Research Paper Economics

Developments of Petroleum and Oil Industries- Recent Developments in Indian Context

*Dr.K.Kmarjakan

* Asso. Professor and Research Advisor PG and Research Dept. of Economics Urumu Dhanalakshmi College, Tiruchirappalli

Introduction

Most-countries subsidises (and tax) oil in one way or another, but they vary greatly in size—in absolute terms and relative to taxes. Estimating their size depends heavily on definitions and methodologies. Differences in definitions make comparisons of individual studies of the size and impact of oil and other energy subsidies in specific countries or regions difficult. For example, some studies include even the cost of defending oil supplies from the Arabian Gulf, which greatly adds to the overall size of subsidies.

Hard data on energy subsidies is extremely patchy. Few studies have attempted to quantify subsidies for the world as a whole, because of data deficiencies and the sheer scale of the exercise. The most comprehensive studies are now somewhat dated. What is dear from the evidence available, however, is that subsidies are much higher in non-OECD countries than in the OECD. A major study carried out by the World Bank in 1997 put fossil-fuel consumption subsidies alone at $48 billion in twenty of the largest countries outside the OECD and $10 billion in the OECD. The 1999 World Energy Outlook, which examined eight of the largest non-OECD countries covering almost 60% of total non-OECD energy demand, put the total value of energy subsidies in those countries—as measured by the difference between actual and estimated market prices—at around $95 billion. The bulk Energy Pricing

of these subsidies went to electricity and coal. End-use prices were found to be on average about one-fifth below market levels in those countries. A subsequent IEA/EAD review of OECD subsidies in 2000 estimated total OECD energy subsidies at $20-30 billion. Subsidies, both in gross terms and net of taxes, have fallen over the last two decades in most OECD and non-OECD countries in aggregate. Global consumption subsidies dropped by more than half in the five years to 1996 according to the World Bank. The biggest reduction has occurred in the transition economies and in China, where coal subsidies have been largely phased out.

OECD countries mainly subsidise energy production. OECD subsidy ijviu , policies take various forms, from direct grants to cover losses in coal production and tax allowances for fuel producers to price support and loans at low interest rates or favourable conditions to domestic producers. Publicly funded R&D accounts for $10 billion. The bulk of OECD subsidies go to fossil fuels and most of the rest to nuclear (mainly through R&D). Coal subsidies, as estimated using the. IEA's PSE, amounted to around $7 billion in 2001 (the last year available), but are thought to have declined since. EU state aid to the coal industry was C6.3 bilhon in the same year. Germany still accounts for the bulk of these subsidies. Around 7% of OECD coal production was subsidised at the start of the current decade. A 2000 DOE study put US federal energy subsidies at $6 billion, with half going to fossil fuels and only 5% to renewables. But another study by Koplow and Martin, commissioned by Greenpeace, puts oil industry subsidies alone at between $5 billion and $12 billion. An earlier Greenpeace study estimated total European Union energy subsidies during the first half of the 1990s at $16 billion, of which 63% went to fossil fuels, 28% to nuclear and a mere 9% to renewables. The share of renewables in total OECD energy subsidies has undoubtedly increased sharply in recent years, but comprehensive figures are not available.

In non-OECD countries, most energy subsidies go to consumers— usually through price controls that hold end-user prices below the full cost of supply. Electricity is thought to be the most heavily subsidised form of energy. Oil is heavily subsidised in some countries, notably Iran and Indonesia. As quantified in WEO-2005, Iran subsidies oil product sales to the tune of $11 billion in 2003, with a further $3 billion going to electricity and almost the same amount to natural gas. In 2003, energy subsidies in Iran were equal to 10% of GDP—by far the highest share in the world. Oil subsidies in Indonesia averaged $6 billion per year between 2000 and 2005 according to a recent study by the Asian Development Bank. With the recent increase in world prices, Indonesian oil subsidies are thought to have ballooned to over $7 billion in 2004 and more than $12 billion in 2005— equal to 5% of GDP and almost a third of total government spending. Iranian and Indonesian subsidies to oil alone are equivalent to perhaps all energy subsidies in OECD countries as a whole.

China is an exception among developing countries, in that oil subsidies go mainly to production. These were running at $4 billion per year in the 1990s. While wholesale and retail oil product prices remain regulated, retail taxes more than offset any embedded subsidies: retail gasoline and dicsel prices including taxes are currently close to US levels. Wholesale prices have recently ways that do not involve subsidizing energy. Depending on the type of subsidy, the loss of economic efficiency is manifested in one or more of the following ways:

Subsidies to consumption and/or production, by lowering end-use prices, lead to higher energy use and reduced incentives to conserve or use energy more efficiently. An extreme example is the disregard for energy efficiency in housing blocks in Russia and other transition economies during the Soviet era, which resulted from a failure to price heating services properly—in some cases, not at all. The situation has improved in the past decade. In Hungary, for instance, spending on energy efficiency jumped from $5-10 million to $80 million per year after consumer price subsidies were removed in 1997. But subsidies and waste persist in most other transition economies.

By reducing the price received by producers, a subsidy may undermine energy providers' return on investment and, consequently, their ability and incentive to invest in new infrastructure. As a result, the subsidy may encourage reliance on out-of-date and dirtier technologies. The dire financial straits of energy companies and the resulting underinvestment, in several developing countries, such as the state electricity boards in India, are largely due to under-pricing.

Subsidies to producers, by cushioning them from competitive market pressures, tend to reduce incentives to minimize costs, resulting in less efficient plant operation and investments that may otherwise not be economic. Subsidies on coal production in several OECD countries have hampered efforts

to improve productivity in past decades.

Direct subsidies in the form of grants or tax exemptions act as a drain on government finances. For example, the IMF estimates that the Iranian Government's direct spending on energy subsidies amounted to $4 billion in 1997-98 per cent of its budget. Direct subsidies on oil products can lead to acute pressure on the government budget during periods of rising prices. In the long run, indirect subsidies that reduce economic growth also lead to lower tax revenues.

Price caps or ceilings below market-clearing levels may lead to physical shortages and a need for administratively costly rationing arrangements. This is the case in India, where subsidized oil products are rationed. By increasing energy use, consumption subsidies boost demand for imports or reduce the amount of energy available for export. This harms the balance of payments.

Economic, Social and Environmental Effects
A subsidy by its very nature involves and energy supply security by increasing the country's dependence on imports. The Indonesian Government, for example, estimates that energy subsidies will cost the country $16 billion in lost export earnings over the five years to 2005 if they are left as they are.

Subsidies to specific energy technologies inevitably undermine the development and commercialization of other technologies that might ultimately become more economically and environmentally attractive. In this way, subsidies can 'lock in' technologies to the exclusion of other, more promising ones. Some of these costs are ultimately borne, at least in part, by the intended beneficiaries of the subsidies as well as the rest of society. And not all of these costs disappear straight away with the removal of subsidies because it can take a long time to replace the stock of energy-supply and combustion equipment.

Social Implications
The social implications of energy subsidies vary according to the type of subsidy. Subsidies to modern cooking and heating fuels, such as kerosene, LPG and natural gas, as well as electricity are common in developing countries. They are aimed at improving poor households' living conditions by making those fuels more affordable and accessible. Where they result in switching from traditional fuels and improved access to electricity, those subsidies can bring considerable benefits to poor communities. In reality, however, these subsidies often benefit mainly the energy companies, equipment suppliers and the better-off households, especially in the towns and cities, and, in some cases, may not even reach the poor at all. As a result, many energy-sub sidy programmes intended to boost poor households' purchasing power or rural communities' access to modern energy through lower prices can, paradoxically, leave the poor worse off, since the costs are shared by the entire population including the poor. There are three main reasons for this:

The poorest households may be unable to afford even subsidized energy or may have no physical access to it, for example when a rural community is not connected to the electricity grid. Even if the poor are able to benefit from an energy subsidy, the financial value to them may be small since their consumption is generally modest. Higher income households tend to benefit much more in nominal terms since they consume more of the subsidized fuel.

Consumption subsidies that involve the imposition of caps on prices below market levels may lead to a need for rationing. Middle and higher income households tend to get hold of the bulk of subsidized energy in countries where it is rationed, through petty corruption and favouritism. Price caps, where they have led to big differences in prices with neighbouring countries, have also encouraged smuggling in some parts of Africa and Asia.

Subsidies can hurt the interests of poor people in other ways too. In practice, energy subsidies often go to-large capital-intensive projects, such as hydroelectric dams, at the expense of local, small-scale labour-intensive alternatives, such as biomass burners. The construction of dams usually involves displacing communities, although the improved availability of elective power and water for irrigation can bring important social benefits as well. Subsidies to large-scale thermal power plants, oil refineries and gas-processing plants affect poor households close to those facilities most, since they are usually less able to move to avoid local pollution and safety risks.

Environmental Effects
The environmental effects of introducing and maintaining energy subsidies are complex. They can be positive and negative, depending on the precise nature of the subsidy and energy source. Subsidies that encourage the production and use of fossil, fuels inevitably have some harmful consequences for the environment. Consumer subsidies that lower the price paid for those fuels or the cost of using them, mean more gets used, which can lead to higher airborne emissions of noxious and/or greenhouse gases. Higher fossil-fuel production can also damage the environment directly, by polluting water supplies and spoiling the landscape. For example, subsidies on biofuels, used by several OECD countries, usually result in greater use of fertilizers and pesticides, which can damage local ecosystems and cause both soil and water pollution.

A number of studies have demonstrated the harmful effects of various types of fossil-fuel subsidies. A recent study by the OECD, for example, shows that global carbon dioxide emissions would be reduced by more than 6 per cent and real income increased by 0.1 per cent by 2010 if all subsidies on fossil fuels used in industry and the power sector were removed everywhere in the world. The IEA's 1999 study shows that the removal of consumption subsidies in eight of the largest non-OECD countries would reduce primary energy use by 13 per cent, lower carbon dioxide emissions by 16 per cent and raise GDP by almost 1 per cent in those countries as a whole. Because coal is the 'dirtiest fuel*, the removal of coal subsidies generally yields the biggest environmental benefits.

But the overall impact of fossil-fuel and other energy subsidies on the environment is not always negative. For example, encouraging the use of oil products can reduce deforestation in developing countries as poor rural households switch from firewood. This is a major reason for maintaining subsidies to kerosene and LPG in many cases. Public funding of fossil-fuel research and development can also yield positive environmental effects if it results in the use of more efficient, cleaner-burning technologies in the long-term.

And subsidies to indigenous fossil-fuel production do not systematically lead to higher consumption if they result in a switch from imported to indigenously produced fuel on a one-for-one basis. This has been a strong argument to defend coal-production subsidies in Germany and the United Kingdom, because they now cover the difference between actual production costs and import prices and do not involve lower prices and, therefore, higher consumption. Nonetheless, the financial and economic cost of keeping inefficient mines open is very high. Past agreements that mandated the burning of minimum amounts of coal in German power stations undoubtedly held back the use of cleaner fuels such as natural gas. Subsidies on oil products and electricity in poor countries can also reduce indoor pollution, if they encourage switching away from traditional energy like wood, straw, crop residues and dung. Recent evidence from India suggests that indoor pollution caused by burning these fuels accounts for about half-a-million premature deaths a year in women and children under five years old. Given that India contains about one-quarter of the world's solid fuel cooking stoves, the global impact could be expected to be about four times larger, or about 2 million premature deaths per year. The World Health Organization has come up with an estimate of 2.5 million by extrapolating industrialized country studies to developing countries.

Subsidies to support renewables and energy-efficient tech-

nologies may help to reduce harmful emissions depending on how they are structured and too market conditions. If renewables replace fossil fuels and the amount of fossil fuel-based energy consumed in building the plants and equipment is not to high, then the net effect on emissions will generally be positive—although other environmental or aesthetic effects may be significant. Denmark's longstanding commitment to subsidizing wind, as described in, is driven by the goal of reducing carbon dioxide emissions through switching from coal. Most industrialized countries have introduced and increased subsidies to renewables or energy-efficient combustion technologies.for environmental and energy-security reasons. These include grants for producing electricity or transport fuels based on renewables and for buying energy-efficient combustion plant and equipment, preferential power tariffs and spending on research and development projects. In some cases, these subsidies need to be big to make those technologies competitive with existing ones based on fossil fuels.

Quantifying Energy Subsidies

Energy consumption subsidies—government measures that result in an end user price that is below the price that would prevail in a truly competitive market including all the costs of supply—are large in some countries. Energy is most commonly subsidised through price controls, often through state owned companies. Consumption subsidies have been largely eliminated in the OECD, but remain large in some non-OECD countries, both in gross terms and net of any taxes. Electricity and household heating and cooking fuels are usually most heavily subsidised, though several countries still subsidise road transport fuels. Remaining energy subsidies in OECD countries are mainly directed to production and do not necessarily reduce end-user prices below market levels.

Analysis carried out for IEA World Energy Outlook 2006 confirms the prevalence of consumption subsidies in non-OECD countries. Total subsidies (net of taxes on each fuel) in the 20 countries assessed, which collectively make up 81% of total non-OECD primary energy use, amount to around $220 billion per year, according to 2005 data. On the assumption that subsidies per unit of energy consumed are of the same magnitude in other non-OECD countries, world subsidies might amount to well over $250 billion per year. That is equal to all the investment needed in the power sector every year on average in non-OECD countries in the Reference Scenario. Total subsidies to oil products amount to over $90 billion from Qatar with the price of new RLNG being imported on term contract basis The pool price ex-Dahej of RLNG for various consumers would be about US$4.92/MMBTU.

Recent Policy Developments in Indian Context

The Ministry of Petroleum & Natural Gas revised the natural gas price with effect from June 6, 2006. While the prices for the priority sectors like power and fertilizers remained unchanged at Rs 3,200 per tcm, for CNG distribution and for customers drawing less than 0.05 mmscmd of gas, the price increased from Rs 3,200 per tcm to Rs 3,840 per tcm. With effect from April 2006 the price for all other industrial consumers has been raised from around $3.86/mmbtu (approximately Rs 6,740 per tcm) to $4.75/mmbtu (approximately Rs 8,675 per tcm).

The previous price hike came into effect in July 2005, at that time, CNG and small customers were clubbed with the priority sectors and were offered a concession price of Rs 3,200 per tcm, even as the price for other sectors was increased to Rs 6,740 per tcm. However, the ministry had indicated a gradual alignment of these prices to the market prices over a 5 year period. This 20 per cent hike in prices was the first move in that direction and there was a possibility of further increases for these sectors in the future. The non-priority sectors that include large customers such as petrochemicals, sponge iron and ceramics are the ones worst hit by the price hike. Last year, the prices were hiked by 136 per cent and aligned with the re-gasified LNG prices and the price of gas being sold by the PMT consortium. In 2006 the prices of these sectors had once again increased by 23 per cent and they now align with the current PMT prices, and have been fixed at $4.75/mmbtu with effect from April 2006 for a 2 year period. Natural gas price for the North-east will be 60 per cent of the revised price.

REFERENCES

Bacon, Robert (2001): Petroleum Taxes, Public Policy for the Private Sector, Note Number 240, World Bank, September, Washington. BP Statistical Review of World Energy, British Petroleum (Various Issues). BP Statistical Review of World Energy (2007); June. | Bureau of Transport and Regional Economics (2005): "Is the World running out of oil? A review of the debate," Bureau of Transport and Regional Economics Working Paper 61, Department of Transport and Regional Services, Australian Government, Canberra. Chopra, S.K. (2004): Towards Sustainable Energy Security in India in the Twenty First. | Century, Oxford & IBH Publishing Co. Pvt. Ltd, New Delhi. Developing China's Natural Gas Market (2002): The Energy Policy Challenges, International Energy Agency. Energy Economics, James Sweeney, Department of Management Science and Engineering, Stanford | University. | Federal Trade Commission (2004)' The Petroleum Industry: Mergers, Structural Change, and Antitrust Enforcement, Bureau of Economics, United States Federal Trade Commission. Federal Trade Commission (2005): Gasoline Price Changes: The Dynamic of Supply. | Demand, and Competition, United States Federal Trade Commission. General Accounting Office (2004): Effects of Mergers and Market Concentration in the US Petroleum Industry, United States General Accounting Office, May, Washington. | General Accounting Office (2005): Understanding the Factors that Influence the Retail Price of Gasoline, United States General Accounting Office, May, Washington. | Government of India (1995): Report of the Study Group, Hydrocarbon Perspective 2010, Meeting the Challenges, Ministry of Petroleum and Natural Gas, New Delhi-Government of India (1996): Report of the Strategic Planning Group on Restructuring of Oil Industries, Ministry of Petroleum and Natural Gas, New Delhi.