well off. A well articulated and publicized policy is needed to try to gain consumer support. In particular, it is easiest to reduce subsidies when world prices are falling by reducing domestic prices by less than the international price, and then adopting a strategy of gradual adjustment to a full removal of subsidies.

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