

Energy Security, Economical Condition, Persian Gulf and IranMostafa Moshiri Tabrizi¹ and Davod Kiany (Ph.D.)²

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Abstract: A renewed focus on energy security arises from an extremely tight oil market and high prices that are driven by long-term trends in global growth and political-economic rivalries. While global energy markets are well developed, the institutions associated with stable investment and exchange are poorly developed in most energy producing countries. Moreover, many have a history of conflict or are located in regions where conflict is rife. Some leaders of energy producing countries threaten to use energy supplies to achieve geopolitical rather than economic objectives. Yet our theories about the new institutional economics of growth are based on evidence about countries that were developing in a more stable environment.

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1. Introduction

The relationship between energy and security has been one of the most important issues shaping national, regional and international relations. Competition for energy and energy-related natural resources dominated history for many centuries, long before environmental aspects came to the fore. Many states and communities fought for energy resources for three main reasons: energy resources are limited, they are unevenly distributed, and they have strategic value in terms of development.

The need for energy is faced with the fact that the world is 70 per cent dependent upon fossil fuel energy such as oil and coal that cannot be renewed (non-renewable). It remains very doubtful whether alternative energy, such as nuclear power and other forms, will be able to sustain economic development in the twenty-first century due to security and environmental implications. In fact, this has become a political and strategic issue facing many governments. Oil pollution, environmental degradation, water pollution and climate change will force many national governments to go for cleaner and safer alternative energy.

However, the shift will not be easy as it entails political and strategic implications. The shift to alternative energy will also affect human security and individual needs as these alternative energy forms are expensive, which means access and distribution are limited to particular groups of society.

This perspective brings us to the essence of today's energy problems. First, can the availability of oil and other fossil energy resources be guaranteed with reasonable prices in the face of increasing oil consumption? In many cases, prices can fluctuate sharply due to non-economic variables. Oil supply is estimated to reach its peak in 2010, while the world's oil consumption will be at 115mbpd (million barrels per day) and 121 mbpd in 2020 and 2025¹ respectively (the world's oil reserve is 1114 trillion

barrels). Most of the oil, approximately 57 per cent, is consumed by transportation.² Some analysts in the US argue that it remains debatable whether new oil exploration can meet energy demands. It would also create new environmental problems. Gas consumption will increase to 125 TCFC in 2010 and 152 TCFC in 2025, while the world's gas reserve is approximately 6300 TCFC. Coal consumption will be at 5.9 billion tones in 2010 and 7.5 billion tones in 2025 (the world's coal reserve is 984.6 billion tones).³ Thus, the world is facing a critical problem with the long-term availability of energy resources. Methods and approaches to address this challenge will certainly change the pattern of economic development and shape strategic interactions at individual, national and international levels. Secondly, how far can alternative energy policy options satisfy the need to protect the environment? Today, fossil energy amounts to 26,583 billion tones/year.⁴ Coal is certainly one important source of energy. However, it also produces high levels of pollution as is demonstrated by China's recent experience. Meanwhile, many people remain skeptical of nuclear power and perceive it as unsafe. It seems that nuclear cannot replace fossil energy in the near future. At present, nuclear energy accounts for 7.5 per cent of the world's total energy supply and generates 15.7 per cent of total electricity. Thirdly, energy needs and problems have always created a fear about dependence on external powers and geopolitical factors. This is especially true in the case of countries with limited or no energy resources, which eventually shapes their foreign and strategic policies. It can be argued that the future of world politics will be shaped by interests in energy, and world politics will be essentially a world of energy diplomacy. One extreme is perhaps the US foreign policy towards the Middle East which has been very much driven by the desire to protect energy resources and supplies for the world economy and its allies in particular. The same is true in the case of

China's summit diplomacy towards African states because of energy interests.

Perhaps what is fundamentally important is the fact that there is always a conflict of interests between efficiency and population growth. There would certainly be efforts to promote efficiency to meet increasing energy demands due to population growth and economic activities. In these circumstances, the main question is which factor is more responsible for the huge consumption of energy: population growth or political-economic policies? And lastly, investment and research into alternative energy is expensive. The IAEA estimates that the world will spend at least \$200 billion on the development of nuclear energy. India has plans for 25 per cent of its energy demand to be met by nuclear energy in 2050. However, nuclear energy has always been controversial and a sensitive issue. Thus, nuclear power is likely to remain marginal in supplying energy needs. It is expected to supply 6.3 per cent and 4.7 per cent of total energy needs in 2010 and 2030 respectively.

Energy security has risen to the top of the political agenda again. It is at the forefront of national debates and G-7 discussions and is slated to be at the top of the list for the G-8 Summit in 2006. It is also of great significance for developing countries, emerging economies, and energy exporters. But what does "energy security" mean in the 21st century? The traditional areas of concern – supply sources, demand centers, geopolitics, market structures and responsiveness of related institutions – form the core of discussions about the best way to ensure that economies have sufficient energy to meet their needs. However, the energy security paradigm has shifted and become larger since the major supply disruptions of the 1970s and even the early 1990s. The risks are different, the considerations for the best response have changed, and the implications for solutions are far more complex.

2. The concept of energy security

Energy security is back on the international political agenda. Not since the 1970s has energy been a more prominent political issue than today. The US Congress is considering the Clean Energy and Security Act, which conflates the perceived threat of climate change with the threat of energy dependence. The European Union produces several studies and initiate policies to secure energy supplies, and in communicating with its citizens the following warning is issued on the internet: "With both energy consumption and dependency on oil and gas imports growing and supplies becoming scarcer, the risk of supply failure is rising. Securing European energy supplies are therefore high on the EU's agenda."¹ In the media energy issues makes the headline daily and in the scholarly- and „not-so-scholarly “bookshelves the titles are increasingly alarmist: "Lights Out "Protect yourself and Profit from the Coming Energy

Crisis", and „The end of Oil: On the Edge of a Perilous New World“.

From time to time energy security becomes an imminent concern of state leaders. It all began when Winston Churchill, as First Lord of the Admiralty, prior to the First World War changed from coal to oil as power source for the Royal Navy. With the UK war machine dependent on Middle Eastern oil instead of British coal, oil supplies turned into a high level foreign policy and security issue. The two world wars demonstrated the importance of oil for victory on the battlefield. After the Second World War the commercial role of oil exploded with the motorization of daily life. When the oil producers organized themselves and took control over the upstream segment of the industry it was perceived as a fundamental threat to the Western way of life. Reducing the dependency on foreign oil was given top priority: "Aside from our military defense, there is no project of more central importance to our national security and indeed our independence as a sovereign nation" (Kissinger 1982).

After the price fall of 1986 oil became just another commodity. The price fell, oil supply was abundant and oil trade was increasingly handled at, or in connection with, market-based stock exchanges. The oil market took on the features of a global buyers market, with competing producers eager to secure outlet for their own resources. OPEC struggled with lack of internal cohesion and the increasing interaction between the oil market and financial markets made oil trade take on the features of other commodities. However, when Chinese and Indian oil demand increased beyond expectation in 2003, the balance shifted from a perception of an oversupplied oil market to a fear of future lack of supply. This put the world in a situation where investments in new resources were lagging the increase in demand and the price skyrocketed, reaching \$147 in the summer of 2008. This price increase had no immediate political explanation, which led to some analysts concluding that the price rise was an indication of resource depletion (Deffeyes 2005). The idea that the price signaled fundamental resource depletion is based on an energy version of the new-Malthusian idea that our consumption of natural resources is unsustainable given increase in population and energy consumption. A view particularly promoted by the so-called Peak Oil movement (Areklett 2010, Campell 2005).

This brief passage through a hundred years of oil history suggests that energy security is a complex issue with an inherent and intrinsic mixture of geological, economic and political factors. The aim of this paper is to try to disentangle the various aspects of the concept of energy security. This is

important as causal mechanisms and societal consequences differ depending on what kind of energy security challenges we are actually facing. A well-established definition of energy security reads as follows: “adequate, reliable supplies of energy at reasonable prices in ways that do not jeopardize major national values and objectives” (Yergin 1988). Some authors have recently suggested that the concept needs to be broadened. Elkind (2009) divides energy security into the categories: availability, reliability, and affordability. Then he adds a fourth aspect, sustainability, in order also to capture the environmental aspects of energy consumption. Our views are that one should not try to add more aspects to the already over-burdened concept of energy security. Furthermore, the environmental aspects related to energy, fossil fuels in particular, contradicts the other aspects of energy security. The more available, reliable, and affordable supplies of fossil fuels becomes the less sustainable will the world’s energy consumption be, if one believes the climate change models of the IPCC. we thus find it most fruitful to exclude the environmental sustainability as part of the concept of energy security.

The literature on energy security is to large extent derived from general energy studies, and thus not well-informed or related to the general security studies. A number of theoretical approaches to international security could also be applied to the energy sector. As an illustration the Copenhagen School emphasizes the way an issue becomes a security issue, through a process of securitization. Securitization is defined as a successful speech act “through which an intersubjective understanding is constructed within a political community to treat something as an existential threat to a valued referent object, and to enable a call for urgent and exceptional measures to deal with the threat” (Buzan and Wæver 2003). As Stritzel points out, this has immediate and significant implication for policy: “The articulation of “security” entails the claim that something is held to pose threat to a valued referent object that is so existential that it is legitimate to move the issue beyond the established games of “normal” politics to deal with it by exceptional, i.e. security, methods. This puts an actor in a very strong position to deal with an issue as he/she thinks is appropriate” (Stritzel (2007). As the statement referred from Kissinger above demonstrates, this fits perfectly with his and many following statements by representatives of the US government and US analysts. His reference to „our independence as a sovereign nation“ defines the threat as an utmost severe and dramatic threat. Although this perspective is most prominent in newspaper and general political journals, also some semi-recent academic studies in the energy field have

expressed a similar securitization perspective (Kalicki and Goldwyn 2005, Barnes and Jaffe 2006). The point following the Copenhagen School is that in itself by defining reliable and affordable energy supplies as a security issue, certain policy implications follows: in particular the kind of means available, but more important – what means are appropriate. Defining energy supplies as a security issue contradicts a subsequent call for oil consumers to rely on market mechanisms, international institutions or the good will of other actors (like Arab allies). In line with Yergin (2006) I find the economic element of energy supply far more prominent today that in the 1970s. The implication is obvious: “Energy interdependence and the growing scale of energy trade require continuing collaboration among both producers and consumers to ensure the security of the entire supply chain (Yergin 2006). On the political level it is necessary to develop a far more sophisticated system of global governance of energy (Goldthau and Witte 2010). Both these changes presuppose a “de-securitization” of the concept and understanding of energy security.

A first step in this direction is to disentangle the various implications of the different elements of the energy security concept in order to provide a more nuanced understanding of how structural changes (both political and economic) influence constraints and opportunities for achieving energy security, the mechanisms involved, and the policy implications that follow. In this paper I will distinguish between (i) the physical availability of resources, (ii) the economic conditions for producing crude oil, refining it and bringing it to the consumers, and (iii) the foreign policy that embeds these activities. This perspective suggest that oil supplies are insecure in a physical sense if global oil resources are actually depleted, insecure in an economic sense if the costs of producing oil increase beyond consumers ability to pay for it, and insecure in a foreign policy if they are only attainable by jeopardizing fundamental political values or objectives. At the end of the paper some policy implications for US and European energy strategies are discussed.

3. Global energy resources – a geological fact?

As mentioned, the rise in oil prices from 2003 to 2008 was by some interpreted as a structural phenomenon indicating increased fundamental shortage on oil reserves. In particular those belonging to the Peak Oil School find that oil prices are soon set to increase dramatically due to lack of sufficient reserves to serve increasing oil demand. The 2008 report by the IEA subscribes to this view (IEA 2008). This debate is not made irrelevant with the global spread of the crisis. If one believes that the

world is soon running out of oil, one's perception of both commercial and political aspects of the market will change dramatically. On the political level no policy change could change the geological fact. The political attention would turn to alternatives, both readily available alternatives and more uncertain infant energy industries would gain access to large public subsidies. The perception of a fundamental threat to the existence of the modern world would emerge, and no public funding of potential solutions would be regarded too expensive. Also the market actors' perception of the future resource balance is important for the present market situation. A fundamental geological depletion of world oil resources would create a continuous and almost unlimited increase in prices as the probability of lasting supply shortage increases. A somewhat cautious approach to the issue is thus advisable.

Whenever oil prices are high, doomsayers predict the end of oil because price increases have been interpreted as signaling scarcity. The perception of scarcity leads to projections of continuous price increases, which again are taken as evidence of scarcity. There is inarguably a fixed amount of physical oil reserves in the world, but as a prominent student of the world oil market, Morris A. Adelman, has said, "Whatever is left in the ground is unknown, probably unknowable but surely unimportant; a geological fact of no economic interest" (Adelman 1993: 220). The true signal of scarcity is the cost of replacing the oil produced with new reserves. A large portion of the world's oil reserves are, in fact, located in countries with falling replacement costs (Adelman 1993).

The recent period of high oil prices can adequately be explained as primarily the result of cyclical factors and shorter term pressure on installed production

capacity in a situation of unexpected increase in demand from China, and to some extent India. The economic downturn following the global financial crisis has also turned the situation in the oil market around in just a few months, with an oil price peaking at \$147 per barrel in the summer of 2008 and sold in December for less than forty dollars per barrel. Even though the price today is down around seventy dollar per barrel, global demand is slow to pick up (cf. figure 1). In fact, total oil consumption fell both in 2008 and 2009, in 2009 with as much as 1.7 % (4.8% in OECD). The average oil price in the forty-year period from January 1970 to January 2010 was \$43.45 (in 2009 dollar). In the present situation, it is extremely hard to determine any long-term trend in the world oil price. As figure 1 illustrates the demand and the oil price are only in some instances clearly related: in periods with very rapid price increase demand slacks, and after a high-price period the rate of increase in demand is lower than in previous low-price periods. Note that there are very few observations as basis for these conclusions. It is widely acknowledged that institutional factors on the supply side of the market are more important in determining the oil price after 1971, than the demand side. After the oil price peak in 1980 the fundamental balance between supply and demand was one of oversupply. The OPEC countries, in particular Saudi Arabia, tried to cut production in order to sustain prices. However, in 1986 Saudi Arabia realized that this strategy had failed, and launched a price war against other producers, and tried to stimulate increases in demand by pursuing a low price strategy. This strategy also partly failed, since many end-consumers did not face a low product price due to the consuming countries' increased taxation by the consuming countries.

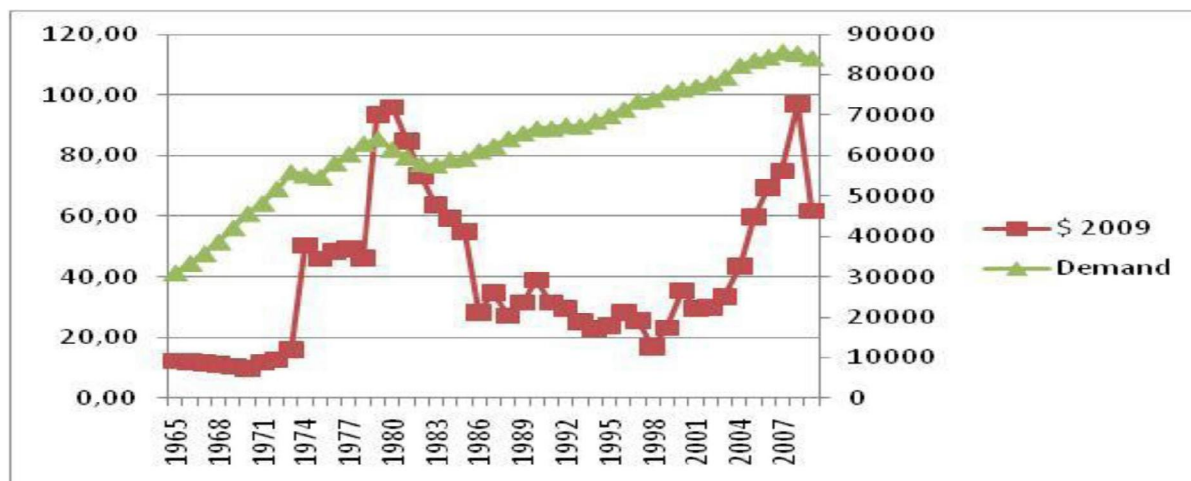


Figure 1: Oil price (2009\$/b) and demand (th.b/d.) 1965-2009

Source: BP Statistical Review of World Energy 2010.

BP statistical review of world energy 2010.

Furthermore, the potential for new oil discoveries is substantial, particularly in the Middle East. Iraq is regarded as having the second largest reserve base, having explored only a fraction of its potential oil provinces (Figure 2). In Saudi Arabia, systematic

exploration has not been conducted for decades. With a sustained period of increasing demand, Middle East oil producers could easily add billions of barrels to the total world reserves of conventional oil.

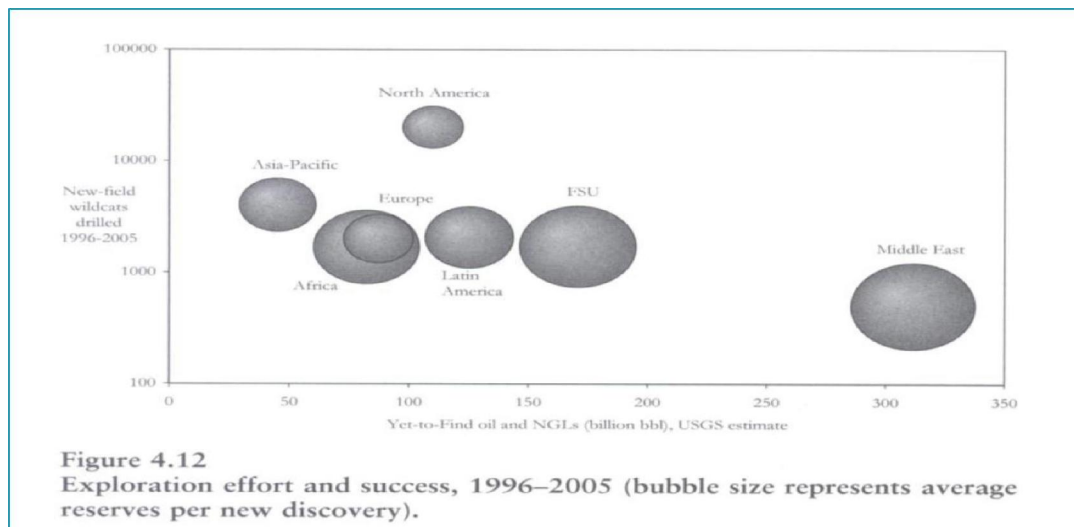


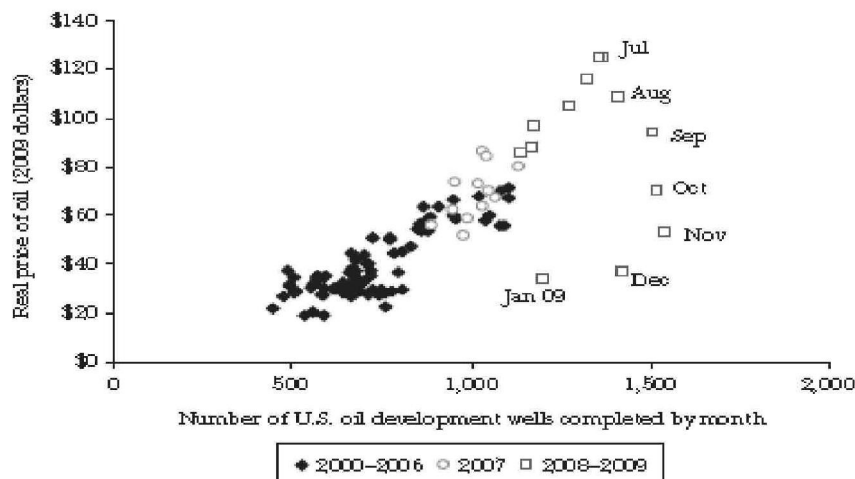
Figure 2: Exploration effort and success, 1996-2005.

Source: Mills 2008: 76.

In the past, their production capacity has by far exceeded perceived future demand. Thus, they have had no incentives whatsoever to make costly investments in order to add new production capacity, which, if utilized, would have implied declining oil prices. With future increases in demand, OPEC stands to gain more from a slow increase in capacity than from a rapid response (Gately 2004). Prices might remain high without indicating reserve scarcity, but rather indicating a new tool for market power in the hands of the oil producers. It is also important to note that much of the oil being extracted today has a selling price well above what is needed to cover costs and earn a fair profit. Thus, the incentives for cost-cutting in these areas are few. In areas other than the Middle East, such as the North Sea, where profit margins from time to time have come under pressure, substantial cost-cutting efforts have been successfully implemented. New technologies in every aspect,

from exploration to drilling, have substantially improved the amount of oil extractable from the reservoirs and the costs of bringing them to the market.

There are no signs today that overall replacement costs are increasing, nor does the present production level seem to be depleting world oil reserves. The so-called R/P ratio divides the total proven oil reserves by the production level and expresses the number of years the present production level can be sustained given the proven reserves. In 1980, the world's R/P ratio was 25 years, making 2005 the last year of oil. In 2010, the figure has risen to 42 years.⁴ Not only have the world oil reserves been sustained, they have increased even relative to the higher production levels. The claim that the world is "running into oil, not out of oil," still holds (Odell 1994). Furthermore, a high price stimulates oil exploration, as indicated by figure 3.



Source: U.S. Energy Information Administration.

Note: The chart shows monthly U.S. development oil well completions versus the real price of oil, by month, from January 2000 to January 2009.

Figure 3: Higher oil prices stimulates drilling efforts

Source: Smith 2009: 160

Oil reserves are not a given fact determined only by geology. Technological improvements have for the past thirty years increased the amount of energy resources available more rapidly than world consumption has depleted them. Increased efficiency in energy utilization has made it possible to increase economic growth with less and less energy use. Changing political conditions have made energy resources accessible to IOCs in new countries. Political regimes of all kinds that discover oil tend to want to sell the oil to consumers regardless of political differences. Any attempt to determine the amount of oil resources available will have to take into consideration all these various aspects. Or, one could, as Adelman, disregard the value of such information in the first place.

4. Economic conditions

Until the 1970s, the integrated oil market structure allowed IOCs to balance world demand and supply through a vertically integrated system. One single oil company controlled the whole production chain vertically, from oil fields to gas stations. OPEC's nationalization of oil-industry assets in the 1970s introduced new market mechanisms, primarily through the system of official selling prices and long-term contracts with a variety of oil companies. Although crude oil production was increasingly handled by the national oil companies of the OPEC countries, refining and marketing remained to a large extent in the hands of the IOCs. The long-term contracts created strong bonds between seller and

buyer.

However, throughout the 1970s and early 1980s, the decline in demand and the appearance of new oil producers outside the cartel made it very difficult for OPEC to enforce its official prices. As a consequence, long-term contracts were gradually phased out. This system was replaced by the development of a spot market (a market for single crude cargoes), which is characterized by short-term contracts, a high rate of turnover and sensitivity to outside events. Single cargoes of oil can be sold dozens of times before finally arriving at the refinery. Following this development also a market for forward deliveries and a paper-based futures market emerged. Today, the price of almost all oil traded is set by reference to spot, paper- or futures markets. The futures market reduces not only the buyers' costs of ensuring access to the commodity, but also the producers' access to market outlets. It also exposes the price setting to factors relevant to the investment decisions of actors in the various financial markets, but irrelevant to the supply and demand of oil: "the trader will buy or sell not because she/he has a physical need for the item but entirely on the basis of expectations about subsequent price movements" (Mabro 2005). In certain circumstances, this can create great volatilities in the oil price as financial institutions and investors move in and out of bonds, foreign exchange and oil futures based on expectations regarding relative profitability. Both compared to previous periods and other products, the oil price increasingly volatile: "The annual volatility of crude oil prices is high: 31

percent when calculated over the “modern” era (1974–2007) using the BP (2008) annual price series. For comparison, annual volatility averaged only 20 percent during the golden age of oil from 1874–1973. Regnier (2007), who provides volatility estimates for many products, finds that oil is now more volatile than 95 percent of all products sold in the United States” (Smith 2009). When market actors make simultaneous and instant moves in the marketplace, the behavior of all other actors could be regarded parametrically, in other words they could be taken as given. Or if the actor should make assumptions about other actors behavior it would have to be exactly that – assumptions, as no observation about others behavior is possible.

However, when the market transactions are extended in time a new kind of uncertainty enters the calculations of market actors. In such a market, actors are concerned not only with the price of the traded good today, but also the price some times in the future; the price of the good today will be influenced by the traders’ expectations about the price tomorrow. This price will in turn be influenced by the expectations about the price the day after tomorrow and so on. This does not necessarily change the formation of expectations, but it creates room for more and extended strategic interaction among the market actors: “a rational agent will recognize that the price tomorrow will depend upon the actions of all other agents tomorrow, and hence upon their theories of price formation ... The potential then exists for a rational agent to believe that certain events will affect the price ... simply because (he believes) other agents believe these events matter” (Burnell 1989).

This opens up for the possible influence of factors that cannot reasonably be claimed to affect the market fundamentals, such as endowments, preferences or production capacities, but that can be claimed to affect other actors’ beliefs. Factors that have an effect on the fundamentals are intrinsic to the economy, while other factors are extrinsic. The activity of the sun, creating sunspots is one such extrinsic factor. „Sunspots” have thus become the name for such factors in the economic literature. The economic literature on sunspots has primarily been focused on how equilibrium emerges in such markets. The empirical cases have mostly been the stock market and to some extent the foreign exchange market. But commodity future markets, including the oil market, could also be regarded as having the characteristics making the market vulnerable to sunspots.

In such markets price formation can be thought of as a social convention. This idea of price formation as a social convention was developed by Keynes, in

his market valuation, however arrived at, is uniquely correct in relation to our existing knowledge... and that it book *The General Theory of Employment, Interest and Money* from 1936: “The essence of this convention lies in assuming that the existing state of affairs will continue indefinitely, except in so far as we have specific reasons to expect a change. ... We are assuming, in effect, that the existing will only change in proportion to changes in this knowledge” (Keynes 1936). Keynes then goes on to discuss different weaknesses in this convention. For the purpose of this paper one such weakness is particularly important. Keynes argues that a “conventional valuation which is established as the outcome of the mass psychology of a large number of ignorant individuals is liable to change violently as the result of a sudden fluctuation of opinion due to factors which do not really make much difference. ... In abnormal times the market will be subject to waves of optimistic and pessimistic sentiment, which are unreasoning and yet in a sense legitimate where no solid basis exists for a reasonable calculation” (ibid). This more than seventy year old insight from one of the greatest minds of economics seems to point directly to the present situation both in the oil market and in financial markets in general, suggesting that sunspot-markets are volatile with inherently unpredictable dynamics. Governing such markets seems to be a tall challenge. Actors seeking to influence such markets will have to convince the oil traders that their previously held perceptions are wrong. Utterances made for instance by politicians could be regarded as extrinsic factors influencing the market convention, not in themselves altering any fundamental parameters of the oil market, but influencing the assumptions held by market actors, in particular the traders, about the future conditions of these parameters. By influencing the traders’ assumptions about the future, the sunspots (read: political statements) influence the price of oil in the forward and future markets.

In general, these changes in international oil trade make it more complicated for producers, consumers and companies to influence the oil-price. By the end of the 1990s, the short-term development of the oil price was left in the hands of the oil-market traders. It still is. Thus, all international oil companies now experience a situation where they make investment decisions without any control over the price of the product. With the recent volatility of prices combined with the increasing size of investments needed for development of new resources, like offshore Brazil, financial strength and risk-willingness becomes important aspects of companies’ competitiveness. Under these market conditions, individual producers, both OPEC and non-OPEC, have no guarantee of the

long-term loyalty of their customers. Nor does it make any sense for them to isolate the security of supply of an individual consuming country. The oil traders have gained an increasingly important position in the short-term market, making it very hard for the authorities of producing or consuming countries to determine the actual flow of traded oil. Thus, long-term supply stability should not be confused with price stability. Supply stability is primarily aimed at securing predictable volumes of oil over an extended period; price stability is primarily a matter of guaranteeing predictable costs. One may very well have a situation with ample supplies in which the price fluctuates widely. In fact, during the last three decades it has hardly been any actual physical disruptions of oil supplies. Even when the oil price was \$147 in the summer of 2008, no refinery had any difficulties acquiring crude supplies. No consumer suffered lack of deliveries. There was no shortage. So why did the price increase? Luckily, it is beyond the scope of this paper to answer this question. However, contemporary developments in the petroleum market are the result of a complex and dynamic interrelationship between different factors: unexpected increases in demand over recent years that, together with other factors, contributed to rising prices which have attracted newcomers, either with short-term profit motives or with long-term aims to set up production and/or marketing and distribution channels; and the emergence of a financial crisis that is being globalised and seriously affect the „real economy“ at the beginning of 2009. The international oil market of 2010 differs along important structural features compared with the international oil market of the 1970s. In the short term, the oil traders are in charge of the price formation. The ownership of oil cargoes is potentially impossible to trace from producer to consumer. In this respect, the producer and the consumer are detached from each other. Setting the price of oil by political decision is no longer an option, either for oil producer or for oil consumers. In the past, the producers could make secret deals with consumers and discriminate among them by giving preferred customers a better price. Today, the only way to influence prices is to change the traders“ beliefs about the future price of oil. Political actors are of course, not totally without means for achieving this“.

5. Persian Gulf

Observers of the Persian Gulf agree that the strategically critical region is undergoing profound changes. These changes affecting the region run the gamut from rapid economic and infrastructural development to profound social and cultural changes resulting from diffusion, globalization, and the

widespread introduction of American-style education. This section of research initiative concentrates on a series of changes underway in the Persian Gulf that have heretofore been understudied, namely in the region’s international relations. Far from eroding the region’s strategic significance, these changes have only accentuated regional rivalries and tensions, thrown into confusion previously somewhat predictable patterns of foreign policy behavior, and have brought to fore new challenges to regional security and stability. This initiative examines some of the most salient underlying causes for changes in the region’s international relations and the consequences that each of these changes has entailed both in the specific areas they concern and in the broader context of international relations in the Persian Gulf, in the larger Middle East, and beyond.

Perhaps one of the most striking features of the international relations of the Persian Gulf is its securitization. For a variety of reasons, ranging from the nature of political rule within each of the countries of the region to the ways in which their international interactions have evolved historically, much of the international politics of the Persian Gulf has focused on security issues of one form or another. The region has faced, and continues to face, multiple security challenges, and there have been a number of attempts, thus far not all that successful, to forge collective security arrangements. Not surprisingly, much of the efforts and involvements of actors in the Persian Gulf, whether from within or outside of the region (the US and the European Union), has occurred either directly because of or at least with an eye toward security issues. Threats, or at least perceptions of threats, have lurked in the shallow waters and the sandy beaches of the Persian Gulf as far back as the early days of the British Empire, and those engaged in the region’s international politics have been unable to escape the multiple concerns to which they have given rise. This is not to imply, of course, that all of the Persian Gulf’s international politics can be reduced to issues of security, but rather to argue that security issues have never been far from consideration insofar as regional politics are concerned.

5.1 Global Oil Resources and the Persian Gulf; Future Substitutes

The U.S. Geological Survey has been evaluating global oil resources for more than 20 years. It uses three basic concepts to categorize remaining oil resources:³⁶ Proved Reserves – Economically recoverable conventional crude oil at known fields and reservoirs. Similar to an inventory concept used to schedule production (883 billion barrels). Potential Reserve Expansion – Identified reserves expected to

be developed in existing fields, including the addition of new reservoirs and pools (682 billion barrels). Undiscovered Resources – Geological extrapolation of potential crude oil based upon

Knowledge of geological formations outside existing fields (1,290 billion barrels)³⁷. Taken together, the amounts for each category yield a 2.9 trillion barrel estimate for remaining world oil resources. Global oil consumption is 30 billion barrels annually. It has been increasing at 2% per year, with China accounting for more nearly half of the growth. Of course, on a per capita basis, American oil use is many multiples of Chinese consumption. Visualize a series of stacked demand curves. Each demand curve indicates how consumption of oil products responds to price. Usually both global per capita income and population rise each year, as does the world's stock of petroleum—using automobiles, planes, and equipment. So, usually, each year's demand curve is higher than that for the previous year. Also consider a series of supply curves, which reflect a range of production costs, from low costs in the Persian Gulf to high costs for new production in the North Sea and Alaska. These supply curves shift outwards each year as oil producers and refiners regularly expand capacity to meet expected growth in demand. When the world economy and oil markets expand as expected, the cooperative implementation of the target price range system works fairly smoothly on a global basis. Each year, the equilibrium intersection of supply and demand is higher than the year before, and defines a rising trajectory of world consumption at stable prices as Saudi Arabia and other Persian Gulf producers increase or reduce production to stabilize prices within the target range.

Other major producers, OPEC and non-OPEC, cooperate in setting their production levels to work within this system as well. More than 50% of the world's production of crude oil is exported through the global oil market for consumption in a country other than the source of the crude production. The U.S., for example, imports petroleum from more than 34 different countries. Twenty percent of U.S. imports originate in the Persian Gulf and are managed by 30 different companies. Although many oil exporters experience periods of political turmoil (for example, Nigeria, Venezuela, Iraq), the system has adjusted smoothly in the past to these and other contingencies such as an unexpected growth in Chinese imports.

The growing cost-effectiveness of non-petroleum transportation fuels adds additional strength to the overall global oil market. Richard Fullerton recently completed a balanced assessment of the status of liquid transportation fuels from coal methanol, corn

(and sugar) ethanol, hybrid electric vehicles, tar sands, compressed natural gas, and hydrogen fuel. He concludes, "It should be apparent that our nation and the world do not face a long-term energy crisis." We agree. Five of these six new technologies are in use now in North America on a commercial basis (the exception is hydrogen fuel). With remaining world oil resources on the order of 3 trillion barrels, and additional new sources of transportation energy even now entering oil markets, there is no reason to be concerned about depletion in the near future. As Fullerton notes, "So, in the short-term, we do not worry about how much oil the world has – we worry about where it is located." Indeed, Fullerton's emphasis on the destabilizing aspect of Gulf petroleum wealth is shared by us, and taken up in the next section.

5.2 Economic Importance of Price Stability; Magnitude of Persian Gulf Oil Wealth

Stephen Brown (Federal Reserve Bank, Dallas) observes that 9 of the 10 U.S. recessions since WWII were preceded by significant oil price shocks.⁴³ Economists believe that the strength of the American and global economies are linked to oil price changes, though the strength of that linkage is slowly weakening. As a rule of thumb, the empirical findings imply that a \$10 per barrel increase from a base price of \$40 per barrel would reduce gross domestic product by \$165 billion from an initial level of \$12 trillion (the value of GDP in the second quarter of 2004).⁴⁴ This fact alone would cause political leaders to seek to stabilize oil prices. In addition, the GDP reduction creates multiple economic problems as well.

Monetary policymakers face a difficult dilemma in responding to the inflationary potential of oil price increases. If they raise interest rates, the demand for housing and durable goods is reduced, real GDP falls, and unemployment increases. On the other hand, if they avoid interest rate increases, employment and real GDP are maintained but inflation may be significant. Sudden oil price increases have a significant impact on job losses, but the reverse is not true. Sudden price declines have minimal effect on job creation.⁴⁵ This differential impact of oil price increase versus decrease adds to the political value of oil price stability in the U.S. In trade balances, oil price increases usually have an immediate effect on import values, increasing trade deficits. In 2003 the American trade deficit⁴⁶ was \$500 billion, and about 25% was due to net petroleum imports. The much higher oil prices of 2004 will cause a greater total trade deficit and a greater proportion of this total deficit to be in the form of oil imports.

Persian Gulf oil is the lowest cost petroleum in the

world, on average about \$5 per barrel. This includes the cost of exploration, capital investment, a return on capital, and a risk allowance above normal rates of return. Throughout the Persian Gulf every dollar above \$5 is a dollar of additional profit. If the price is \$55 the additional profit above a normal profit is \$50. Assume that \$50 per barrel represents the profit from Persian Gulf crude oil over the remainder of the century. This yields an estimated value of remaining resources in the Persian Gulf of \$77 trillion. It is a result of multiplying the remaining resource estimates in Appendix Table A1 by \$50.

This, then, is the global problem: \$77 trillion in oil wealth, in an area with 120 million people. The \$77 trillion has been an attraction to Western oil companies and governments. It was the goal of the Iraq invasions of Kuwait and Iran. Recognizing the threats to their stability, Persian Gulf governments amassed considerable weaponry in the 1990s. The governments of the southern Gulf strengthened their alliances with the U.S. At the same time, the continuation of monarchies and dictatorships seems to have stimulated the growth of Al Qaeda, and the armed attacks against the U.S. on September 11, 2001, and elsewhere.

For the past two decades, the problems of production and price stability had been solved in a reasonable economic framework. However, political instability, the spread of nuclear and conventional weapons, and the growing ferocity of the military conflicts and terrorist activities in, or originating in the region show us that a breakdown of civil authority throughout the Persian Gulf can lead to a collapse of the framework of stable oil production. In the concluding section of our paper, we discuss three broadly different approaches to address the problem.

6. Islamic Republic of Iran

The geopolitics is of important concerning international relations. In this way, it has a good geopolitics and geo-economics in world. As Gawdat Bahgat(1999) argues, over the past several decades, history, geography and natural resources have contributed to the rise of Iran as a prominent regional power.(Gawdat,1999).Initially, it should be noted that Iran a central position in the Persian Gulf. The country borders Pakistan and Afghanistan to the east, Turkmenistan to the northeast, the Caspian sea to the north, Azerbaijan and Armenia to the northwest, the waters of the Persian gulf and gulf of Oman to the south, the strategic geographic position of Iran could not be easily ignored by global powers.

Iran has 930 million barrels of oil that means 10 percent of world oil is produced and holds 16 percent of world natural gas proven reserves. In particular, Iran which is the second largest oil producer of the

organization of petroleum exporting countries (OPEC) has an economy which relies on oil export revenues. Iran almost has 40 producing oil fields, of which located onshore and offshore. The majority of Iran's oil reserves were located in the south-western Khuzestan province near the Iraqi border and the Persian Gulf. In addition, Iran has huge potential concerning natural gas as well, it contains an estimated 812 trillion cubic feet in proven gas reserves. It is second largest country in gas and is surpassed only by Russia. Iran's emergence as a global oil actor has a major impact on the world economy, and will continue to do so in the foreseeable future. Iran's nearness to the Strait of Hormuz universally recognized as the most important oil-shipping lane in the world, gives it further leverage over the global supply of oil. Iran located in Caspian Sea and five littoral Caspian states: Azerbaijan, Iran, Kazakhstan, Russian Federation, and Turkmenistan. The Caspian Sea region has become a central focal point for untapped oil and natural gas resources from the southern portion of the former Soviet Union (Maleki, 2007).

The International system organized from several actors that consist of political independent units (state), which pursue the specially approach as foreign policy for national interest, security, preservation, promotion, and international prestige (Morgenthau, HJ.1973). Foreign policy is formed from both internal and external factors; these factors are material or spiritual. In international politics in particular, energy is the most important material factor making for the political power of a nation, in Iran oil is most important factor that influenced the energy security. Foreign policy may be defined as a strategy or planned course of action developed by the decision makers of a state vis-à-vis other state or international entities, aimed at achieving specific goals, determined on the basis of national interest. (Bariston, RP.1991).Iran is located in Middle East and Persian Gulf. For most of this century, energy has played an important role in Iranian society. Energy is a national security tool and a foreign policy lever: The importance of energy to the modern world is unique in character and incredibly far-reaching in scope. There are several reasons for the energy between Iran and other countries. Iran's emergence as a global energy actor has a major impact on the world economy, and will continue to do so in the foreseeable future. Iran's nearness to the Strait of Hormuz universally recognized as the most important oil-shipping lane in the world, gives it further leverage over the global supply of energy. Iran located in Caspian Sea and five littoral Caspian states: Azerbaijan, Iran, Kazakhstan, Russian Federation, and Turkmenistan. The Caspian Sea region has become a central focal point for untapped oil and natural gas resources from the southern portion of the former Soviet Union. (NIOC,

2007). Economically, there are many economic problems associated with the Iran's energy. The energy related incomes for the economy of Iran are of great significance; however, it has made Iran too susceptible. The Iran's economic is dependent to energy. It is truth a demand and supply of energy determining the condition of Iran, and any change in price or product of energy can have impact on economic dimension. This has a very negative effect on economic development. Since many of Iran's investments in the energy sector are old, production has declined, contributing to an even larger decrease in revenues. Currently, this effect is somewhat clouded by the high international prices of oil, but it cannot be ignored.

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