Crude oil in india economics essay

Economics

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CERTIFICATE OF ORIGINALITYThis is to certify that the dissertation work titled " An Analysis on the impact of import price inflation, exchange rate instability and external shocks on India’s Imports from Iran ’’ is a work of the student and is being submitted in partial fulfillment for the award of the MBA ET (Energy Trading) Degree from University of Petroleum and Energy Studies for the fulfillment of the requirement of a course of study.(Sakshi Rana)SIGNATURE OF THE STUDENTDATE: PLACE: CERTIFICATE FROM THE SUPERVISORThis is to certify that Ms. Sakshi Rana has completed her dissertation title: " An Analysis on the impact of import price, exchange rate and external shocks on India’s Imports from Iran’’Under my guidance and supervision. This project has not been submitted earlier to University of Petroleum and Energy Studies or to any other University/Institution for the requirement or a course of study. To the best of my knowledge, she has made an earnest and dedicated effort to accomplish this project. I wish her all the best for her future endeavors.(Dr. R. Jayaraj)Assistant Lecturer (Selection Grade)COMES, UPESPlace: DEHRADUNDate: ACKNOWLEDGEMENTI would like to thank my guide Dr. R Jayaraj, College of Management and Economic Studies, University of Petroleum and Energy Studies for giving me the opportunity to work on this topic and continuously supporting me

throughout the duration of this project. Without him, completion of the project would not have been easy. I would also like thank few of my seniors from whom I was free to ask for help at any point of time. Finally, I would like to express thanks to all my friends and classmates who have directly or indirectly supported me during this project. Sakshi RanaMBA-ET (Energy Trading) –IV semesterR590211025University of Petroleum and Energy Studies

Executive Summary

India ranks among the top 10 largest oil- consuming countries and oil accounts for about 30% of India's total energy consumption. India imports about 70% of its total oil consumption and makes no exports. This naturally would create a supply deficit, as domestic oil production is unlikely to keep pace with demand. During 2009, India was ranked the fourth largest consumer of energy in the world, following United States at the top followed by China and then Russia. Inspite of a slowing global economy, energy demand of India continues to rise at a drastic rate. As the vehicle ownership expands, demand for petroleum in the transportation sector is expected to rise in the coming years. While, on one hand, India’s domestic energy resource base is viable, India continues to rely on its imports for a considerable amount to fulfill its energy use. During 2011, India imported around 12% of its oil requirement from Iran. 13% of Iranian crude oil exports were received by India, which made it stand at the third largest position of buying Iranian crude oil following China at 22% and Japan standing at 14%. Unlike developed countries, the developing countries like India does not manage the exchange rate risk by using many instruments such as

borrowing or lending in foreign currencies, insurances against exchange risk, the introduction of contractual clauses on the revision of prices and foreign exchange management to even out the timing receipts and payments in foreign currencies and the choice of currency on invoicing, and also hedging operations in their foreign exchange market, which are not available for the developing countries to reduce their or eliminate their exchange rate risk. The study shows various factors that affect the trade between India and Iran. The various independent variables taken under consideration are of import price inflation, exchange rate instability and external shocks. It has been analyzed from the study that import demand of India is negatively affected by the import price of India and nominal exchange rate of India against US $ (as US $ is used for transaction). Due to increase in the price of Iran (for import), the imports are adversely affected. Consequently, the increase in value of US $ vs. Indian Rupee, import price of India has a negative impact on the import from Iran. The level of the nominal exchange rate has a significant negative impact on the import of India. That is, as the Indian Rupee depreciates relative to the foreign countries' currencies (US$), which shrinks the imports more to the foreign market (Iran). India's imports were negatively affected by the depreciation of the exchange rate, resulting in a negative sign. This result is based on the monthly data with the risk-aversion behavior as faced by many countries. From the theoretical point of view, the Indian industrial production must be positive.

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CHAPTER I

INTRODUCTION

1. 1 Crude oil

Crude oil is somewhat a yellowish black mineral oil that is extracted from under the earth surface. This oil consists of a number of hydrocarbon compounds since it is formed from millions of year's old animal and plant remnants. This mixture of hydrocarbons remains in the liquid form under the normal atmospheric temperature and when it is distilled, a number of by-products can be extracted. Also, crude oil is an important ingredient of some medicines due to the curing properties it has. Crude oils are of different types depending upon its relative weight and its origin. Brent crude oil is one of the most important types of crude oil which is also considered as a benchmark in the context of the price fixation of the other types. It is a lighter type crude oil possessing API (American Petroleum Institute) gravity of 38 to 39 units and having medium levels of sulfur.

1. 2 Overview

Oil is the single most important commodity which holds the position of a key factor in every single economy of the world. Just because of the oil factor t he world's richest nations are at their current positions . The importance of oil has reached a level at which there is absolutely no country in the world, which doesn't require oil and its by-products, and in some cases if somehow it doesn't have much reserves of oil in order to meet their domestic demand, these nations are ready to import the product at any cost. A number of nations have a huge share of their earnings constituted by oil exports only.

Every industry requires oil to function properly either indirectly or directly since both crude oil and its by-products serve as their inputs. The extent of the commodity’s importance was evident to the world when world’s most strong economies were shaken up when the oil prices shot up in 1973 and 1979 when the gulf countries refused to supply oil to countries that supported Israel in its war with Egypt and Syria. In the current scenario, crude oil alone bears 60% share to meet the global energy needs. The reason for such high share in the primary energy consumption in the world is because of the advantages that oil has over the other constituents of primary energy which include lower capital costs, diverse application, easy handling, comparatively lesser harm to the environment and above all higher efficiency. Crude oil reserves on earth are evaluated to be more than 1 trillion barrels . The reserves are mostly found in the Middle East, Eastern Europe, Africa and Central America. Middle East being the top reserve holder. It is a known fact that oil being a limited resource would finish off in a maximum of 80 years if the current rate of consumption continues to be the same. Out of these 1 trillion barrels, the world produces approximately 75 million barrels per day. Saudi Arabia is the largest crude oil producing country which is followed by Russia and then United States of America. The refining capacity of oil in the world according to 2002 records was 4166 million tons. The consumption of crude oil in the world has been continuously rising with the change in time and the technological improvements that are accompanying it. All over the world oil is consumed, with consumption figures standing at 76 million barrels per day and United States of America consuming the maximum level of oil all around the world. Pertaining to the year 2006, the major consumer countries of crude oil along with their

consumption figures are as follows: United States of America (20. 7mbd)China (6. 5mbd)Japan (5. 4mbd)Germany (2. 6mbd)Russia (2. 6mbd)

India (2. 3mbd)

Canada (2. 3mbd)Brazil (2. 2mbd)South Korea (2. 1mbd)France (2. 0mbd)Mexico (2. 0 mbd) regarding the world trade situation, an important aspect is the presence of an organization named OPEC which controls and regulates the imports and exports of most of the countries of the world. OPEC stands for ' Organization of Petroleum Exporting Countries' and the members include all the 11 major crude oil producing nations and countries which are highly dependent on the revenues from oil and its products. It is a known fact that OPEC nations have 75% of the world's total crude oil reserves of 1 trillion barrels and also controls approximately 40% of the world oil production. Also OPEC member countries dominate the world exports of crude oil contributing to 55% of the total world exports. The major crude exporting countries along with their exporting figures are as follows: Saudi Arabia* (8. 73mbd)Russia (6. 67mbd)Norway (2. 97mbd)

Iran *(2. 55mbd)

Venezuela * (2. 36mbd)United Arab Emirates *(2. 33mbd)Kuwait* (2. 20mbd)Nigeria *(2. 19mbd)Mexico (1. 80mbd)Algeria * (1. 68mbd)Iraq *(1. 48mbd)Libya* (1. 34mbd)Kazakhstan (1. 06mbd)Qatar *(1. 02mbd)Mbd = million barrels per day while the countries with the * sign, are the member countries of OPEC. Countries which do not have appropriate reserves of oil and are therefore incapable of satisfying the domestic consumption demand , are generally the importers of crude oil . Countries with their net import figures , which are the major importers of crude oil around the world

are as following : United States of America (12. 1mbpd)Japan (5. 3mbpd)China (2. 9mbpd)Germany (2. 4mbpd)South Korea (2. 2mbpd)France (1. 9mbpd)Italy (1. 7mbpd)Spain (1. 6mbpd)India (1. 5mbpdTaiwan (1. 0mbpd)

1. 3 Crude Oil in India

India was not known to the world in the context of crude oil production and its by-products. In 1889, oil in India was discovered in Digboi in Assam. In India, first crude oil refinery was set up in Digboi in1901. The exploration and production activities were limited to the North Eastern part of the country. During 1958 and 1974, two more places for crude oil production were identified named Cambay onshore basin and Bombay offshore basin. Initially major international companies were given the job of exploring and producing oil in the country but eventually after the oil prices shock in 1973, the whole sector was nationalized. India does not come under the major producers of crude oil since it doesn’t have much oil reserves. This is the reason why it generally depends on imports of crude oil from other countries. However, the production of oil and subsequently production of its by-products in India has witnessed an increase in the recent past because of exploration and findings of new oil reserves. Currently, India has an estimated quantity of 5. 4 billion barrels of oil reserves out of which it produces around 0. 8 million barrels per day. At the current production level, the oil reserves in India would last for around 29 years. The major oil reserves of the country are situated at the following locations: Mumbai high -MumbaiUpper Assam- AssamCambay -GujaratKrishna-Godavari basin -Andhra PradeshCauvery basin -Tamil NaduNagalandArunachal PradeshMumbai high field is the largest crude oil

producing oilfield that produces around 260000 barrels per day. Among these production centers, major share of production, that is, 2/3rd share is bagged by the offshore reserves in comparison to onshore reserves. In India, the refining capacity of crude oil is over 2. 1 million barrels per day. The refining sector in India is held jointly by both public and private sector, public sector being the dominating one.

1. 4 Crude Oil Market of India

India, one of the non-OPEC countries is much dependent on its oil imports in order to fulfill the domestic consumption demand, due to its much lower level of production. India, being a developing country with the requirement for oil as a primary energy constituent from the industries in the country is at its peak. The country has been much depended on coal in order to satisfy its energy needs in the earlier times but the use of crude oil and gas has been taking over the dominance of coal with the changing times. Oil and gas contribute to approximately 45% of the country’s total energy consumption. India, having around 5. 4 billion barrels of oil reserves with it . On the other hand, the domestic production has increased in the recent past to reach the 0. 8 million barrels per day mark. Mumbai high, the largest oil-producing oilfield in India with a production of almost 2. 6 lakh barrels per day. The refining capacity of crude oil in India is estimated to be around 2. 1 million barrels per day. In Regards to the consumption pattern of oil in India, it is the 6th largest consumer country in the world with a consumption of 2. 2 million barrels per day. This leaves the country with a huge demand-supply deficit scenario and therefore 70% of the consumption is met through imports. Among the oil imports, India generally imports Oman-Dubai sour grade

crude; Brent dated sweet crude and bonny light crude. The country imports over 1. 5 million barrels per day which place it at the 9th position among the largest oil importers of the world. Although the Indian production has increased in the recent times, the imports were also raised by 5% making because of the raised Indian demand of almost 4. 2%. The countries, from which India imports crude oil, are as follows:

VenezuelaNigeriaSudanIranKuwait

1. 5 Crude Oil's major trading centers

The major trading centers of crude oil in the world are as follows: New York Mercantile ExchangeInternational Petroleum Exchange of LondonTokyo Commodity ExchangeIn India, crude oil is traded at various commodity exchanges which are Multi National Commodity and Derivatives Exchange Ltd. and Commodity Exchange of India

1. 6 Iran – India's Trade Partner

Real Gross Domestic Product of Iran, which was averaged to 6. 4% during the time period 2001-07, slowed down to 0. 6% in the year 2008. However , growth, picked up to 3. 5% in 2009 , but moderated down in 2011 to an estimated 2. 5% . The main causes being owing to decrease in the production of hydrocarbon. Nominal Gross Domestic Product has risen to an estimated US$ 475 during 2011 bn from US$ 309 bn during the year of 2007. The country's real GDP growth is most probably to be slowed down due to tough sanctions against it, decline in its overall oil production and the subsidy cuts. Real GDP growth of the country has been averaged down to 3. 2% during the time period of 2011-13, since exports of crude oil have been hit by tightening embargoes by the EU and US, which eventually led to the

Iranian authorities to hold back their oil production. Iran, with its oil related exports accounting for almost three – fourth of its total revenue from export is one of the major oil exporters in the world. The country’s total trade increased almost four times during the time period of 2001-2008, to US$ 189 bn from US$ 40 bn, due to growth in both imports and exports. There was a decline in trade in 2009 which mainly reflecting sharp decrease in its export demand, which again went up in 2010. Iran’s entire exports were US$ 83. 8 bn, against US$ 23. 9 bn during 2001, due to mainly on account of increase in oil exports, plastics, organic chemicals and ores. Iran and India’s trade relations have seen a significant rise during the last years, with India’s total trade which includes both imports and exports with Iran which rose to to US$ 10. 5 bn in 2010 from US$ 520 mn in 2001. The trend has been supported by h rise in India’s imports and well as exports from Iran, with its imports from Iran demonstrating a much higher Compound Annual Growth Rate as against its exports to Iran. India’s balance of trade with Iran that depicted a surplus amount of US$ 428. 8 mn during 2005, later on turned into a deficit amt of US$ 4. 3 bn during 2006 reason being to sharp increase in its oil imports. During the year 2010, the trade showed a deficit of US$ 5. 5 bn. During the time period of 2010-11, Iran was ranked as India’s fourtennth largest trading partner, at a share of around 2. 1% of India’s entire trade. In the very much same year Iran was ranked as the seventh largest source for India of imports. The following table denotes India’s trade relation with Iran during the time period of 2000-2010

1. 7 Oil Prices

Drivers of Oil Prices?

The details of how oil is priced in the world market have remained the same for more than fourteen years. Infact, the current system has now survived for as long as direct setting of an administered price by OPEC did. The system may have been stable but the past fourteen years have witnessed major changes in the underlying fundamentals of the oil markets, also in the nature of oil trading. In the physical market, the world trade flows pattern has changed. The US import gap has been steadily rising, and represents about a quarter of the volume of international trade in crude oil. With that increase, the balance of US imports has shifted away from long-haul to short-haul sources, eventually towards heavier crude oil. The Asian import gap also has risen sharply, while Europe's has contracted because of the steady increase in North Sea production. West African crude occupies a pivotal position, and swings into three of the main crude oil consuming regions as per the market conditions. The changes in the physical market may have been intense; the rate of change has been greater in oil trading. When producer countries, as a pricing system first adopted market linked indexing, the NYMEX light sweet crude oil contract was in its fourth year only, while the current IPE Brent contract was still a year from fruition. Since then the volume of futures market trading has increased mercilessly, while the volume on informal markets such as forward Brent has declined. Futures have grown to be the dominant part of the trading system, from being a novelty. In the mid of 1980s, trade in absolute prices in spot markets was universal, now it is almost extinct and the role of price discovery in the market has moved to IPE

and NYMEX. In general terms, the physical markets set the differentials and the futures markets set the level of prices. In addition to the above changes are the changes in the physical base of the main markets. In other words, all three of the key world marker crude oils, which are, WTI, Brent and Dubai are in long term production decline. Thus, if the world has changed, and if the nexus of trading is now the futures exchanges, if the production levels of the marker crudes are eventually declining, does that implement that the current system of pricing crude oil is under pressure? Over the next decade, would it mutate through evolution, or maybe by forceful change? To start with the production levels. There is no different answer as to how low can the production levels go before the integrity of a market is being threatened. As long as the confidence is maintained and as long as narrowness of production base do not lead to the constant squeezes and distortions - a market can persevere. An example is the market for Alaskan North Slope delivered into US Gulf. In the oil pricing mechanism, the major change over the last decade has been the substitution of ANS by WTI in producer country formulae with regards to exports to the USA. Before this substitution took place; however, the market had survived for a due course of time with absolutely no traded physical base. An increasing proportion of ANS was taken by California, and a trickle was only left to make a long journey into the US Gulf, and that even tended to be a internal company’s transfer rather than being traded into the market. The quotation got based fully on journalists' summaries of the traders' perceptions with regards to the price at which ANS in the Gulf would be trading, if there actually is any. It might sound weird, but it normally produced reasonable numbers. It is naturally rather hard to squeeze a market which does not exist at all. The Alaskan

North Scope market represents an extreme, on the other hand demonstrates that there is no critical lower limit on the production. As for WTI and Brent, production declines are not of any magnitude sufficient, in any case to cause too much trouble over the next few years. The Dubai market is another story, altogether. For many years it has been argued that Dubai is no longer a meaningful market, and has been becoming increasingly distorted. The production decline only accelerates the existing problem. The whole idea of linking prices to the futures market prices is that when formula pricing began, there was a doubt in the minds of few key producers regarding the nature of futures prices, and the use of Platt’s quotations for the physical market meant a greater grounding in physical market. The doubts might have abated, but, undoubtedly the most important numbers in the entire world oil trade remain the Platt's quotations for dates Brent and for forward WTI. As for the US market, there is absolutely no reason at all as to why NYMEX prices should not be used in formulae, it would, indeed, make little difference if they would have been. The NYMEX contract is physical, in it being a pipeline contract delivery could be made for one thousand barrels volume of a single contract. Platt's assessed the same thing, although in its informal forward rather than futures phenomenon. The major difference is only the timing of the quote; Platt's assesses WTI for time in the hour, after the NYMEX close down. It could be argued that linking directly to NYMEX creates an incentive of manipulating the closing price in the last few minutes of trading, that incentive already exists as a way of influencing the information that is available to the Platt's journalists. The use of direct pricing using futures prices would probably work in the USA, but it would not cause any major change to the entire system. However, as for Brent, matters

are more complicated. An important feature of the Brent market is that the market works extremely well till one does not think about it too much. The market has evolved more through chance than through design, IPE Brent is the one formal element in an interrelated network of markets. While Exchange for Physical provisions could be used, the contract is not physical. It is cash settled since delivery could not be made with regards to the standard contract volume in what is a cargo and is not a pipeline market. In the USA, the futures market has been supplemented by the informal forward market. As for the Brent, the two markets are complementary, where the futures market relies on the forward market for providing a physical grounding through the IPE index construction. As for the USA, the next month NYMEX contract is close as one can actually get to spot pipeline crude oil provided with the logistics of pipeline scheduling. In this sense, there is no thing as dated WTI. In Brent there is this problem of dated Brent. The Platts' quote for dated Brent indirectly or directly prices around two-third of entire oil moving in international trade. Still dated Brent is liable to chronic distortions, there is almost little reported trade, and no trade to absolute prices at opposed to differential, and quote is leveraged by Contract for Difference market activity. One could not get away from the prominent fact that quote is usually manipulated. In contrast, IPE Brent has got a volume of trade almost a hundred times more, also is for practical purposes just impossible to manipulate credibly. Therefore, the question arises that should the dated Brent role be taken by the futures Brent? The answer to this depends as to how intensely dated Brent is distorted. The reason behind using dated Brent as a index is that with the delayed pricing from the time of loading, this guarantees competitiveness of the long haul crude with the

short haul at time of delivery to the Europe. Moving away from the system would automatically reduce that competitiveness, since the basis risk between spot and future is significant. While on the other hand, suppose if dated Brent is liable to wander off in its own because of the distortions, then it’s would not exactly pick true spot values, and would leave both refiners and producers prone to the frequent discontent annoyance . To the contrast, futures prices are immensely transparent. Which in short means that the best index is undistorted dated Brent. Without that, futures prices and the distorted dated Brent prices, both are anyway less than ideal, but on the other hand , all in all one may use futures prices. Moving to futures indexing has continuously been in progress, advanced by the notable changes in Saudi Arabian pricing formulae with regards exports to Europe. However, this does not represent a triumph of the market. Infact, it is a major defeat, which implies that self-regulation has failed drastically in the area of pricing of spot crude oil. The latter case is a disaster in many ways, which is why it is confusing when well known oil companies distort physical Brent market by a deliberate trading strategy. May be the idea of trading as a separate and independent profit centre has gone too far in few modern companies. In the end, the power of making major changes related to the oil pricing system rests entirely with the major oil producing countries. These changes are often talked about, with the price weakness of 1998 and early 1999 being the most talked about. Infact the Saudi Arabian changes are to an extent superficial with that face that dated Brent plays an explicit role till date. The current system of pricing can generate $30 per barrel, on one hand, for the producers, and it can also generate $10 per barrel, on the other hand. The volatility of prices is entirely related to the efficiency of the output

management, with regardless of the system being used. If the current system begins to deplete, the producers would have plenty of other options as alternatives, and the change could no doubt be drastic. The impact is again put on major oil corporate to behave in a responsible manner, until and unless they would wish to fasten the move back to a half-directly managed method of the price formation. The change has taken place many times in the past, and it should not be assumed that the oil market will be immune to radical change, over the coming decades.

1. 8 India – Brief Analysis

Background

During 2009, India was ranked the fourth largest consumer of energy in the world, following United States at the top followed by China and then Russia. Inspite of a slowing global economy, energy demand of India continues to rise at a drastic rate. As the vehicle ownership expands, demand for petroleum in the transportation sector is expected to rise in the coming years. While, on one hand, India’s domestic energy resource base is viable, India continues to rely on its imports for a considerable amount to fulfill its energy use. According to International Energy Agency (IEA) records, hydrocarbons account for the major part of energy use in India. Coal and oil together represent almost two-third of entire energy use. While, Natural gas accounts for seven percent, expected to grow with the discovery of new deposits. Combustible renewable and waste hold around one forth of energy use in India. The share holds traditional biomass sources which involves firewood and dengue, which more than 800 million Indian households use for

cooking. Other renewable which include solar, geothermal, hydroelectricity and wind represent around 2 percent share in the Indian fuel mix.

1. 9 India – Its Oil Requirement

India had around 5. 7 billion barrels of proven oil reserves in January 2011, which amounts to the second-largest amount in the Asia-Pacific region following China, according to Oil and Gas Journal. India’s crude oil reserves are sweet and light. The country produced approximate 950 thousand barrels per day of the total liquids during 2010, out of which 750 bbl/d was crude oil. India consumed 3. 2 million barrels per day during the year 2010. The combined factor of rising oil consumption and subsequently the relatively flat production has led India to increasingly depend on the imports from other countries to fulfill its petroleum demand. During 2010, India was ranked the world’s fifth largest net importer of oil, with importing around more than 2. 2 million bbl/d, or approximately 70 percent of consumption. A major portion of India’s crude imports come from Middle East, with Saudi Arabia and Iran being the largest suppliers. While Iranian oil’s share in the imports from Iran has decreased drastically in the recent years, mainly due to issues related to processing payments.

1. 10 IRAN – INDIA –THE NATURAL PARTNERS

C: UsersuserPictures\\ _58008280_us_iran_oil464x195. gifThere seems to be great potential for good ties between India and Iran related to the energy sector. Infact, since early 1990s, energy security has been the main priority of foreign policy of India. Post the first Gulf War, India lost Iraq and Kuwait, its two main suppliers of oil. Iran, being the second largest producer of oil in the world, it offered the country cheap resources and instantly became

India’s second source of oil imports following Saudi Arabia. During 2011, India imported around 12% of its oil requirement from Iran. 13% of Iranian crude oil exports were received by India, which made it stand at the third largest position of buying Iranian crude oil following China at 22% and Japan standing at 14%. Despite the fact that Iran currently holds the second largest no of gas reserves in the world which is 15% of the global reserves, it only stands to be the 25th largest producer of gas. The Indian has displayed keen interest in the purchase of Iranian natural gas, but issues arise related to the transportation and refinement of gas from Iran. Particularly, gas can be transported through a overland pipeline from South Pars field of Iran’s via Pakistan. Since 1993, the negotiation have been still on . The project would result in increasing gas exports from Iran and in meeting high demands of energy in India and Pakistan, both. Iran’s and Pakistan’s strong support, the pipeline has been presented as an additional opportunity for stability and peace in the surrounded region. In the year 2010, in the month of May, Iran and Pakistan together signed an agreement in order to launch the project with the provision of India, joining in later. While insecurity due to the Baluchistan insurgency in Pakistan, the probability of another Indo-Pakistani conflicts, , and the US oppositions to the pipeline have been the reasons for the delay of its implementation. Inspite of its interest of taking part in the project, India has eventually stopped attending trilateral meetings long back since 2007. The country has also displayed greater interest and enthusiasm in the Turkmenistan-Afghanistan-Pakistan-India pipeline. There has been a significant increase total bilateral trade which increased from $6. 011 billion during the time period 2005- 06 to $13. 670 billion during 2010-‘ 11. Besides the oil, commercial trade consisted mainly of agricultural goods,

petrochemical products, which remains moderate and Information technologies. Despite all this the strategic position of Iran is such that it offers great various commercial opportunities to India.. During the period of February 1997, India and Iran, together signed an trilateral agreement on the issue of international transition of goods with Turkmenistan.

CHAPTER II

REVIEW OF LITERATURE

In this paper dissimilarities between the oil price shock of 2007 -08 and previous oil shocks has been discussed, and subsequently their effect on the economy. (Hamliton)It brings out the fact that unlike the previous oil shocks which were due to physical disruption of supply, the 2007-08 shock was caused because of strong demand over stagnated oil production. The paper discusses the impact of exchange rates on import and exports of trade and services (Harri, Nalley, & Hudson)and how they influence the prices of those products which are being traded . It has been talked about in detail about the role of exchange rate in the linkage of oil prices over a long a period of time. The research paper provides with the matter related to Iran’s economy, India –Iran trade relations, the imports and exports. (India, july , 2012)Along with the theoretical issues it also highlights data related to both the economies. The various headings undertaken also cover data related to export and import of various commodities, the potential items of trade between the two nations. This paper undertakes the issue that India’s position on the oil sanctions put against Iran has been becoming a riddle which defies conventional explanations. (Kumaraswamy, March 19, 2012) It also emphasize on the requirement of India to have an independent foreign

policy. The paper explains the effect on India and its position because of the US sanction against Iran.(India’s Foreign Policy Towards Iran: Dilemmas of An Emerging Power , November , 2012) This paper emphasis on the relationship between India and Iran and announce them to be natural partners. It also undertakes their energy and commercial cooperation and their common security interests. The strategic partnership of India and Iran has been which is based on common energy, economic and security interests have been explained . It also highlights the potential for trade between the two nations. This paper analyzes the factors that affect oil prices. (Anderson & Buol, What is Driving Oil Prices) It also finds out to what extent are higher prices the result of supply vs. demand factors and also the belief that how much does speculations affect oil prices. It explains the volatility of oil prices and various factors like demand, supply and other factors which have an effect on the prices. The paper explains oil weapon as being one fascinating subject worth explaining every now (Katiri & Fattouh) and then it explains the effect of sanctions and embargoes on an economy. It explains the effect on the US and the EU sanction together, and what effect would they have on the economy of Iran. The paper also illustrates the strategic importance of the Strait of Hormuz. Towards the end the paper talks about the way ahead for Iran and what steps could the nation take which would prove to be beneficial for the country. The paper talks about the effect of International and domestic oil prices on major macroeconomic variables. (Bhanumurthy, Das, & Bose)The deregulation of the domestic oil prices under the scenario of one time oil shock related to international prices and also a no price shock situation has been analyzed by its impact on various factors which include fiscal balance, inflation, growth etc.

CHAPTER III

RESEARCH METHODOLOGY

3. 1 STATEMENT OF THE PROBLEM

Oil price shocks have various effects on the economy through its supply side which includes higher production costs and reallocation of resources etc , also through the demand side including uncertainties , income effects etc) and it also includes the various terms of trade. Due to the various technological innovation, various sectoral changes, the oil market structural change and also the development of cost effective alternate sources of energy, the effects related to oil price shocks have been less intense over a period of time and also are asymmetric. A oil price increase feeds through to Gross Domestic Product growth to larger extent instead of a decline, the phenomenon can be because of the adjustment costs that are associated with reallocations of sectoral, the rigidities related to nominal wage and the implications of uncertainties related to consumer spending on investment and durables. Therefore, whenever there is a rise in the oil prices after a long period of stability of oil price, it would have a larger impact on oil trade. India comes among the top 10 oil- consuming countries. Oil accounts for almost 30% of the country’s total energy requirement and consumption. India makes no exports and imports almost about 70% of its entire oil consumption. This would naturally create a deficit in supply, since domestic production of oil is not likely to keep up with the demand. While, India's production roughly is 0. 8 mbpd, only. According to an IMF report which states that among all the oil importing countries, the most impact on balance

of payment and GDP growth would fall on India, Pakistan , Thailand , Korea, Philippines and Turkey.

3. 2 OBJECTIVES

Identifying the factors which determine imports of India from Iran. Measuring inflation from import price of India. Analyzing the impact of the factors that affects imports of India from Iran. To suggest suitable policy options.

3. 3 STATISTICAL TOOL

The model used in the study takes into consideration the various factors which analyze the factors which determine imports of India from Iran. That is , the model is as follows : Wheret= TimeIM = Imports from IranMP = Import Price of IndiaIP = Industrial ProductionEx = Exchange rateS1= Shocks1 (increase in international price)S2= Shocks 2 (oil embargo in Iran)The various factors having impact on the Imports from Iran have been recognized as Import Price of India , the country’s Industrial Production and the Exchange rate and the various oil shocks on the economy.

MULTIPLE LINEAR REGRESSION TECHNIQUE

For the analysis of this model, multiple linear regression technique has been usedMultiple Linear Regression model is the method which is used for modeling the linear relationship where there is one dependent variable and more than one independent variables. The dependent variables, on one hand, are also known as predictant, on the other hand, the independent variables are known as predictors.

Oil Shock I (S1):

Causes and the Consequences of Oil Shock (2007–08)

On one hand, the primary cause of previous oil price shocks were due to physical disruptions of supply, the price hike of 2007–08 was predominantly caused by strong demand confronting declining world oil production.. The price was very much volatile after the fall in the 1980s; it was still low as $20 a barrel towards the end of 2001. The next few years saw a steady rise in price that increased the real price by the middle of the year 2007. Later in that year the oil prices fell sharply, thereby, making the nominal price of oil to an all-time high, on July 3, 2008 at a price of $145 a barrel, which eventually was followed by an even more astonishing price collapse.

Oil shock 2 (S2):

The embargoes against Iran

The EU has put strong restrictions on cooperation with Iran in financial services, technologies, energy sector and foreign trade, and also banned the reinsurance and insurance provision by insurers in member states to Iranian owned companies and Iran. Eventually, in 2012 on 23 January, the European Union gave consent to an oil embargo on Iran which was to be effective from July, and also the Assests of Iran’s central bank was to be freezed. On the other hand, The US has put an arms ban against the country and a almost total economic embargo against Iran, including sanctions on companies which are doing business with Iran, also sanctions against Iranian financial institutions and also a ban on entire Iranian-origin imports, and a almost total ban on selling repair parts and aircraft to aviations companies of Iran. In order to do business with Iran, a license from the Treasury Department

would be required. Iran, being the second largest oil producer of OPEC, with the production of around 4 million barrels a day. Iran heavily relies on oil exports for almost about 80 percent of its entire foreign revenues. . The U. S. and EU, together, imposed the sanctions in order to pressure Iran on its nuclear program.

EFFECTS

The sanctions against Iran bring difficulties to its oil dominated economy which is worth $352 billion . The Data available establish a declining trend in the overall share of Iranian exports of oil-products, according to the Iranian Central Bank publication. The sanctions against Iran have had an adequate adverse effect on its nuclear program by making it difficult to acquire specialized equipment and materials required for the program. The economic and social effects of the sanctions have been intense with even for those who have doubts on their efficiency. Thereafter, China has eventually become Iran's largest remaining partner in trading. The Sanctions have had an adverse impact and have subsequently reduced Iran's access to products required for its oil and energy sectors, a decline in oil production because of adverse impact on its technology use which would have had increased its efficiency and have also prompted few oil companies to withdraw trade relations from Iran. According to the various sources, Iran might be losing annually as much as $60 billion related to its energy investment. For the fear of losing access to larger western markets, a number of international companies have been hesitant to do business with Iran. Apart from restricting the export markets, the sanctions have subsequently reduced Iran's income from oil It has been estimated by the analysts that the budget

deficit for the duration of 2011/2012 fiscal year which ends towards the end of March in Iran, lies between $30bn to $50bn.

CHAPTER IV

DATA ANALYSIS

MULTIPLE LINEAR REGRESSION ANALYSIS

Dependent Variable: IMPORTSMethod: Least SquaresSample (adjusted): 1999M12 2012M07Included observations: 152 after adjustmentsVariableCoefficientStd. Errort-StatisticProb. C-124. 311012. 63312-9. 8400880. 0000IMPORT_PRICE-0. 0159170. 007871-2. 0223020. 0450IP5. 9342130. 39822014. 901860. 0000EXCHANGE_RATE-2. 9608301. 217510-2. 4318740. 0162SHOCK1-0. 0096520. 257947-0. 0374180. 9702SHOCK20. 5763690. 7300740. 7894670. 4311R-squared0. 859345Mean dependent var5. 035441Adjusted R-squared0. 854528S. D. dependent var1. 792698S. E. of regression0. 683749Akaike info criterion2. 116221Sum squared resid68. 25682Schwarz criterion2. 235585Log likelihood-154. 8328Hannan-Quinn criter. 2. 164711F-statistic178. 4004Durbin-Watson stat0. 646764Prob(F-statistic)0. 000000As seen in Table, all the signs of the coefficients are theoretically consistent and found statistically significant except shocks. As revealed, the import demand of India is negatively affected by the import price of India and nominal exchange rate of India against US $ (as US $ is used for transaction). Due to increase in the price of Iran (for import), the imports are adversely affected. Consequently, the increase in value of US $ vs Indian Rupee, import price of India has a negative impact on the import from Iran. This inference is inevitable as the import price of India is negatively significant at 5% level. The level of the

nominal exchange rate has a significant negative impact on the import of India. That is, as the Indian Rupee depreciates relative to the foreign countries' currencies (US$), which shrinks the imports more to the foreign market (Iran). India's imports were negatively affected by the depreciation of the exchange rate, resulting in a negative sign. The statistical significance of this parameter is 0. 0162 at 5 % level. This result is based on the monthly data with the risk-aversion behavior as faced by many countries. From the theoretical point of view, the Indian industrial production must be positive. The Industrial Production of India variable is positive in the Table as expected and highly significance at any level. The overall regression fit, as measured by the both R-squared and adjusted R-squared values 0. 859345 and 0. 854528, is very tight fit. Thus, model is highly fit. Unlike developed countries, the developing countries like India does not manage the exchange rate risk by using many instruments such as borrowing or lending in foreign currencies, insurances against exchange risk, the introduction of contractual clauses on the revision of prices and foreign exchange management to even out the timing receipts and payments in foreign currencies and the choice of currency on invoicing, and also hedging operations in their foreign exchange market, which are not available for the developing countries to reduce their or eliminate their exchange rate risk. Shock1 is increase in international price due to Middle East tension and price speculation which has negative sign though not significant. Shock2 is oil embargo in Iran which the sanction by USA on oil importing countries from Iran. Shock2 shows positive sign and not significant because the ban started in the month of July, 2013 only. Therefore the effect may not be seen in the study.

CHAPTER V

SUGGESTIONS AND RECOMMENDATIONS

SUGGESTIONS

1) How to avoid Oil Shocks

a) Saudi Arabia to save the oil shortage : In any case of modest turmoil, Saudi Arabia together with OPEC should try to make up for any shortage in oil with their own capacity which is spare As per the sources, oil analysts predict that OPEC would at least require 4. 5 million barrels per day in order to stabilize prices . At most, OPEC will have approximately 3. 9 mbpd of the spare capacity by summer and if it’s likely an inflated figure, since few analysts have suspect that perhaps Saudi Arabia is overstating its spare capacity. b) Rerouting some quantity of the oil around the straits: Reports state that it a possibility of diverting a small portion of oil of Middle East around the Hormuz Strait . Saudi Arabia has with itself extra pipeline capacity in order to channel around 1 million barrels per day over to Red Sea, and the UAE is hoping to have a new pipeline completed by the summer which would transport at least 1. 5 million barrels per day . This might be of help, though this would be of very much limited use in case of a major showdown. c) Countries should immediately start decreasing their oil use: Countries should cut down on oil in fast order by any of the following waysPromotion of telecommutingAlteration of speed limits, Increasing the practice of car-pooling. Although even if the above measures were instituted at a quick pace , this would save only around 1 million barrels of oil on a per day basis — which is nowhere near enough in order to offset a serious disruption of around 17 mpbd via the Strait of Hormuz. d) Countries to

release their respective emergency oil stockpiles: A number of countries have plenty of oil piled up away for unforeseen emergencies . Official records indicate that such countries could release the required quantity of 14. 4 million barrels per day which would be necessarily required in order to offset a major obstruction in the Strait of Hormuz, for almost about a month. Therefore , the world is capable of probably handling a minor disruption (for example , if Iran intentionally bottle up back on its production). On the other hand , any major conflict taking place in the Strait of Hormuz , would be difficult to consume. The entire world is much dependent on oil and there is no availability of enough spare crude around the world in order to avoid any serious tragedy .

MANAGING INSTABILITY OF EXCHANGE RATE

Forward Contract : In forward contracts, one buys a currency today with a small deposit – which is generally 10% - which enables him to lock into the specific rate . While he needs to only pay the remaining amount when he would actually need the money. The fixed rate helps protect him against a sharp move which would eventually act against him when he make the entire payment. Forward contracts are generally fixed for up to the duration of two years. Limit Order : Under this a target exchange rate is set , at which, one buy’s or sell’s the currency , if the exchange rate is achieved in the market . They are only useful in the case if you have upcoming payments but while you are not bound by any tight deadline and thus have time to get a better exchange rate than what is available at the current time period. The tool provides guarantee to business houses that if the desired exchange rate is achieved, even in the case that it occurs at the middle of the night, the

trade will be triggered on its own . Stopping Loss Orders : Under this you set a minimum exchange rate at which you'll which, you will buy or sell your currency, in case it is achieved in the market They are often used in case there is high risk related to adverse movement related to the exchange rates, which enable the clients to reduce the exposure risk to the negative movements and also to protect their bottom line . Limit Order and Stop Loss are generally run together, effectively protecting the desired exchange rate. Thereafter the realized order will cancel the other on its own, automatically. This , one on hand , enables businesses for aiming for a favorable exchange rate, while on the other hand , it also ensures that in case the markets run against them, they , in any case , do not lose out.

REDUCING OIL IMPORT DEPENDENCE

The need to import oil never be eliminated, but the impact of oil price shocks and cartel market control could be controlled by reducing the oil demand. While the Congress in the past had passed legislation related to the decrease in oil dependency by increasing the corporate average fuel economy standards of new trucks and cars to 35 mpg by the year 2020. This could eventually reduce the petroleum use by 25 billion gallons by the year 2030. In the end, the solution to the problem, ultimately, lies with technological progress: Development of advanced vehicle technologies which are energy efficientCreation of new energy sources that can be substituted to petroleum cost effectively and cleanly