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THE IMPACT OF HIGHER OIL PRICES ON THE ECONOMIC GROWTH OF INDIA

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Key Words

Purchasing Power Parity (PPP); Energy Intensity; SWOT Analysis.

Abstract

India, a net oil importer, with the second largest growth in incremental demand for oil, has been experiencing optimistic annual growth rates, averaging 6%, over the past several years, and is pegged to become the world's fourth largest economy, after China, the U.S.A, and Japan, by 2020 in terms of Purchasing Power Parity (PPP). This study shows that energy intensity of GDP in India was stronger during the 1980s and early 1990s, due to increased investments in energy intensive industries and economic activities. This has dropped markedly over the last ten years due to efficiency gains and the overwhelming role of the service sector in the economy. A SWOT analysis of the Indian economy energy sector reveals that India has considerable strengths and opportunities to capitalize on, to mitigate the cost of increased oil consumption during sustained oil price elevations. Implications for national economic policy are discussed in the framework of a strategic outlook to manage elevated oil prices.

Introduction

India, with an area slightly over one third the size of the United States, is the world's sixth largest energy consumer and one of the world's most tightly regulated major economies. India is also a net energy importer that annually consumes about three percent of the world's total energy to supply what amounts to 17% of the world's population.

While other studies have focused on the intensity of energy in GDP growth in the developed OECD countries, this study investigates the impact of higher oil prices on the economic growth of India, and focuses on the

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energy intensity of the Indian economy, since it is the second largest LDC consumer of oil, after China. Implications for national economic policy are analyzed in the framework of a strategic outlook to manage elevated oil prices. This study will focus on institutional and structural details of the Indian economy and the economic policies that the government may adopt to manage higher oil prices during current and future oil price increases. Implied in this study is an investigation of the relationship between economic growth and growth in energy use in India, focusing on challenges that the Indian economy faces and strategies to manage the impact of higher oil prices. The methodology used for this study will follow a qualitative analysis of a set of key macroeconomic indicators of India, focusing on variables that are important for tracing the impact of energy prices on the economy. It particularly sheds light on India's energy mix, policy choices and institutional change, in addition to conducting a SWOT analysis of India's economy and its energy sector.

Background

India is an oil importing developing country (OIDC) rich in numerous energy-related natural resources that include coal[(1)], natural gas, oil, solar energy, wind[(2)], biomass, geothermal energy, and uranium, among others. India is the third largest coal producing and consuming country in the world. India's cast hydroelectric[(3)] resources are a predominant source of renewable energy for the country.

Oil prices have more than doubled in dollar terms since the latter part of the 1990s, and the upward trend is likely to continue. India, a net oil importer, has been experiencing optimistic annual growth rates, averaging 6%, over the past several years, and is pegged to become the world's fourth largest economy, after China, the U.S.A, and Japan, by 2020 in terms of Purchasing Power Parity (PPP). Both demand and supply are showing great rigidity when it comes to adjusting to signals emitted by prices, meaning that prices are inelastic. In addition, from the supply side, there is no conventional cause that explains the current crisis, unlike previous

(1) Indian coal is high in ash and low in sulfur. The high ash content makes this coals' utility poor; however, the government of India is investing and planning further investments in washeries that will increase and enhance its usable quality.

(2) Wind is used for power generation in India.

(3) Electricity reaches 80% of the population in India.

shocks, which were justified by scarcity or by a reduction in supply.(4)

Oil accounts for about 30% of India's total energy consumption. The majority of India's roughly 5.4 billion barrels in oil reserves are located in the Mumbai High, Upper Assam, Cambay, Krishna-Godavari, and Cauvery basins. The offshore Mumbai High field is by far India's largest producing field, with current output of around 260,000 barrels per day (bbl/d). India's average oil production level (total liquids) for 2003 was 819,000 bbl/d, of which 660,000 b/d was crude oil. India had net oil imports of over 1.4 million b/d in 2003. Already,"the IMF has estimated that an oil price of $52 per barrel will reduce global growth by as much as 0.5% in 2005."(5) Industry has benefited from strong exports and lower intermediate inputs and steady commodities prices. A strong performance in the service sector, helped by solid overseas success of India's information technology (IT) sector, has been another economic driver. Negative factors that have affected the economic outlook have been high interest rates, political uncertainty, a large budget deficit, and weak global markets. India's budget deficit is about 10% of its GDP.

Energy consumption and GDP have grown together over the past 50 years. A number of factors contribute to weakening this correlation, and they include; higher oil prices, technological progress, structural reforms, policy reforms that encourage conservation, and the country's degree of development and economic affluence. Energy intensity in GDP is strongly correlated with economic growth in poor countries that are 'catching up' the development ladder, like India today; as it was true for their rich developed counterparts; like the USA, France and the United Kingdom, while they were engaged in the same process prior to 1950; and prior to 1970 in the case of Japan and Italy. This has led to question the conventional theory that growth in the use of energy is imperative for economic growth.

Higher oil prices can contribute heavily to high levels of unemployment, inflation and budget-deficit pro-

(4) In addition, there is the perplexing phenomenon that has arisen in the oil market where prices are rising for no fundamental reason; that is supply is not less and demand is not excessively more. Financial speculation and not demand signals are pushing prices upwardly. Already, the IMF has estimated that an oil price of $52 per barrel will reduce global growth by as much as 0.5% in 2005. However, the price of a barrel of petroleum has been above the $30 to $40 mark for more than two years, and the global economy has continued to grow.

(5) (IMF, 2004)

blems in oil importing economies. These impacts vary according to the level of indigenous production, the energy intensity of a particular economy and the contribution of the non-oil goods and services sector. A sustained oil price increase will result in marginal GDP losses for some period of time. The degree to which a particular economy is impacted negatively by higher oil prices depends on the level of its energy intensity and net imports.(6) "On average oil importing developing countries use more than twice as much oil to produce a unit of economic output as do OECD countries. Developing countries are also less able to weather the financial turmoil wrought by higher oil import costs. India spent $15 billion, equivalent to 3% of its GDP, on oil imports in 2003. This is 16% higher than its 2001 oil import bill. It is estimated that the loss of GDP averages 0.8% in Asia and 1.6% in very poor, highly indebted countries in the year following a $10 oil price increase. The loss of GDP in the Sub-Saharan African countries would be more than 3%."(7)

In its 2000 Trade and Development Report, the United Nations conference on Trade and Development cautioned that the adverse impacts of rising oil prices would mostly affect LDCs that are financially strained and that have suffered balance of payments challenges. Similarly, the IMF in its 2005 report on the reaction of the Global economy on the rising price of oil in 2003-5, was very concerned over how OIDCs would adopt economic policies that would help them manage high oil prices, in order to minimize anticipated adverse impacts on their economic growth and development, in light of the speculation that oil prices would remain high for the long term.

Economic Growth in India

India has made gains in industrialization and the modernization of its agricultural sector, although it has one of the highest poverty levels in the world. World statistical data on per capita energy consumption shows that as of 1975 the average worldwide rate of energy consumption was approximately 2 kilowatts per year per person or 2 kilowatts of quasi-continuous power per person. The average American consumes 11 kilowatts, compared to an average inhabitant of an underdeveloped country consuming less than 1 kilowatt. India has the lowest per capita energy consumption. However, by contrast, the energy intensities (measured as En-

(6) International Energy Agency report on the Analysis of the Impact of High Oil Prices on the Global Economy, 2004.

(7) Ibid.

ergy/GDP) of industrial and economic activities in India are relatively higher than those in advanced countries. India enjoys an abundance of energy-related natural resources that include sunshine, rainfall, wind, charcoal and biomass, amongst others, which, if utilized effectively, may supplement the country's energy needs and reduce demand on depleting and expensive fossil fuels.

World experience suggests that macroeconomic stability is a key factor for facilitating economic growth. Macroeconomic stability means that inflation is kept low, that the real exchange is stable at a competitive level and that the government budget deficit and foreign debt are kept within limits, consistent with price and exchange rate stability. When the economy is struck by external shocks, such as a steep rise in world oil prices, an export price shock or a large rise in world interest rates, fiscal and monetary policy are usually adjusted to avoid inflation or exchange rate volatility.

Maintaining macroeconomic stability is less costly than regaining it once it has slipped. The high performance East Asian economies' prudent and consistent pursuit of macroeconomic stability with the help of economic reform has helped contribute to their high growth. Even more importantly, they have avoided major macroeconomic crises that cause sharp reductions in aggregate demand and investment. Macroeconomic crises are very costly in terms of years of economic growth. In fact, a single-year crisis costs the equivalent of eight years of accumulated growth.

Tables 1 and figure 1 both show that real GDP has more than doubled in India, since 1990. Annual growth rates as of the mid-1990s have been averaging over 6%, with higher expectations that surpass 7% for the coming years, whereas the long term 2030 vision averages 5.4% by many estimates[8]. This positive progression is largely owed to India's indulgence in developing a vibrant service sector which accounts for over 50% of its GDP. The country is also niching itself as a software and high technology provider and a financial services center, now rivaling China and competing with Ireland. It is this inclination toward service, knowledge intensive industries that will allow India to diversify its economic activities into ones that are not highly dependent on oil as an input, hence reducing the volatility of these industries to the adverse impacts of increased oil prices. The robustness of the Indian economy is evident from its stability during the Asian recession. The latest estimates

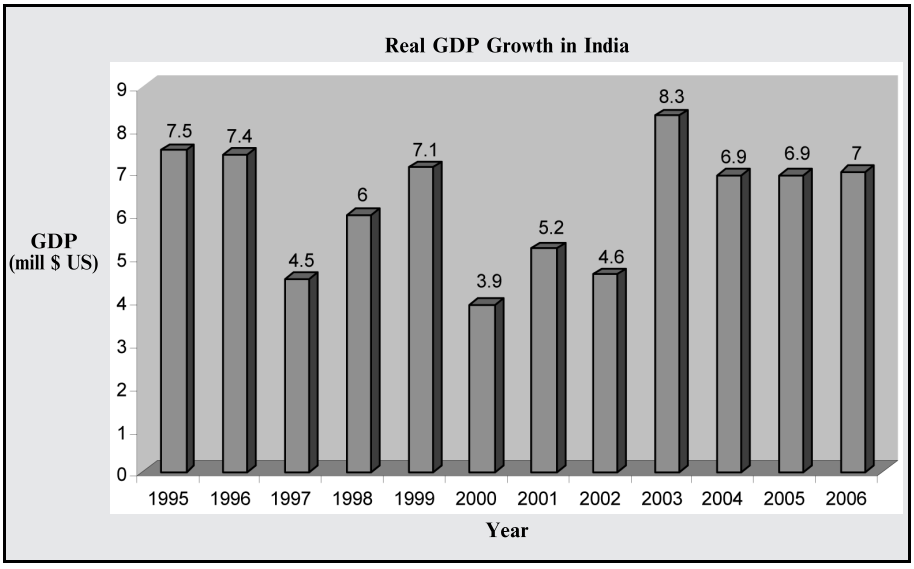
(8) International Energy Outlook, 2006.

Table 1
Major Macroeconomic Indicators for India (1995 - 2004)

Indicator	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Population (mill. Inhabitants)	931	949	966	983	1,000	1,017	1,033	1,050	1,065	1,082
Nominal GDP (mill. US $)	367,083	386,287	419,569	422,538	449,868	465,290	481,546	506,582	592,744	686,152
Nominal GDP per Capita (US$)	394	407	434	430	450	458	466	483	556	634
Real GDP (at 1995 prices) (mill. US$)	367,083	394,228	411,881	436,541	467,659	486,096	511,139	534,624	578,868	618,810
GDP, Real Growth*	7.5	7.4	4.5	6.0	7.1	3.9	5.2	4.6	8.3	6.9**
Inflation-Consumer Price Index*	10.2	9.0	7.2	13.2	4.7	4.0	3.7	4.4	3.8	3.8
Export, FOB (mill. US$)	30,630	33,105	35,008	33,437	35,667	42,379	43,361	49,250	57,085	71,786
Import, CIF (mill. US$)	34,707	37,942	41,432	42,980	46,979	51,523	50,392	56,517	71,238	94,060
Current Account (mill. US$)	-5,563	-5,956	-2,965	-6,903	-3,228	-4,348	177	5,816	-1,351	-4,057
External Debt (mill US$)	94,464	93,466	94,317	97,637	98,313	99,098	97,320	104,429	112,864	118,575
Dollar Exchange Rate	32.4	35.4	36.3	41.3	43.1	44.9	47.2	48.6	46.6	45.3

* Percentage growth over previous year.
** Real GDP growth forecasts for 2005 and 2006 are 6.9% and 7.0% respectively.
Sources: Complied from the IMF-International Financial Statistics, IMF-World Economic Outlook, World Bank Development Indicators, Asia Pacific Forecasts and the Economist Intelligence Unit.

Figure 1
Real GDP Growth in India



Note: 2005 and 2006 real GDP rates are based on World Bank forecasts.

Table 2
GDP by Kind of Economic Activity - Percentage Distribution

Period	Agriculture, hunting, forestry, fishing	Mining, manufacturing, utilities	Of which: Manufacturing	Construction	Wholesale, retail trade, restaurants and hotels	Transport, storage and communication	Other activities
	Percentage Distribution						
1999	24	18	14	5	13	6	24
2000	23	19	14	6	13	7	25
2001	23	18	14	5	13	7	25
2002	21	19	14	6	13	7	26

Source: United Nations, Department of Economic and Social Affairs, Economic and Social Development, Statistics Division, 2004.

Table 3
GDP by Kind of Economic Activity - Rate of Growth

Period	Agriculture, hunting, forestry, fishing	Mining, manufacturing, utilities	Of which: Manufacturing	Construction	Wholesale, retail trade, restaurants and hotels	Transport, storage and communication	Other activities
	Percent						
1999	0.3	4.1	4	8	7.2	11.1	11.4
2000	-0.4	6.5	7.3	6.9	4.1	12.2	4.5
2001	5.7	3.2	3.4	3.7	8.8	8.5	5.1
2002	-4.2	6.5	6.6	6.3	4.2	11.8	7.1

Source: United Nations, Department of Economic and Social Affairs, Economic and Social Development, Statistics Division, 2004.

published by the Central Statistical Organization, (CSO) project a healthy GDP growth rate that averages 5.4% to 6% for the years ahead.

A more detailed perspective of the performance of the Indian economy is provided in Tables 2 and 3 that reflect GDP by kind of economic activity and sectoral rates of growth, respectively. While all economic sectors have maintained stable shares of economic contribution between 1999 and 2002, their growth rates have fluctuated. Most notable is the agricultural sector that witnessed declined rates of growth, dropping from 0.3% in 1999 to 4.2% in 2002. The size of the agricultural sector and its vulnerability to the vagaries of the Indian monsoon cause relatively large fluctuations in the sector's contribution to GDP from one year to another. On the other hand, mining, the industrial sector and transportation have had improved rates of growth. The steady increase in the proportion of services

in the national economy reflects increased market-determined processes, such as the spread of rural banking, and government activities, such as defense spending.

India's Energy Intensity: Oil Consumption and Sectoral Utility

Energy intensity increases when energy consumption outgrows the GDP growth rate; when the share of oil in total commodity imports by value rises, and so does the cost of fuel imports relative to GDP. The stage of economic development and the standard of living of individuals in a given region strongly influence the link between economic growth and energy demand. Advanced economies with high living standards have a relatively high level of energy use per capita, but they also tend to be economies where per capita energy use is stable or changes very slowly. In the OECD economies, there is a high penetration rate of modern appliances and motorized personal transportation equipment. To the extent that spending is directed to energy-consuming goods, it involves more often than not purchases of new equipment to replace old capital stock. The new stock is often more efficient than the equipment it replaces, resulting in a weaker link between income and energy demand. The pace of improvement in energy intensity may change, given different assumptions of macroeconomic growth over time. Faster growth in income leads to a faster rate of decline in energy intensity.

Energy intensity has grown at a slower pace than GDP growth in rich countries, particularly after 1950, the point at which these countries were industrializing and investing primarily in building their heavy industries, after they developed a certain level of economic development and affluence. The opposite has been true for poor countries, like India, with the exception of China[9]. In poor countries, GDP growth has been slower than growth in energy consumption. In other words, poor countries consume more energy in their production process than developed countries would use to produce the same output; hence, inefficiency is greater in LDCs. Energy intensity[10] measures the quantity of

(9) China's growth rates have been exponential. To fuel this growth China has relied excessively on developing its industrial sector that is energy intensive, reflected in its insatiable demand for oil, in spite of price increases. Oil price increases have not curbed China's economic growth due to the abundance of purchasing power.

(10) Caution and prudence are required when using energy intensity calculations, since a number of factors may mislead and distort the analysis: non-commercial energy is omitted from the energy intensity configuration and measurement of GDP and its inclusions vary amongst countries, thus making uniformity a limitation.

energy used per unit of GDP, thus revealing the efficiency of energy use. The higher the energy intensity is, the more inefficient is the use of energy in a particular economy. An energy intensity 'cycle' is typically observed, where the intensity curve increases and peaks as a country industrializes and invests heavily in heavy industry; then after reaching a certain level of income and affluence, this curve falls and displays a downward trend. India's crude oil imports have increased by 25% every five years, between 1989 and 2000, indicating that the country's energy intensity is high relative to its own consumption patterns, but not in absolute terms. From a comparative perspective, India is still not considered a high energy intensive economy, compared to other developing countries like China. The energy intensity of India's GDP is relatively low in the context of its counterparts.

Increased Demand for Oil in India and Oil Supply Outlook

The primary determinants of oil demand are income (GDP), price and population. Commercial energy demand in India comes primarily from the industrial sector, followed by the transportation sector, within which road transport is the highest consumer, placing a huge toll on the country's environment and its ecosystemic degradation.

Nearly 30% of India's energy needs are met by oil, and more than 70% of that oil is imported, costing the country 3% of its GDP, while India's total imports account for 16% of its GDP, on average. The cost of India's oil import bill in 2003 reached $15 billion, a figure that has elevated 16% only within the two years prior to that, in 2001. Given the strong growth in oil demand, oil consumption is expected to rise to 3.1 million barrels per day (b/d) by 2010, from the current 2.2 million barrels per day. It is expected that by 2010 almost three-quarters of India's oil and gas needs will be met by imports. India presently has 18 refineries in operation throughout the country, with a cumulative refining capacity of more than 2 million b/d. Refining capacity in India is unable to meet domestic consumption of refined petroleum products and the country has had to depend partially on imports. India's total refining capacity should make India self-sufficient, but operational problems have made it imperative to import diesel fuel. Table 4 below shows that oil production in India has been modest; however, the country's increasing demand for oil has augmented its imports of crude oil. Although production has increased in the latter years, it is still outpaced by progressive higher demand levels.

Table 4
Petroleum Production and Consumption in India, 1990-2002
(in thousand b/d)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Production (total)*	682	639	602	578	651	770	751	780	761	765	770	782	819
Production (Crude Oil only)	660	615	561	534	590	704	651	675	661	653	646	642	665
Consumption	1,168	1,190	1,275	1,311	1,413	1,575	1,681	1,766	1,844	2,031	2,127	2,184	2,185

Source: DOE/EIA
* It includes crude oil, natural gas plant liquids, other liquids, and refinery processing.

SWOT Analysis

Having overviewed the energy sector in India and analyzed oil consumption and the oil supply outlook, a SWOT analysis of India's economy and its energy sector will be instrumental in revealing the pertinent strengths, weaknesses, opportunities and threats, in an attempt to evaluate and assess the challenges that lie ahead. SWOT analysis (strengths and weaknesses are internal factors; opportunities and threats are external) is traditionally used as a tool for auditing and strategically planning for the growth of an organization, in light of its environment and surrounding external factors. Here, SWOT analysis will be used innovatively to focus on key energy issues, specifically oil issues of the Indian economy, with the aim of putting the country's growing energy needs in perspective in light of India's increasing oil demand and the long term expectation of higher oil prices.

In this context, SWOT Analysis of India reveals that India's energy posture enjoys numerous strengths and opportunities that include abundant natural resources, an effective energy vision for the future and plans to expand in a more liberal, unregulated direction that conforms to global measures. However, the SWOT matrix above also shows that there is ample room for improvement and development in the energy sector, evident from the weaknesses and threats, some of which cannot be completely eliminated due to their structural nature, but whose affects may be partially mitigated through sound government policy. Programs, like the Hydrocarbon Vision 2025 and those contained in India's 10^{th} Five Year Plan, set optimistic targets which ensure that if India disciplines itself to move in that direction, it will reduce the degree to which the economy is volatile to higher oil prices. In fact, such forward-looking measures will

SWOT Analysis of India's Energy Sector using Related Economic Factors

Strengths	Weaknesses
1. Abundant energy-related natural resources (coal, natural gas, oil, wind, solar power, biomass..). 2. Comfortable balance of payments position of the Indian government. 3. Large foreign exchange reserves. 4. Access to international capital. 5. Net Exporter of major refined products like motor gasoline, jet kerosene and diesel. 6. Improved crude oil reserves, estimated at 733 million tons (or 5 billion barrels). 7. Diversified economy - Service sector relatively large, composing 52% of the economy. 8. Conscious effort to reduce reliance on oil imports and to substitute resources when feasible. 9. India's 10^{th} five-year plan, which runs through 2007, calls for 10% of all new electric generating capacity to come from renewable energy sources, and almost all of this will be hydroelectric.	1. Regulated energy sector - The Administered Pricing Mechanism (APM) 2. Distorted energy consumption patterns. 3. Increasing oil demand: The faster growth of oil demand in India compared to the world average. 4. Reduced oil production. 5. Enlarging production - consumption gap. 6. The poor quality and arbitrary pricing of electricity has been the single greatest deterrent to India's economic growth and development. As a result, the power sector has become the centerpiece of energy policy and regulatory reform in India. 7. The need for investments in large, long-gestating, capital-intensive projects, such as electric power, irrigation, and infrastructure
Opportunities	**Threats**
1. Improvements in energy efficient technologies on both a broad and narrow scale. 2. Changes in government policy toward energy. 3. Changes in social patterns and population profiles. 4. Investing in increasing utility and expansion of rich coal reserves to supplement energy needs. 5. Less reliance on energy-demanding manufacturing and more on service industries, which use less energy per dollar of output. $7.7 billion service industry is destined for India, compared to only $1.1 billion for China. 6. Strategic natural gas investments.	1. Sustained higher oil prices. 2. Political unrest. 3. Poverty. 4. Extensive subsidy program, especially for household consumption.

propel the Indian economy forward, regardless of oil price swings. India's long-term structural adjustment programs are designed around the nature of the country's 'threats' and structural imperatives. They are, therefore, not expected to eradicate poverty or political unrest, but rather account for its existence and its expected impact on the Indian economy.

Impacts on Indian Economy

World Bank (2004) and IMF (2004) studies have shown that global economic growth is expected to retract by 0.5% to 1% as a result of a $10 sustained oil price increase. The expectations for developing countries are worse, considering the fact that, in the majority of the cases, their economies' oil intensities are relatively high, compared to their OECD counterparts that have already surpassed this stage of energy intensive development, and are engaged to a greater extent in growth emanating from sophisticated knowledge intensive, technology efficient industries.

Based on the analysis presented in this study and on results of a study conducted using the OECD's interlink model (OECD, 2004) for a sustained $10 oil price increase, after one year India will also lose 1% of its real GDP, inflation would rise by 2.6% and the trade balance would drop by 1.2%. The study also reveals that India "uses more than two and a half times, as much oil as developed countries per unit of GDP, while the economies of China, Thailand and African countries are also very oil intensive."(11)

However, since India and other countries are 'still' developing aggressively, their economic progress will be suppressed somewhat by higher oil prices, which then produces an adverse economic cycle that tends to induce prolonged economic costs in these economies, even after oil prices are relieved again. Higher oil prices increase domestic oil prices, which are linked to the international market. Oil is consumed as a fuel source, and its derivatives are used as chemical components in many manufacturing processes; hence, elevated oil prices will be reflected in all downstream costs involving oil-derived chemicals. Therefore, higher oil prices will ultimately fuel inflationary pressures, increase unemployment and reduce consumer confidence in India, as they typically do worldwide. The effects may be magnified in India because of its overwhelming dependence on crude oil imports, which account for over 70% of its total consumption. Com-

(11) International Energy Agency report on the Analysis of the Impact of High Oil Prices on the Global Economy, 2004.

pounded with the fact that India remains struggling to 'catch up', although its economic performance, indicated by growth rates of recent years, is quite optimistic, the impact of higher oil prices will be economically amplified, especially if India does not introduce policy reforms geared to redirect its oil consumption patterns in favor of conservation and the usage of other fuels.

Challenges to Indian Economy and Economic Policies to Manage Oil Price Increases

One of the major challenges to the Indian economy is the poor quality and arbitrary pricing of electricity, which has been the single greatest deterrent to India's economic growth and development. As a result, the power sector has become the centerpiece of energy policy and regulatory reform in India. The Indian government is now in its 10^{th} five-year plan, which runs from 2002 to 2007 and calls for an 8% GDP growth rate, the modernization of ports, and the addition of 41,000 megawatts in electricity capacity, which by many estimates is an overly optimistic target, especially if foreign investors do not play a key role in this build up of capacity.

Prior to the 2002 deregulation that ended the Administered Pricing Mechanism (APM) for petroleum product prices, the Indian government tried to offset the effects of price changes in crude oil by maintaining an Oil Pool Account (OPA), which was to accumulate financial reserves when crude oil prices fell and release them back as increased subsidies when crude oil prices rose. In practice, though, the reforms of 2002 have not eliminated government influence on the prices of petroleum products. Subsidies are still in effect on some products, such as kerosene, which is commonly used as a cooking fuel by low-income households in India. State-owned downstream companies must continue to submit proposed price changes to the Ministry of Petroleum and Natural Gas for approval. This has again continued to limit movements in retail prices in response to fluctuations in world oil prices.

As shown in the SWOT analysis earlier, India is continuously challenged by many issues that include poverty, energy subsidies and its struggle to 'catch up' which will amplify the impact of higher oil prices on the economy, especially considering the fact that its oil demand is relatively sizeable, composing 70% of its oil needs, which levies a considerable cost toll on its growth. Part of India's strategy to manage its energy consumption patterns includes establishing a reliable SPR level, expanding foreign investments in the energy sector and the Hydrocarbon Vision

2025. With regard to petroleum refining and marketing, it has been suggested that the Indian oil industry be privatized by 2005. Hydrocarbon Vision 2025 calls for the government to permit mergers involving independent refineries and large firms marketing petroleum, and the plan also recommends that state-run companies retain the right to market transportation fuels at the retail level.

Foreign investment to increase energy expansion and development in India is challenged by lack of a comprehensive energy policy, which poses as a barrier to foreign investment in long-term energy projects. To address the absence of policy, the government released Hydrocarbon Vision 2025, a study whose recommendations may become official policy. This study suggests, among other things, that India revise foreign ownership regulations for refinery operations to, in effect, allow 100% foreign ownership. The objective of this plan is to supply 90% of India's petroleum and diesel needs from domestic sources.

Conclusions and Recommendations

This study shows that energy intensity[12] of GDP in India was stronger during the formative years of the 1980s and early 1990s, due to increased investments in energy intensive industries and economic activities. This level of intensity has dropped markedly over the past ten years, mainly due to efficiency gains and the overwhelming role of the service sector in the economy. A SWOT analysis of India's energy scenario shows that India enjoys valuable strengths and opportunities to capitalize on to mitigate the cost of increased oil consumption during sustained oil price elevations that include shifting consumption to other fuels, conservation, privatizing and expanding investment in the energy sector, in addition to long-term strategies like the Hydrocarbon Vision 2025. Energy intensity in India can be curbed by structural reforms and policy measures that encourage conservation, attitudinal modifications and technological progress, as well as investment in alternative energy sources. This has occurred in the USA where energy consumption stopped growing altogether as a result of the higher oil prices witnessed during the 1974-85 period.

Empirical studies (Hondroyiannia, 2002) surrounding the energy consumption - economic growth debate have shown that energy consumption is an endogenous factor that affects economic growth. "In

(12) Energy consumption divided by GDP.

addition, economic efficiency, as related to price developments, is a determining factor of both energy consumption and income behavior" (Hondroyiannia, 2002). However, it has also been shown that structural reform policies aimed at inducing energy conservation boost economic growth. Hence,"structural policies are a stimulus to both economic growth and energy saving. This being the case, energy conservation does not impede economic growth" (Hondroyiannia, 2002). In fact, improvements in economic efficiency invariably activate energy conserving behavior, which, in turn, affects economic growth positively, all being part of a systematic process. A case in point is China's shift to light manufactures and export-oriented growth versus heavy industry, energy intensity, has decreased.

India is a major regional player and a major importer of capital; it depends on capital as an input, on dollars more than on oil. According to the Asian development Bank, and to OPEC's Oil Outlook to 2025 (OPEC, 2004) India's GDP would decline by 1.1% in front of a temporary $50 barrel of oil; the trade balance would tip adversely by 0.1% of GDP and consumer prices would rise by 1.8%. In front of a sustained price increase of the same amount, GDP is expected to fall by 1.5%, the trade balance would tip to the tune of 1.4% of GDP, consumer prices would rise by 3.3% and the manufacturing sector would decline by 2.1%. As predicted, in 2004, GDP in India in fact fell by 1%.

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الملخص

تأثير ارتفاع أسعار النفط الخام على النمو الاقتصادي في الهند

فاتن يوسف الجبشة
معهد الكويت للأبحاث العلمية

تُعد جمهورية الهند ثاني أكثر بلد تزايد استيرادها للنفط الخام في العالم، ويبلغ معدل النمو الاقتصادي السنوي للهند خلال السنوات الماضية ٦٪، ومن المتوقع أن تصبح جمهورية الهند في عام ٢٠٢٠ رابع أكبر اقتصاد بتماثل القوة الشرائية في العالم بعد الصين وأمريكا واليابان. وقد أوضحت الدراسة أن كثافة استهلاك الطاقة في الناتج المحلي الإجمالي للهند كان أعلى خلال الثمانينيات وبداية التسعينيات، بسبب تزايد الاستثمارات في الصناعات والنشاطات الاقتصادية التي تستهلك الطاقة بكثافة. وانخفضت هذه النشاطات خلال السنوات العشر الماضية بسبب المكاسب الناتجة عن زيادة كفاءة الإنتاج، وهيمنة دور القطاع الخدمي على الاقتصاد الهندي. ويبين التحليل الرباعي لمواطن القوة والضعف والفرص والمخاطر لاقتصاد جمهورية الهند أنها تتمتع بعناصر مناسبة وفرص متاحة لامتصاص الزيادة في تكاليف النفط المستهلك خلال فترات ارتفاع أسعار النفط الخام. وتمت مناقشة تأثير السياسة الاقتصادية القومية في إطار نظرة إستراتيجية لإدارة ارتفاع أسعار النفط.

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