THE SUPER POWER VERSUS A REGIONAL POWER: A GAME THEORETICAL APPROACH TO THE CURRENT NUCLEAR TENSION BETWEEN THE US AND IRAN

A Master's Thesis

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To My Big Family

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I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Masters of Arts in International Relations.

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ABSTRACT

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This thesis investigates how the nuclear tension between Iran and the US is likely to result. Game theoretical analyses are applied in order to develop the argument of this study. First, the reason why states pursue nuclear weapons and the factors that push Iran to go nuclear are analyzed. Second, the mutual threat perceptions between the US and Iran are analyzed and the effect of such perceptions on Iran's nuclear venture is investigated. Third, three US policy options, namely diplomacy, military operation and stimulating a regime change, are elaborated. Fourth, the interaction between the US and Iran is analyzed by using two different forms of games, complete and incomplete information, and two different methods, backwards induction and Bayes's theorem. It is concluded that Iran's nuclear pursuit is mostly security based and the nuclear tension between Iran and the US creates a vicious circle. While Iran is going for nuclear weapons primarily to protect itself from the external threats, the US challenge to Iran's nuclear pursuit poses a security threat to Iran and makes Iranians much more eager to develop their own nuclear weapon capability.

Keywords: Nuclear Weapons, Game Theory, Backwards Induction, Bayes's Theorem, Complete Information, Incomplete Information

ÖZET

SÜPER GÜÇ BÖLGESEL GÜCE KARŞI: BİRLEŞİK DEVLETLER VE İRAN ARASINDAKİ NÜKLEER GERİLİME OYUN KURAMSAL YAKLAŞIM

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Bu tez çalışması Birleşik Devletler ve İran arasındaki nükleer gerilimin nasıl sonuçlanabileceğini araştırmaktadır. Bu tezin savının geliştirilmesinde oyun kuramsal analizlere başvurulmuştur. Öncelikle, devletlerin nükleer silahlara sahip olmayı isteme sebepleri ve İran'ı nükleer silahlara iten sebepler incelenmektedir. İkinci olarak, Birleşik Devletler ve İran arasındaki karşılıklı tehdit algılamaları incelenmekte ve bu tehdit algılamalarının İran'ın nükleer girişimi üzerindeki etkisi araştırılmaktadır. Üçüncü olarak, Birleşik Devletler' in üç politika seçeneği üzerinde durulmuştur. Bunlar, diplomasi, askeri operasyon ve rejim değişikliğini desteklemektir. Dördüncü olarak, İran ve Birleşik Devletler arasındaki etkileşim tam bilgi ve eksik bilgi olmak üzere iki farklı oyun türü, geriye doğru çıkarım ve Bayes teoremi olmak üzere iki farklı yöntem kullanılarak açıklanmıştır. Sonuç olarak, İran'ın nükleer arayışının çoğunlukla güvenlik esasına dayanmakta olduğu ve Birleşik Devletler ve İran arasındaki nükleer gerilimin bir kısır döngü yaratmakta olduğu belirtilmektedir. İran, öncelikle kendini dış tehditlere karşı korumak amacıyla nükleer silahların üzerinde durmaktayken, Birleşik Devletler'in İran'ın nükleer arayışına karşı meydan okuması İran'a bir güvenlik tehdidi teşkil etmekte ve İranlıları kendi nükleer kabiliyetlerini geliştirmek için daha da istekli hale getirmektedir.

Anahtar Kelimeler: Nükleer Silahlar, Oyun Kuramı, Geriye Doğru Çıkarım, Bayes Teoremi, Tam Bilgi, Eksik Bilgi

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CHAPTER I

INTRODUCTION

The 1979 Iranian Islamic Revolution was a turning point for US-Iranian relations. Iran, an ally of the US under the rule of Shah, became an enemy state because of Iranian opposition to the US influence not only on the Iranian state but also on Middle-East region. The thirty years of tension between the US and Iran has been based mostly on the US concerns about Iranian support for terrorism, opposition to the Middle-East peace process, threat to regional stability and poor human rights record. Although these issues had been fundamentally important for the US decision makers, they had not been on the top of the US foreign policy agenda before the suspicions about Iranian nuclear weapons program were aroused in 2002.[1]

Iran's regime and its stance against the US interests have been the reason of concern for the US since the Islamic Revolution in 1979. However for the last decade or so, Iran's nuclear program, which is suspected to be not only for peaceful means

[1] For more information about the disclosure of Iranian nuclear weaponry program, see "Nuclear Weapons-2002 December Developments," Global Security.org, available at www.globalsecurity.org/wmd/world/iran/nuke2002.htm

but also for the acquisition of nuclear weapons, is a much more urgent security issue for the US. When the Iranian nuclear program is combined with its Islamic regime and its stance against American and Israeli interests, the situation becomes a more serious security problem not only for the US but also Israel and any other US allies in the region. Firstly, it is believed (Pollack, 2004: 376-379) that in case Iran acquires nuclear weapons, it would feel much freer to apply its aggressive policy against the US. This would cause destruction of the US influence in the region. Secondly, Iranian entry into the nuclear club can trigger a new nuclear proliferation wave not only in the region but also around the world. Thirdly, Iranian acquisition of nuclear weapons may increase Iranian support to terrorism.

Since the beginning of the invasion of Iraq, it was seen that the US military threat was not imminent for Iran because the US troops were busy with the chaos and local rebellions in Iraq and at that time the US operation there to Iraq was considered as a complete failure (Einhorn, 2004: 26). However, now, the situation in Iraq has changed and the country is much more stable than before. Thus, the issue of Iran has become one of the top concerns of the US decision makers and for Iran, the US military threat is much more imminent than before.

By taking into consideration the reasons behind Iran's nuclearization and the two side's relative positions, this study is going to investigate what the result of the nuclear tension between Iran and the US is likely to be. Formal modeling is going to

be the most fundamental basis of this study and game theoretical analyses are going to be made in order to elucidate the points of interest in the study.

The next chapter starts with the elaboration on Sagan's models on why states pursue nuclear weapons. Sagan states that nuclear weapons are not only the tools of security, but also the products of domestic and bureaucratic politics, and considered to have significant symbolic value. The chapter continues with the investigation of the rationale behind Iran's pursuit of nuclear weapons and it is emphasized that Iranian nuclear desire is based mostly on its security considerations. After presenting the mutual perceptions between Iran and the US, and Israeli preferences and effects on the issue, the chapter ends with an emphasis on Iranian expectations from both the US and international community. In the third chapter, the options that the US can employ to tackle Iran will be discussed. These options are: diplomacy, military operation, and stimulating a regime change. The possibility of the implementation of each option will be investigated respectively. Difficulties of establishing the basis for diplomacy will be emphasized. However, it will be stated that the diplomacy is not impossible because Iran is not an insane radical state, but an opportunist state underpinning the conditions that guarantee its predominance and survival in the region. Validity of the US militarist option and Iranian retaliatory capabilities will be discussed. In addition, the effects of the Iranian Islamist regime on the nuclear tension between Iran and the US, and feasibility of the regime change option for the US are the other topics of the third chapter. The fourth chapter is going to present the model of the study. This chapter is going to discuss why formal modeling and game

theoretical analysis are used in this study by firstly putting forward the main premises of game theory. In addition, the rationale behind using formal modeling and game theoretical analysis in such security studies will be the subsequent subject of the chapter. The interaction between the US and Iran is going to be analyzed by using two different forms of games and two different methods. The complete information game assumes that all the factors in the game, such as types of the other players, the timing of the game, set of strategies, payoffs etc, are known by the players. This game will be solved by backwards induction which is described as 'looking ahead and reasoning back'. The other form is incomplete information game in which there is some missing information for players. For this type of game, the Bayes's Theorem, in which the conditional probabilities are utilized, will be used. In the fifth chapter, the results are interpreted and this study's contribution to the existing literature is analyzed. The conclusion sums up the study. In this short part, the author aims to reflect his views and thoughts regarding the future of this nuclear tension between the US and Iran, and makes some reasonable policy recommendations.

CHAPTER II

PURSUIT OF NUCLEAR WEAPONS AND IRAN

2.1 Why Do States Pursue Nuclear Weapons?

Sagan (2000: 17-18) believes that nuclear weapons are not only tools of security, but also products of domestic and bureaucratic politics, and are considered to have significant symbolic value. Thus, he puts forward three models of why states seek to have or refrain from having nuclear weapons. The models are named as "the security model", "the domestic politics model", and "the norms model".[2]

"The security model" premise is based on neo-realist theory and the self-help system. According to neo-realist theory, since the international system is anarchic,

[2] For more information about why states go nuclear, also see Ogilvie-White, Tanya. 1996. "Is There a Theory of Nuclear Proliferation? An Analysis of the Contemporary Debate," The Nonproliferation Review 4 (1): 43-60; Meyer, Stephen. M. 1984. The Dynamics of Nuclear Proliferation. Chicago: The University of Chicago Press; Sagan, Scott D. 1996-97. "Why Do States Build Nuclear Weapons? Three Models in Search of a Bomb," International Security 21 (3): 54-86; Frankel, Benjamin. 1993. "The Brooding Shadow: Systemic Incentives and Nuclear Weapons Proliferation," Security Studies 2 (3-4): 37-40; Lavoy, Peter R. 1993. "Nuclear Myths and the Causes of Nuclear Proliferation," Security Studies 2 (3-4): 199-212.

any state that is threatened by a nuclear power has to find the ways to deter the rival. Deterrence capability can be acquired in two ways: developing your own nuclear weapon systems or forming an alliance with nuclear capable allies. The first is not preferred by weak states because of the costs of developing nuclear facilities. Despite it being costly to develop your own facilities, it is the choice of strong states to build their own nuclear weapons as they need to be self-sufficient. The second is an option for weak states because it does not require financial expenditure. However, it is an option less credible than the first one because the nuclear ally cannot guarantee to provide help in all situations, especially when it is in danger of nuclear retaliation. (Sagan, 2000: 20).

According to "the security model", all of today's nuclear powers, excluding the US, have sought and acquired the weapon because of security considerations. The US, the first nuclear power, was not under a nuclear threat. It worked steadfastly and got the weapon before the others. The Soviets followed suit because it was evident in Hiroshima and Nagasaki that the Soviets would not be able to resist the US confrontation without having the same weapon. The growing Soviet threat and declining credibility of the US nuclear guarantee for Europe compelled UK and France to have their own weapons. China preferred to have the weapon because of the increasing US threat after the Korean War. India developed its own capabilities because of the hostility in the Chinese-Indian relations, and in turn Pakistan has got the weapon because of the threat posed by India (Sagan, 2000: 20-22).

"The domestic politics model" envisages that the interests of some individual actors within the state may push states to have nuclear weapons. The importance of three actors within the state, namely the state's nuclear energy establishment, important units within the professional military and politicians are emphasized in this model. As long as these actors agree on the development of nuclear weapons and they are potent enough to affect or control the decision making process, the state comes closer to develop a nuclear program. According to this model, individual actors inside the country are also regarded as the creators of the conditions for nuclear pursuit by emphasizing the existence of foreign threat, encouraging supportive politicians and lobbying for increases in defense spending. For instance, a scientist may favor developing nuclear weapons as such research increases his prestige and the flow of money for his laboratory as well. This scientist can find some people in military or bureaucracy who also favor such a nuclear pursuit because it serves to their interests. Consequently, such a coalition establishes the basis of broader political support for the acquisition of nuclear weapons (Sagan, 2000: 27-28).

"The norms model" presents that today's organizations try to imitate each other. It is believed that some types of possessions like flags, airlines and Olympic teams have symbolic effects. States prefer to have them, not because they directly benefit from them, but because these possessions create symbolic reputation for the state. Such possessions reflect the state as modern and prestigious. Nuclear weapons have the similar effect in that, since the powerful states have nuclear weapons,

membership in the nuclear club is a sign of power. Thus states prefer to develop a weapon program because of its symbolic importance and in order to be regarded as a powerful state along with the other members of the nuclear club (Sagan, 2000: 38).

However, in this sense, the comprehension of nuclear weapons in contemporary times differs from its comprehension in the past. In the past, it was believed that having nuclear weapons was a sign of power and thus, states pursued them to show how powerful they were. France's de Gaulle (The Thoughts of Charles de Gaulle, 1968: 102-103) said "No country without an atom bomb could properly consider itself independent," and Robert Gilpin (1981: 215) concludes in his book "the possession of nuclear weapons largely determines a nation's rank in the hierarchy of international prestige." However, in contemporary times, it is not completely true that nuclear weapons are a means to such prestige. India, Pakistan, China and Israel's possession of nuclear weapons have not boosted their reputation and prestige in international society. Today, prestige and reputation are gained in many other ways, but not by the possession of nuclear weapons. Successful steps in economy, diplomacy, in mutual or multilateral development cooperation, even in sports are much more prestigious today than acquiring the weapon which is utilized for mass killings. Nuclear tests in the 1960s were welcomed with enthusiasm and excitement, however today; such actions are responded not with admiration but condemnation and international disgust (Mueller, 1998: 80-81).

2.2 Why Does Iran Pursue Nuclear Weapons?

The traces of Sagan's three models on nuclear pursuit are seen in Iran's nuclear objectives as well. The security model is overwhelmingly prominent for the explanation of Iran's nuclear program while domestic power struggle inside the country and the Iranian nationalism that manifests itself as 'national pride' are also significantly effective.

According to Dorraj (2006: 326), one of the main reasons that pushes Iran's urge for nuclear weapons is Iran's distrust, emanating from history, of both the western and regional powers. During the war between Iraq and Iran, assistance of many western and regional powers to Iraq, namely the United States, France, Germany, Great Britain, Russia, Saudi Arabia, Kuwait, Egypt, Jordan created this level of suspicion in Iran towards the main actors of international community. These states pretended not to see Saddam's use of chemical and biological weapons against Iran. Consequently, Iran decided to go nuclear and acquire nuclear weapons because this is the only way to construct a reliable deterrence and provide national security. Ziemke (2000: 88) emphasizes the importance of history on a state's development, its motivation and its strategic choices:

> A state's historical experience shapes how it sees itself, how it views the outside world, and how it makes its strategic decisions. To make use of their historical experience, nations tend to focus most on those aspects of their history that have the most meaning

> and tell them the most about who they are and what they aspire to be.

Iran also perceives a political threat emanating from the US. Among Iranian hardliners, it is strongly believed that the recent democratic revolutions in Georgia, Ukraine and Kyrgyzstan were triggered by the US and that Iran may be next. Iranian authorities are discontented with the US unequal treatment in that "Washington is acting as if a nuclear Iran is more dangerous than a nuclear Pakistan or North Korea". They strongly assert that the only aim of Iran's nuclear pursuit is deterrence (Katz, 2005: 60-61). Waltz stresses the geography and says that Iran's pursuit of nuclear weapons is based on two geographical security considerations: The first is Iran's two unstable neighbors in the East, namely Afghanistan and Pakistan, and the second is the existence of the US troops in the west in Iraq. He continues that since the US president declared three states, namely Iraq, Iran and North Korea as the axis of evil and invaded the first, the best option for the other two to deter the US is to have nuclear weapons. Waltz defines the US as the 'biggest rogue state' and says 'there is no way to deter the United States other than by having nuclear weapons' (Sagan, Waltz and Betts, 2007: 137).

The Iranian domestic politics have also important factor on Iranian nuclear venture. Bowen and Kidd (2004: 265-266) say that domestic power struggle between hard-line conservatives and moderate reformists is a factor determining Iran's nuclear decision making. They say that the hard-liners advocate the withdrawal from

the NPT[3]. Although such a decision would bring political and economic costs as a consequence of the external pressure, such costs would not deter the hardliners because being under such a threat would strengthen the national sensations and the power of the hardliners, especially the Islamic Revolutionary Guard Corps which is the leading organization in Iranian nuclear pursuit. On the other hand, the reformists, who are willing to improve the relations with the outsiders and to decrease the international isolation of the country, cannot risk such costs.

Iranian nuclear pursuit, in some aspects, goes parallel with Sagan's norms model as well. Bahgat (2006: 322-323) asserts that Iran consists of several political and religious factions and these different groups are generally divided into two: moderates and conservatives who usually have different sentiments about all kinds of issues. However, in nuclear issue, their thoughts are not diversified. Iranians believe that they have a great nation but have been exploited by outsiders like Russia, United Kingdom, and America for decades. For this reason, Iran's status of a great regional power has been diminished and should be recovered as soon as possible. This national feeling, called "national pride" by Bahgat, unites Iranians and makes them strongly dedicate themselves to their right to possess nuclear weapons.

[3] Non Proliferation Treaty is signed in 1968 to limit the number of nuclear weapons. According to the treaty, the signatory non-nuclear states are obliged not to develop nuclear weapons and nuclear states are obliged not to transfer the know how and the technology to non-nuclear states (Dağ, 2004).

2.3 Mutual Threat Perceptions: The US Position Towards Iran and the Iranian Position Towards Nuclearization

2.3.1 The US Position

Bill's hypotheses (1999: 45) on US-Iran relations are based on global and regional hegemonic interactions. He states that the US, as a global hegemon, always strives to interrupt any potential regional hegemons. Also the global hegemon tries to undermine the regional powers, alter the policies of these states, which have clashing foreign policy choices with the hegemon, and convert them into regional allies in order to preserve the interest of the global hegemon in the region. In addition, the regional powers that are rich in natural resources are also given special emphasis by global hegemon that tries to control these regional powers. Tarock (2006: 647) defines the clash between the US and Iran as follows:

> There is a clash here between a superpower intolerant of a perceived dissident and 'rogue' state, and an assertive and old but glorious civilization that has had the 'temerity' to challenge that superpower in a region where Washington demands submission.

By looking at the history of the Cold War, it is seen that the nuclear weapons created peace. Putting so much emphasis on the Cold War peace, it is argued by many scholars (for example, Waltz, 1990: 743-744; Mearsheimer, 1984: 20-22) that because of the irreversible effects of nuclear weapons, no nation can dare to fire them

and this will lead to nothing but peace. However, in his reputable article 'The Balance of Terror', Albert Wohlstetter (1959: 234) argues that it is very difficult to carry on this nuclear balance that is so delicate because it is not a guarantee that deterrence will not fail one day, and the danger of an accidental outbreak of war will never fade away. In addition, the nuclear peace theory can work only if all nuclear capable nations are terrorized by nuclear weapons. Nuclear deterrence worked in the Cold War because the Soviet leaders were terrorized by nuclear weapons and they preferred living. However, we do not know whether Iranian Islamists or terrorists, in case they manage to get access to the weapon, prefer living as well or not (Chang, 2006: 191-192).

According to American decision makers, Iran's pursuit of nuclear weapons and its support for international terrorism are the main threats that Iran poses. It is expected by them that a nuclear Iran can pass its nuclear weapons to international terrorists because Iran has created and supported Hezbollah and has connections with al-Qaeda. Since Iran has provided conventional weapons for terrorists before, it is suspected that Iran may supply nuclear weapons for terrorists as well, if it acquires them. Iran's pursuit of nuclear weapons may also trigger any other unsavory states' aspirations to obtain the same weapons of mass destruction and it may become much more difficult for the West to stop them (Ross, 2005: 63). The American opposition to Iran's nuclear program and to Iran's endeavors to have nuclear weapons is also based on the consideration that "the more nuclear weapons there are in the world, the

more likely it is that terrorists will get their hands on one" (Daalder and Lodal, 2008: 84).

2.3.2 The Iranian Position: Deterrence

Many scholars (for example, Sagan, 2000: 17) believe that the main reason that pushes states to acquire nuclear weapons is security considerations. States seek nuclear weapons when there is a military threat to their existence and when there is not an alternative way to secure it. Without the existence of such threats, states prefer to remain non-nuclear.

Katz (2005: 60-61) believes that the purpose of the Iranian decision makers is not using nuclear weapons and threatening its adversaries but deterring them. Since Iranians know that in case of an Iranian nuclear attack to Israel, Israel and the US would retaliate devastatingly, Iran cannot venture a nuclear assault against Israel. On the other hand, Iranian authorities reject the claims that, as a 'rogue' state, Iran can transfer its nuclear weapons to the terrorist organizations like Hamas and Hezbollah. They know that in case of a nuclear terrorist attack on Israel or the US, Iran would be blamed and retaliated. It would be unwise for Iran to give its nuclear weapons to a terrorist organization on which Iran does not have a hundred percent control (Sadr, 2005: 66). Takeyh (2007a: 173) strongly believes that Iran is not a bandit state that

aims to bomb its adversaries with nuclear weapons or give these weapons to terrorists. He continues that Iran has had chemical and biological weapons for decades but has never given them to terrorists. The only aim of the decision makers in Iran is to stay in power and they know that they cannot survive in power if they use nuclear weapons against their enemies and trigger a mutually assured destructive nuclear war. It is argued by some scholars (for example, Perkovich, 2003: 4-5; Russell, 2004: 42-43) that Iranian decision makers are not well educated to understand the logic of MAD doctrine[4] and behave accordingly if they acquire nuclear weapons. They also believe that Islamic ideology is an obstacle for rational thinking because the Iranian political leaders, who are not international strategists or technologists but political clerics, regards nuclear powers as the source of their national power and autonomy. However, Sadr (2005: 64) believes that Iranian decision makers are not acting according to Islamic ideology but realpolitik:

> There are, in fact, many signs that realpolitik has overcome Islamic ideology as the primary driver of Iran's foreign policy. Over the past decade, Iran has closed its eyes to Chinese and Russian mistreatment of their Muslim minorities, publicly renounced Khomeini's fatwa against Salman Rushdie, normalized diplomatic relations with the Gulf states, stated its willingness to live with a two-state solution to the Israeli-Palestinian conflict, and even cooperated with the Great Satan in Afghanistan and Iraq. Having so often sacrificed Islamic ideology for comparatively small political and material gains, it seems reasonable to assume that the Iranian regime would do so again if the stakes were as high as nuclear warfare.

[4] Mutually Assured Destruction, is a doctrine saying that in a full-scale nuclear war, since attacker does not have the capability to destroy all nuclear armament of the defender, defender strikes back and both sides are exposed to severe nuclear destruction (Dağ, 2004).

Iranian deterrence-oriented pursuit of nuclear weapons can be explained more aptly by Huntington's words: "Don't fight the United States unless you have nuclear weapons" and "If you have nuclear weapons, the United States will not fight you" (Huntington, 1998: 187). However, there are also some people (for example McFaul et al., 2006-07: 128) who strongly believe that nuclear weapons will provide more insecurity to Iran. In case of Iranian acquisition of nuclear weapons, the regional Sunni Arab states like Egypt and Saudi Arabia would demand the same weapons and follow the same nuclear development patterns. As a result, the Middle East would be an unstable region with an increase of nuclear powers that have the potential to be radical in their foreign policy choices.

2.3.4 Israeli Effect on the US: The Obstacle Impeding the Peace

US foreign policy is not wholly independent and is not run only by US foreign policy decision makers. In indicating US foreign policy decision-making process, Mead (2004: 15-16) says, "Billions of butterflies flap their wings to shape this mighty storm." Business world, media, organizations like labor unions, chambers of commerce, lobby groups and many others have undeniable and effective role in US foreign policy. In this sense, the effect of the Israeli state and Israeli lobby groups in the US on US foreign policy cannot be disregarded especially when the issue is Iran.

> Overtly or covertly, through good times and bad, Iranians and Israelis have been doing business together for over 2500 years. Through all those centuries of what has been called an "uninterrupted and continuous association between Iran and Israel," it has always been rather hard for "third parties" to deal directly with Israelis without also having to deal at least indirectly with Iranians as well, and vice versa (Paolucci, 1991:3).

Currently, the US and Israel originate Iran's major threat perception. Iranians feel that they are surrounded by the US not only because of the US troops in Afghanistan and Iraq, but also because of the evident US support for Israel. It is also argued (Bill, 2001: 95) that Israel has a tremendous effect on US foreign policy towards Iran. Lifting the US sanctions on Iran, as many scholars believe, is a prerequisite to initiate a rapprochement between Iran and the US and also to open the Islamic regime to the western world. It is very likely that such a rapprochement would trigger a tough reformist movement in Iran. However, such a policy is strongly opposed by pro-Israeli lobbying groups in Washington. This is not the only Israeli effect on US foreign policy towards Iran. In addition, it is also argued by some people (for example, Killgore, 2005: 32) that Israel is inciting the US to pursue a coercive policy towards Iran because the Iranian nuclear program does not constitute any challenge to the US but rather to Israel.

> Iran's attainment of nuclear weapons might threaten the very existence of Israel as a Jewish state in at least three conceivable ways. First, Iran might launch a nuclear weapon directly at Israel. Second, Iran might transfer nuclear weapons to a terrorist organization such as Hezbollah that would launch them towards Israel. Third, Iran might be emboldened to attack Israel by conventional means or through terrorist proxies without fear of retaliation (Sadr, 2005: 62).

Independent from whether a nuclear Iran may attack Israel or not, Israel is totally against Iranian access to nuclear weapons even though Iran may have no initiative to use its nuclear weapons against Israel or any other state in the region. If Iran had nuclear weapons, Israel's overwhelming military strength would be undermined in the region and Israel cannot tolerate that. This would mark the end of Israel's nuclear monopoly and the beginning of a 'balance of power' or a 'balance of deterrence' between Israel and Iran in the region. It is expected (Bahgat, 2006: 316) that a nuclear Iran would be much more determined in employing its aggressive and antagonist policies like supporting Hezbollah, Hamas, and Jihad. In addition, Iran's entry into the nuclear club would have a "domino effect", and the other powerful states in the region as Egypt and Saudi Arabia would follow suit. Such nuclear quests by regional powers would lead a nuclear arms race and consequently further destabilization of the Middle East.

It is argued (Seale, 2006: 10-11) that Israel is signaling to the US that Israel is determined to strike Iran preemptively as it had destroyed Iraq's French-built nuclear reactor in 1981.[5] Unless the US implements the necessary military initiative, Israel will do it unilaterally. However, destroying Iran's nuclear program is not as easy as destroying Iraq's. In 1981, the conditions were completely different in Iraq and nearly all of them favored Israel. Israel had correct intelligence. Iraq's nuclear

[5] For more information about the Israeli operation to Iraq, see Raas, Whitney and Austin Long. 2007. "Osirak Redux?" International Security 31 (4): 7-33.

reactor was located in a small and unpopulated area. At the time, Iraq was in a war with Iran and deprived of the ability to retaliate against Israel. Today, these conditions are completely different for Iran and Iran's nuclear reactors. It is much more difficult to reach Iran's well-protected nuclear facilities. These nuclear sites are widespread and some of them are close to intensely populated areas. In addition, Iran has the capability to rebuild its nuclear structures, thanks to the know-how, equipment, and raw materials it has acquired since 1980s. Lastly, Iranian missiles have the capability to retaliate against an Israeli attack (Bahgat, 2006: 317). Because of these reasons, there are some scholars (for example, Fallows, 2004: 103-104) who believe that Israel is bluffing. Israel is not capable of succeeding in a military confrontation with Iran. All Iranian missiles cannot be destroyed immediately. As a response, Iranian retaliation would be immense and Iran most probably would employ its chemical weapons. In addition, it is also stated by Fallows (2004: 103) that the US cannot let Israel follow its own unilateral military option because of the possible reactions from Europe and the Arabs. The US is aware of the fact that in case of such an action, its relations with the Arab world would deteriorate. Similarly, Brzezinski and Gates (2004: 45) think that in case of a unilateral Israeli military attack on Iran, the US will also be held as responsible, thus Israel should be informed by the US that such a military attack would damage the US national interests as well.

On the other hand, there are also some scholars who have different arguments about the issue. For instance, according to Köni (2007: 86), Israel is against Iranian nuclear armament, not because of the Israeli security concerns but because of the

psychological effects of Iranian nuclear weapons on Jewish people. He says that Israel is not afraid of the physical destructive effects of Iranian nuclear weapons because Israel, together with the US, is capable of striking Iranian nuclear missiles before they are launched. Thus, these weapons are not a threat to the security of the Israeli state, but the psychological effect on Jewish people is the main concern. It is expected that such a psychological effect and constant Iranian nuclear threat would cause the cessation of Jewish migration to Israel that is the basis for the pro-Zionist movement.

2.3.5 Iranian Expectations

Successive nuclear weapon tests by India and Pakistan in 1998 constituted a turning point. The most important security challenge to the world posed by New Delhi and Islamabad has remained unanswered. The world community did nothing and this inactivity towards India and Pakistan had consequences: Pakistan sold its nuclear technology to North Korea and the Arab World through Dr. A. Q. Khan's nuclear black market ring (Chang, 2006: 196-197). The international community's inactive behavior towards India and Pakistan after their nuclear weapon tests in May 1998 constituted a pattern and affected Iran's expectations and foreign policy choices. Although sanctions were imposed on India and Pakistan by the US and many individual states at first, they did not last very long. The relations between the

US and these two self-declared nuclear powers have improved within a short time period. Thus, Iran may expect to be treated in a similar way by the international community in case of its acquisition of nuclear weapons. Moreover, the international community is expected to be much more accommodating towards Iran, when Iran's political and economic importance is considered (Einhorn, 2004: 27). Furthermore, Iran expects the same treatment the US extends not only to Pakistan and India but also to Israel. In his book, Paolucci (1991: 389) emphasizes the necessity of such treatment by considering the US relations with and behavior towards Israel and Iran. He states that the US behavior towards Israel and Iran should be on an equal footing:

> Leaving important things to time, we must now ask ourselves: What can the government of United States say, finally, to the Israelis and Islamic Iranians that will be consistent with what it must say to all the other powers of this earth among which it still claims for itself no more than a separate and juridically equal station? ... It must say to "God's people" that we do not, and cannot recognize them as God's favorites in anything but a metaphoric sense. It must say to them what it has already plainly (and effectively) said to the governments of the Union of Soviet Socialist Republics and the People's Republic of China – which is that we are prepared to deal with them in relationships of mutual recognition and respect for the separate and juridically equal stations that make us peers, regardless of our diverse sizes, shapes and histories.

In sum, having seen the inactive attitude of international community towards India and Pakistan, Iran has become much more desirous for nuclear weapons and courageous in this venture. In addition, Iranian expectation that it should be behaved

equally not only with Pakistan and India but also with Israel strengthens their belief that they have the right to have nuclear weapons.

CHAPTER III

US OPTIONS

It seems there are three options that the US can choose in order to prevent Iran's nuclear venture. These are: diplomacy, military operation, and stimulating a regime change (Friedman, 2005: 36). In this chapter, the possibility of the implementation of each option will be investigated separately. The question of how and in which circumstances each option could be a success will be answered.

3.1 Diplomacy

It is believed by some (for example, Haass, 2005: 73-74) that to compensate Iran's withdrawal of its nuclear program, some types of economic and political opportunities or security guarantees can be offered by the US to Iran. Besides these opportunities, in case of Iranian non-compliance, reasonable penalties like diplomatic and economic sanctions or even a military attack can be considered. In that respect, Pollack and Takeyh (2005: 30-31) argue for application of a policy of 'true carrots

and sticks'. Under that policy, it is stated that Tehran should be given some benefits as a response to cessation of its nuclear program and its support to terrorists. Both the carrots and the sticks should be significant. Rewards should be big enough to develop the Iranian economy, and sanctions should be severe enough to destroy the economic life in Iran. Not only the US expectations of Iran, but also the concessions that would be given to Iran as a reward, should be remarkable and clearly stated by the US. This is especially important for receiving European support. European governments support sanctions on Iran, only if the US offers remarkable economic concessions for Iran in return. Some scholars (for example, Fairbanks, 2001: 447) go further and state that the US should lift sanctions without waiting for a reward from the Iranian side. According to them, lifting sanctions does not strengthen the hand of hard-liners, but weakens them:

> Ending US sanctions would probably help: It would deprive Iran's hard-liners of a basic justification for the defiant stance that helps them retain their grip on power.

On the other hand, there are some (Kibaroglu, 2006: 228; Sadjadpour, 2007: 127; Kemp, 2001: 113-114; Mead, 2004:64) who argue that it is nearly impossible to create the basis for diplomacy with Iran. Their premise is based on three principles: The first is that the US and Iranian definitions of the engagement are completely different from one another. The second, establishing a relationship with Iranian hard-liners and enticing them into the negotiation table are very difficult tasks. The third, the basis for diplomacy should be established under multilateral international

auspices and the US should be backed by the international community. However, the US does not like acting within a multilateral framework.

One side's definition of engagement is slightly different from the other side. In other words, each side interprets engagement according to their own interests. Iranian interpretation of engagement is that the US launches economic concessions to Iran while the Iranian nuclear program continues under inspection. On the US side, engagement is described as the normalization of economic and political relations and in return the cessation of Iran's nuclear program and its support to the terrorist groups, and normalization of its relations with Israel (Kibaroglu, 2006: 228).

For some scholars (for example, Sadjadpour, 2007: 127), it is nearly impossible to entice Iranian ruling elites into the diplomacy table. According to them, the economic initiatives extended to Iran, lifting sanctions, integrating Iran into international economic organizations like WTO may be important for Iranian national interests but does not make sense for ruling elites whose own interests would likely be hurt because of such an Iranian rapprochement with the West. Iranian hard-liners believe that establishment of good relations with the US and Israel would lead to the destruction of Islamic revolution. Kemp (2001: 113) argues that Iranian youth is more pro-western and pro-US than the conservative rulers and western values are accepted by Iranian educated youth whose numbers are increasing. Consequently, Iranian rulers might consider that opening the doors to these former enemies would cause rapid diffusion of western values throughout Iran.

Thus, it is obvious that even a partial rapprochement between Iran and the West is not possible as long as today's Iranian conservative elites keep control over the country. Because of this reason, the West should wait until the distribution of power in Iran changes in favor of reformists, or the conservatives are persuaded that the dialogue with the West is better for their prospective status in the country (Kemp, 2001: 113-114). However, in today's circumstances, such a persuasion of Iranian conservatives that the better relations with the West are for their benefit does not seem to be easy.

Not only in dealing with Iran but also for any other trans-boundary issues, the US is in need of developing and functioning under international institutions. By only doing this, the US can amass the imperial and cooperative aspects of its world role. Creating and functioning under international institutions gives the US the chance to deal with international problems in a more powerful and cooperative manner. Thus, the US can save its national interest as well as the global interest and share the cost and responsibility with other partners. Such initiatives are also accepted as more legitimate because of the existence of the approval of the international community. Giving the responsibility to other international actors in important issues is beneficial for the goal of American global supremacy as well. Thus, these international actors feel that they have the power over these issues that are important for themselves also and they do not oppose the US dominated international system (Mead, 2004:64).

Dorraj (2006: 330) states that there are two proposals that can resolve the nuclear dispute. The first is a Russian and the second is an Iranian proposal. Russia offers a proposal based on making uranium enrichment in Russian nuclear plants and shipping it to Isfahan and Natanz. It is argued that such a process will prevent Iran from developing its nuclear program for malevolent means. While the proposal is accepted by the EU 3 (Britain, France and Germany) and the United States, it has been declined by Iran for two reasons: First, the cost of enriched uranium will be higher for Iran because according to this proposal, Iran will purchase the enriched uranium from Russia at a higher price. Second, Iran will be dependent on Russia for nuclear energy. This is not a good option for Iran because Russia would try to take political advantage of such privileges on dependent states. The Georgian and Ukrainian cases are the clear examples of how Russia takes advantage of such privileges maliciously. (Chubin, 2006: 141). According to the Iranian proposal, which is not welcomed by the US and the EU 3, Iran would invite foreign companies to cooperate and be shareholders of the enrichment program undertaken on Iranian soil.

It should not be underestimated that there are many scholars (for example, Nasr and Takeyh, 2008: 92-93) who believe that Iran is not an insane radical state that aims to use Islamic militancy in its region to change the regimes in favor of Islamic fundamentalism. It is only an opportunistic state underpinning the conditions that guarantee its predominance and survival in the region. Thus, it can be possible to entice Iran into the negotiation table as long as its interests and survival are assured.

It is suggested (Mc Faul et al., 2006-07: 126) that the US should offer a plausible deal in which both sides give fundamental concessions and initiatives to each other. Striking economic and diplomatic concessions can be persuasive for Iran. In that sense, the US can trigger a rapprochement by ending the economic embargo, unfreezing all Iranian assets, encouraging the initiation of full diplomatic relations, and supporting Iran's entry into the WTO. In return, Iran must agree on at least two conditions: The first is fully cessation of its nuclear weapons development program and obedience to the international inspection regime under the International Atomic Energy Agency, and the second is no further support to the terrorist groups.[6]

There is one more basis for a US-Iran rapprochement that has not been considered sufficiently so far. It is the Sunni Fundamentalist threat posed to both the US and Iran. The US is the mere power that can protect Iran from Sunni fundamentalism. Although there are ample obstacles hindering such a rapprochement like divergences in nuclear issue and historical suspicions between both states, Katz (2005: 64-65) is very hopeful and reminds that the common Soviet threat was the means of rapprochement between US and China in Nixon's time. Thus, the common Sunni fundamentalist threat may cause Iran and the US to develop their relations.

[6] The authors have also suggested a third condition for Iran which is 'an affirmation of basic human rights principles under international covenants and the recognition of the legitimacy of international and domestic efforts to monitor those conditions.'

3.2 Military Operation

Supporters of military operation to Iran (for example, Chossudovsky, 2005; Kagan, 2006) strongly believe that because of Iran's support to terrorists and its search for nuclear weapons, Iran poses a threat to both its neighborhood and to the world, and Iran should be interrupted by the US military operation before it acquires nuclear weapons. There are two different terms utilized for the use of military force against the enemy. The first is preemptive attack and the second is preventive strike. Since the conditions are not compatible for using the term of preemption, it is supported (Haass, 2005: 71) that the US should utilize the term of preventive strike, not the preemptive strike against Iran. For a preemptive attack, there should be an imminent threat posed by the enemy state. The accuracy and the credence of the intelligence should be unquestionable and there should not be an alternative way to stop the enemy. Under such circumstances, it is believed that the state has the right to strike first in order not to be struck by the enemy. However, this is not the case in the tension between the US and Iran. In other words, there is not such an overt or covert intension of Iranian decision makers to attack the US or to any other US allies in the Middle East. For this reason, an American attack to Iran would not be a preemptive strike, but preventive strike which is utilized when there is an unavoidable but not imminent threat of war between the enemies (Haass, 2005: 71-72).

However, there are also many people (for example, Lang and Johnson, 2006: 27-29; Pollack and Takeyh, 2005: 32) who defend that military based approach is not the best option and a military attack most probably turns into a catastrophe for the US. First of all, anti-militarists say that an invasion of Iran is impossible because an important amount of US military capacity is allocated in Iraq. An invasion of Iran, whose territory is more than twice the size of Iraq and where 70 million people live, requires at least a half million troops and the US does not have such a capacity. In addition, in case of an invasion, the material needs of US troops like food, water, fuel, arms would have to be supplied from Kuwait to the North through Shi'a populated Iraqi territory. It seems that it would be very difficult to keep this supply road under control as long as the Mullahs are in contact with the Shi'a population in the region.

Some people may ask that the US troops invaded Afghanistan and Iraq and they are staying there, why is it so difficult to invade Iran? It is because tackling Iran is much more different and complicated than tackling Saddam or Taliban. Therefore, while dealing with Iran and its nuclear program, the US should not employ the same methods as it used against Taliban and Saddam's regime. In other words, contrary to what the US did in Afghanistan and Iraq, invading Iran should not be an option. There are limited American forces available for invading Iran because big number of forces is preoccupied with the reconstruction in Afghanistan and Iraq. Besides, Iranian geographic and demographic differences make such an invasion impossible. Because of Iranian large territory and nationalist population, a prospective invasion

would be problematic and the postwar reconstruction would be worrisome (Pollack and Takeyh, 2005: 32).

The invasion of Iran is not discussed much by scholars as the reasons stated above exist. However, the air strike option is discussed by many (for example Mc Faul et al., 2006-07: 124). Even if it is likely to be the quickest and easiest way to destroy Iranian nuclear structures, the locations of Iranian nuclear facilities make it problematic. It is not known where all the Iranian nuclear sites are located, they are scattered around the country, and some of them are very close to the civilian districts. For instance, Isfahan is both the center of the Iranian nuclear program, and a beautiful city where numerous individuals live. Even if such a strike may impede the progress of Iranian nuclear development for few years, it is inevitable that Iran's retaliation would have an immense effect that in the long run the US may regret that it strike Iran (Friedman, 2005: 36).

> Using preventive strikes to destroy Iran's developing weapons program would also be much easier said than done, given the imperfect nature of the intelligence on Iran's program and the operational challenges of attacking its dispersed and buried nuclear facilities. U.S. strikes might succeed in destroying part of Iran's weapons program and set it back by months or even years. But even if this were to occur, Iran would surely reconstitute its program in a manner that would make future strikes even more difficult. Moreover, Iran has the ability to retaliate by unleashing terrorism (using Hamas and Hezbollah) against Israel and the United States or by promoting instability in Iraq, Afghanistan, and Saudi Arabia. A U.S. strike on Iran would also further anger the Arab and Muslim worlds, where many already resent the double standard of U.S. and international acceptance of Israel's and India's nuclear weapons programs. Much of the Iranian population,

> currently alienated from the regime, would likely rally around it in the case of a foreign attack, making external efforts to bring about regime change that much more unlikely to succeed. Attacking Iran would also lead to sharp and possibly prolonged increases in the price of oil, which could trigger a global economic crisis (Haass, 2005: 72-73).

Since it is obvious that a preventive strike is not capable of destroying whole Iranian nuclear program and it can only cause delaying the program for few years; such a military initiative can be regarded as a success, as long as it induces Iran to cease the fundamental facilities of its nuclear program like enrichment or reprocessing. In that sense, a multilateral post-strike diplomacy pressure has an effect in compelling Iran not to rebuild the facilities. To be able to organize and lead such a multilateral diplomatic post-strike mission, the US military initiative against Iran should be welcomed and approved by the international community. Otherwise, striking Iranian nuclear facilities would lead to nothing more than to impeding the Iranian nuclear program for a few years time and to causing Iranian retaliation in the long run (Clawson and Einsenstadt, 2008: 13-14). The supporters of the post-strike multilateral diplomacy believe that to deter Iran from rebuilding its facilities, the US needs a "United Front against Iran" consisted of at least the US, the western European countries, Japan, Russia, and China.

> With Tehran divided over how to balance its nuclear ambitions with its economic needs, Washington has an opportunity to keep it from crossing the nuclear threshold. Since the economy is a growing concern for the Iranian leadership, Washington can boost its leverage by working with the states that are most important to Tehran's international economic relations: the western European countries and Japan, as well as Russia and China, if they can be

> persuaded to cooperate. Together, these states must raise the economic stakes of Iran's nuclear aspirations. They must force Tehran to confront a painful choice: either nuclear weapons or economic health (Pollack and Takeyh, 2005: 27-29).

However, for the US, this is not an easy task as long as it pursues a coercive diplomacy and condemns the states that establish good relations with Iran. As an example, Bill (2001: 90) argues that despite the US oppositions, Russia has never hesitated to cooperate with Iran in the issues of nuclear energy, military, trade and commerce. He says: "The more pressure exerted by the United States, the closer Russia moves towards Iran". China is also the same. In September 1992, China promised to help Iran to build two nuclear reactors. Consequently, since the US was not content with such an alliance between China and Iran, it pressured China by accusing the country of its human rights abuses. However, the US pressure on China did not break up Chinese-Iranian relations, oppositely Chinese-Iranian relations have developed much more rapidly than before, and China ranked as the eighth country that Iran has intense diplomatic relations (Bill, 2001: 94). Since Iran believes that such a 'United Front' is impossible, it takes independent and courageous steps in its foreign policy choices (Scowcroft, 2006: 13-14).

Takeyh (2007b: 19-21) emphasizes the difficulty of receiving a global support against a state and of containment of that state which projects its influence through indirect means like Iran. He says that since Iran projects its influence through "indirect means like supporting terrorism, financing proxies, and associating with foreign Shiite parties", it is difficult for other states to help the US isolate,

contain and deter Iran. The regional states cannot be willing to provide support for containment of such a state that projects its influence by such indirect means. During the Cold War, the US was able to receive international support in containing the Soviets because the other states were also sharing the same concerns with the US. However, it is not the case for Iranian issue at the moment. Iran does not concern not only Russia and China but also European states as much as it concerns the US (Brumberg, 2002: 70).

Even though as Einhorn (2004: 24-25) argues that there could be an international assent that Iran poses a vital threat to the security of the world and there could be a transatlantic consensus on two issues: Firstly, Iran's urge for nuclear weapons is a threat for the stability of the Middle East and the future implementation of the global non-proliferation regime, secondly, Iran should be persuaded to forgo its fissile material production program, it is tragically asserted by Steorts (2006: 30) and Takeyh (2007b: 19-20) that even UN Security Council may not be capable of imposing effective sanctions because of its fractured structure and dependence on Iranian oil. On the other hand, an external coercion that is posed to a country like Iran may arouse the nationalistic sensations among the public even if most of the Iranian people are not content with the existing regime. This nationalist revival doubtlessly results in strengthening of the hand of the hard-liners in Iran (Heuvel, 2006: 3). Sadjadpour (2007: 125-127), although he believes in the significance of a collective action taken by these external actors like Russia, China, Europeans and even the Arabs against Iran, he also says that for two reasons constructing a common

western policy towards Iran is very difficult: Firstly, it seems that Iran does not know what it wants and its foreign policy frequently fluctuates. While Ahmadinejat seeks to cooperate with Russia and China against the US, the pragmatists like Rafsancani have tried to establish the links with the US, and Khamenei was indifferent to both sides. Secondly, the national interests of Iran and the interests of Iranian ruling elites are not the same. For instance, getting Iran into the structures of the global economy is beneficial for Iranian people but it is not for the rulers of the Islamic Republic because they regard the close ties with the West as a threat for their privileged standing in the government.

Not against the invasion of Iran or the air strike option, but in general sense, non-militarists (for example, Kaplan, 2006: 13) base their arguments on the US vulnerabilities and Iran's retaliation power against US attacks. Basically, four assets of Iran are emphasized: Hezbollah, Iranian missiles, Shiite people in Iraq, and the oil card. In case of an American attack, doubtlessly Iran would use its assets and take advantage of US vulnerabilities. In such a military attack to Iran, it is believed (Lang and Johnson, 2006: 27-29) that Iran would not hesitate to supply support for Hezbollah in its terrorist activities against both the US and Israel. Also the Shiites in Iraq can be organized by Iran for such terrorist activities and rebellions against the US forces in Iraq. Iranian ability to conduct rebellious movements in Iraq should not be undermined. It is claimed (Steyn, 2007: 60) that after the US occupation of Iraq, Iran has supported not only the Shiite rebels but also the Sunnis in Iraq in order to help drag the country into chaos and make it harder for the US troops to survive

because Iran is looking forward for the US failure in Iraq. In case of an attack to Iran, the chaos may return to Iraq by Iranian incitements. As a result, Iraqi territory would no longer be a safe place for the US troops. Besides that, other than cutting its own oil exports, Iran is also capable of bombing the oil fields of other oil exporting Gulf States. There are also some countries, sympathetic to Iran like Venezuela that is quite tended to cut its oil supply to the US in case of such a US attack on Iran. Aggregation of all that oil loss would mean a 20-30 percent oil import deficit for the US (Lang and Johnson, 2006: 27-29).

3.3 Regime Change

It is strongly believed by Tarock (2006: 662) that the clash between Iran and the US is mostly related with the regime in Iran, rather than the development of the Iran's nuclear program. When the Shah was in power, the West helped Iran and encouraged the development of the nuclear program, although it was known that the Shah's nuclear program was oriented towards armament. However, the western attitude towards Iran completely changed after the Islamic Revolution in 1979. Not only the nuclear ties, but also all other relations between Iran and the West were broken after the revolution. It should not be avoided that, the Mullahs (new ruling elites) demonstrated no interest in the nuclear program and they ceased it as they came to the power with the Islamic revolution. It was after the Iran-Iraq war, the

Mullahs reconsidered developing nuclear, biological and chemical weaponry. Saddam's use of chemical and biological weapons in the eight years long Iran-Iraq war and international community's inactivity towards Saddam's violence had an essential effect on Mullah's reconsideration of the nuclear program. Although Iran expected an international condemnation of Baghdad because of the Geneva Protocols of 1925 prohibiting the use of biological and chemical weapons, the international community did not react. Interrupting the expansion of the Islamic regime was on the agenda of the international community at the time, but not controlling the use of chemical and biological weapons (Giles, 2000: 79-82).

Regime change is defined as the removal of an offensive regime with a new less offensive one in a country by another state that has problems with the former regime of the country. In case of Iran, this definition of regime change is adopted as installing a new character of regime or a regime that is not pursuing nuclear weapons (Haass, 2005: 67). It is also argued that the main aim of the US is to change the regime in Iran rather than impeding its nuclear development. Washington uses Iranian nuclearization just as a pretext for its principal aim: overthrowing the Islamic regime and replacing it with friendly one (Tarock, 2006: 662). Haass (2005: 68) divides regime change into two categories according to use of methods and duration. The first is called 'regime evolution' in which the end is achieved by incremental means in a relatively much longer time by employing foreign policy options other than military force. The other is called "Bush's regime change", which is more direct

and includes military tools and methods of political and economic isolation of the government.

The US has two different options leading its endeavors to change the regime in Iran: The first is pursuing confrontational politics and the second is limited engagement. The confrontational politics consist of political and economic isolation of Iran from the globe. By isolating Iran, it is expected that squeezing the regime by political and economic tools would bring an extreme pressure on it. This leads the Mullahs to reevaluate their nuclear program or makes them much more moderate towards a peaceful democratic transition.

The other option, called 'limited engagement', is based on the idea that it is necessary to have a reasonable and limited engagement with Iran to support the oppositions within the regime. It is argued that getting in touch with the regime somehow opens it to the outside influence and strengthens the hand of pro-democratic groups inside Iran. However, the US should also manage to marginalize the clergy to a certain extent. Besides engaging with Iran, the US should demand some progress in return of trade and investment relations with Iran. As long as engagement with Iran causes no change in the country, it would lead to nothing but strengthening the Mullahs and the Islamic Regime (Friedman, 2005: 39). Thus, it is strongly supported that while the US inducement is necessary for a change in Iran, in case of an Iranian non-compliance, the US should be ready to use sanctions as well (Chubin and Green, 1998: 153).

Washington believes that political and economic sanctions imposed to Iran are essential for regime change. Since the public is not content with the regime in Iran, these kinds of measures will strengthen the hand of the oppositions inside the country and speed up the process of regime change. However, according to Tarock (2006: 649) and Dorraj (2006: 328), this argument is completely unfounded. They state that in every country, external oppositions reveal national feelings like nation's sovereignty and independence, and this has a positive effect on the legitimacy of the existing regime and strengthens the hand of the hardliners. In addition to that, Tarock (2006: 663) believes that rather than sponsoring the domestic oppositions for regime change or posing a military threat to Iran, the most realistic option is to integrate Iran into the world community by sincere policies like 'supporting its accession to the World Trade Organization (WTO), unfreezing Iranian assets in the USA, lifting sanctions and respecting its sovereignty'. The rulers in Iran have to open the country to the outside world because Iran is not a state like North Korea. Contrary to the case in North Korea, the legitimacy of Iranian regime cannot survive by fully isolating the country from the world because Iranian ruling elites are fully aware of that Iran can only provide the material needs for its people only by maintaining political and economic relations with the international community (Einhorn, 2004: 28).

It seems that applying coercive policies for regime change is quite troublesome especially if the opposed state is as powerful as Iran. As the US did it in Iraq, a rapid regime change in Iran can only be maintained by a military operation.

However, when the case is Iran, military attack for regime change does not seem to be a sound option and consists of many drawbacks. Besides, such a regime change option should include a post-regime change strategy as well. In other words, regime change strategy is not completed successfully by only overturning the old regime. Establishment of a new regime should also be part of the strategy. Even if it is assumed that Iranian Islamic regime will be toppled successfully, replacing it with a new one is supposed to be much more difficult and problematic which is the case in Iraq. The US has experienced that replacing a new secure Iraqi state and regime is much more problematic than turning Saddam over (Haass, 2005: 70). Thus, establishing a pattern of limited engagement in the relations with Iran, gradually exposing the Iranian community to outside influence and letting the regime to evolve by only its inner motivations is a better policy option for the US decision-makers. This is a long run option but seems to be much more plausible and applicable.

In sum, there are pros and cons of all three American options. However, trying to establish the basis for diplomacy, by regarding Iran as a sovereign independent state that is rational and pursuing security in its region is the most plausible option. Iran is not an insane radical state but an opportunistic state underpinning the conditions that guarantee its predominance and survival in the region. Military operation contains uncertain and dangerous future prospects, lacking a high probable success for the US, and regime change option consists of combination of various policies which cannot be applied in one night and which need time.

CHAPTER IV

THE MODEL

I explain the interaction between the US and Iran by using game theory defined as interactive decision theory (Aumann, 1987). If we accept that international relations is mostly defined as the intersection of foreign policies of different actors and the policies of all actors are dependent on each other, game theory can be used to investigate strategic interdependence among states rigorously (Güner, 2003: 163; Correa, 2001: 2). In fact, the nuclear dispute between the US and Iran is nothing but a strategic interaction. Binmore (1990:1) defines a game as a situation where the fate of an individual depends not only on his own actions but also on the actions of others. In other words,

> Game theory … is a theory of interdependent decisions – when the decisions of two or more individuals jointly determine the outcome of a situation. The 'individuals' can be persons or collective entities that make consistent choices (Morrow, 1994:1).

Thus, the future of the nuclear dispute between Iran and the US will result from the strategic interdependence between these two countries. Iran and the US are strategically dependent on each other. Powell describes interdependency as follows:

> Suppose two actors, A and B, are in a strategic setting in which each actor's optimal action depends on what the other does. In such circumstances, A decides what to do on the basis of what it believes B will do. But what B does depends on what it believes A will do. But then what B does is really based on its belief about A's belief about B's belief about what A will do, and so on. This chain of believes about beliefs makes strategic interdependence complicated (Powell, 1999a: 34).

In game theory, it is assumed that the actors are rational and each actor knows that the others are rational and each one knows that the others know that each one is rational and so on. As Kreps puts forward "that each credits their rivals with 'rationality,' that each believes that all rivals credit their rivals with 'rationality', and so forth" (Kreps, 1990: 387). Rationality, in this regard, means that as long as conditions permit, actors pursue their self-interests as much as they can (Snidal, 2007: 247). Snidal (2007: 227) and Powell (1999b: 97) stress the use of formal mathematical models in studying international relations. Snidal argues that "Mathematics provide a precise language to describe the key elements of a problem, a powerful deductive machinery that extends the logical power of our theories, and an important means to expand our understanding and interpretation of the world" (Snidal, 2007: 227).

There is no doubt that Iranian nuclear pursuit has a strong security dimension not only for Iran but also for the US and regional states in the Middle East. Kydd, by putting forward three features of security studies, argues that the application of game theory in security studies is not less convenient than using it in any other political

science subjects. Firstly, in security studies, the number of actors is small, mostly two; and in game theory, small number of actors are included in models. It is much easier to develop and interpret the models with small number of actors. Since game theory is the study of strategic interdependence, by using game theory, the interactions and interdependency between actors can be analyzed efficiently. Secondly, in security studies, stakes are high. Again, in game theory, it is assumed that actors are rational and they pursue their self-interest. Lastly, the actors of security studies are familiar with and experienced in the subjects they are involved. These subjects are not strange to them and they are capable of estimating the actions and pay-offs of their adversaries or allies (Kydd, 2007: 345-348).

It is difficult to understand an international issue by examining it with its all details. It is much easier to explain an event as long as the main variables and factors are taken into consideration and the examination of the interdependence between these variables and factors are the main concerns of the study. Game theory is based on the examination of the relations and the interactions between these main variables of the event. In addition, it should be noted that mere game theory is not capable of explaining any international problem, game theory is a tool and it should be applied to an event or an issue (Güner, 2003: 165). Thus, in formal modeling, in order not to complicate the model and the theoretical understanding, firstly the most significant factors are figured out and some simple descriptive assumptions are made. Beginning with the main agents of the problem prevents overwhelming the model with details and enables the reader to notice the connection between the main variables in the

problem. After determining the main factors and variables of the game and emphasizing the relations between them, details can be added to analyze the issue exhaustively (Snidal, 2007: 233).

In this thesis, the interactions between the actors, namely the US and Iran will be modeled as a game. Two different models - complete and incomplete information game models - will be used in this study. However, there is no model that can be alleged to be the most correct one. Formal theory gives us the opportunity to create numerous possible models of an interaction and to see the differences between them because each model has its own assumptions, peculiar to its characteristic (Morrow, 1994, 57-58). As Snidal (2007: 260) says: "By their nature, models are never right. They are, if things go well, progressively better approximations to the problem being studied."

I believe that analyzing the problem by using two different types of models will develop the argumentation of the thesis and this will give us the opportunity to see the variations provided by looking to the problem from different perspectives. For many game theoretical studies, different models may develop contradictory arguments. However, in this study, it is not the case. The complete information game model gives us some parameters to discuss and interpret, and the results provided by incomplete information game strengthen the argument that was made in former discussion.

4.1 Complete Information Game

In this part of the thesis, a game of complete and perfect information will be modeled to analyze the interaction between the US and Iran. Complete information means that the players know all the factors of the game. "Each player is aware of all other players, the timing of the game, and the set of strategies and payoffs for each player."[7] Perfect information means that players do not move simultaneously but successively and each player knows the previous moves of the other players.[8] For the nuclear tension game between the US and Iran, a model can be depicted as the one below.

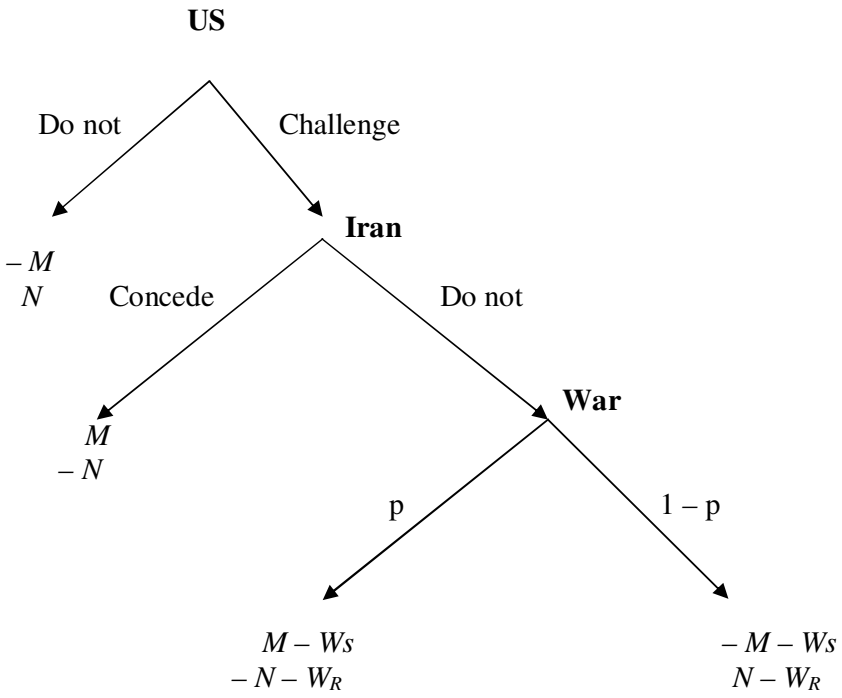

Fig. 1. Complete Information Game (general)

[7] Cited from http://www.gametheory.net/dictionary/
[8] http://www.gametheory.net/dictionary/

Definitions:
N: The value that Iran attributes to nuclear weapons
M: Elimination of the threat posed by Iran with nuclear weapons
p: The probability of US' winning the war
$1 - p$: The probability of Iran's winning the war
Ws: US war cost
W_R: Iran's war cost

In this extensive modeling (game tree) in figure 1, the players, their strategies, the sequence of actions and the payoffs are figured out. Each player has two options. In the first step, the US considers whether to challenge or not to challenge Iran. If the US does not challenge, the game ends. Iran obtains nuclear weapon capability (N), and the US faces a threat ($-M$), which is posed by the nuclear capable Iran. If the US challenges, Iran chooses in the second step whether to concede or not to concede. If the US challenges and Iran concedes, the US gets (M) because the US eliminates a possible threat that is emanating from a nuclear Iran. On the other hand, Iran gets ($-N$) because its endeavors to possess the nuclear weapon capability come to naught. If Iran does not concede, the result is war. If the US wins the war with (p) probability, the US gets (M) but suffers the war cost ($-Ws$). In that case the US pay-off is ($M - Ws$). For Iran, the endeavors to possess nuclear weapon capability come to naught and it suffers the war cost. Thus, Iran's pay-off is ($- N - W_R$). On the other hand, if Iran wins the war with ($1 - p$) probability, Iran gets nuclear weapon capability but suffers war cost ($N - W_R$), the US both faces the threat posed by the nuclear capable Iran and suffers war cost ($- M - Ws$).

In the model above, we have defined separate payoffs for the US and Iran's winning the war. In case Iran is defeated, then the payoffs are $(M - Ws, -N - W_R)$. In case the US is defeated, then the payoffs are $(-M - Ws, N - W_R)$. We can reach a set of war payoffs by multiplying the payoffs and the probabilities.

$$\begin{aligned}\text{US War Pay-off} &= p(M - Ws) + (1 - p)(-M - Ws) \\ &= 2pM - M - Ws \\ &= M(2p - 1) - Ws\end{aligned}$$

$$\begin{aligned}\text{Iran's War Pay-off} &= p(-N - W_R) + (1 - p)(N - W_R) \\ &= N - W_R - 2pN \\ &= N(1 - 2p) - W_R\end{aligned}$$

We redraw the model by attaching the war-payoffs in figure 2.

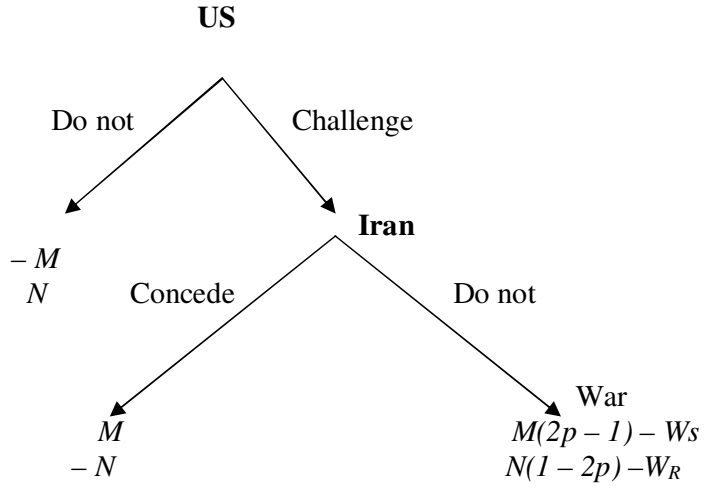

Fig. 2. Complete Information Game (reduced)

4.1.1 Solution by Backwards Induction

The solution of this game will be based on a method called 'backwards induction'.[9] From top to bottom, there are two decision nodes: the initial node of the game where the US moves by choosing between to challenge and not to challenge Iran, and the Iran's move after the US challenges. In this game, the moves of the players are sequential, not simultaneous. In the games with simultaneous moves, it is assumed that players are moving at the same time and no player knows the other players' actions (Dixit and Nalebuff, 1991: 33). However, it is not the case in this model in which each player acts at a time and is aware of the previous moves of the other players. In sequential games, each player should think of the future responses of the other players before making its current move, and calculate its prospective pay-offs. These considerations guide player who prefers the action that maximizes its pay-off. This is called 'looking ahead and reasoning back' (Dixit and Nalebuff, 1991: 33-34). While considering the expected pay-offs, each player assumes that the other players are also rational and they are also considering their expected pay-offs and trying to choose the best options for themselves (Heap and Varoufakis, 1995: 87).

Players simply 'look ahead and reason back'. In this method, we start from the end of the game tree and go back to the initial point. First, we assume that the US challenges Iran who has two options: concession or no concession. Iran gets $(-N)$, if

[9] For additional information and a comprehensive paper in which a game is solved by backwards induction, see: Güner, Serdar. 1999. "Water Alliances in the Euphrates-Tigris Basin." In Steve C. Lonergan, eds., Environmental Change, Adaptation, and Security. Netherlands: Kluwert, 301-316.

he concedes, and $N(1 - 2p) - W_R$, if he does not concede. Since the player is rational and chooses the best option for itself, we can put following statement: Iran chooses not to concede only if $N(1 - 2p) - W_R > -N$

$$p < 1 - \frac{Wr}{2N}.$$

Iran concedes if it is contrary which is $p > 1 - \frac{Wr}{2N}$.

Equilibrium 1 (challenge, concede):

Since the players look ahead and reason back, in order to consider the US moves, we have to evaluate the US actions against Iran's choices. First, assume that $p > 1 - \frac{Wr}{2N}$ and Iran concedes. In that case, knowing that Iran will concede, the US does not deviate from its strategy of challenging. The US will get (M) by challenging and ($-M$) by not challenging. Thus, if $p > 1 - \frac{Wr}{2N}$, then the US challenges Iran and Iran concedes. As a result, the US wins the game, since it eliminates the Iranian nuclear weapon threat and Iran's endeavors to acquire nuclear weapons come to naught.

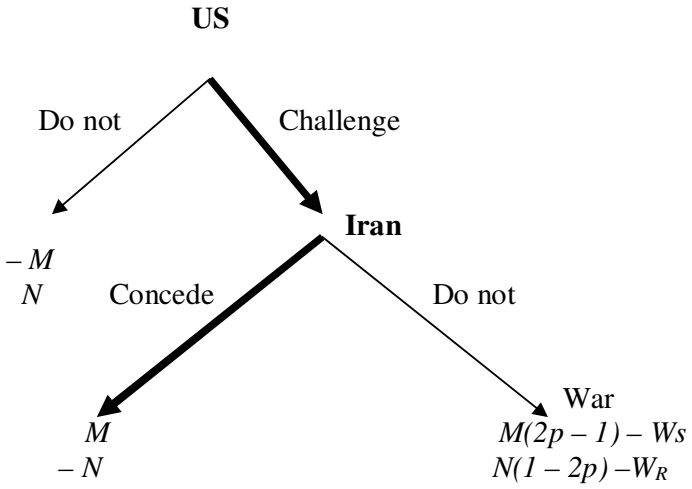

Fig. 3. Equilibrium 1 (Extensive Form)

Equilibrium 2 (do not challenge, do not concede):

Assume that $p < 1 - \frac{Wr}{2N}$ and Iran chooses not to concede. In that case if the US does not challenge knowing that Iran will not concede, it will get $(-M)$. If the US challenges, it will get $M(2p - 1) - Ws$. Since we assume that the players are rational and chooses the best options for themselves, the US prefers not challenging Iran only if $-M > M(2p - 1) - Ws$. Then we reach the condition of $p < \frac{Ws}{2M}$ where the equilibrium outcome is Iran's victory.

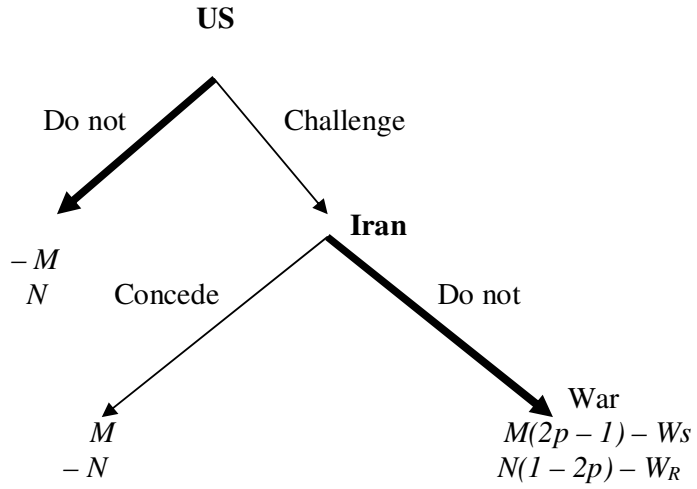

Fig. 4. Equilibrium 2 (Extensive form)

Equilibrium 3 (challenge, do not concede):

Again assume that $p < 1 - \frac{Wr}{2N}$ and Iran chooses not to concede. Contrary to the equilibrium 2 if $p > \frac{Ws}{2M}$, the US prefers to challenge, then the outcome would be war.

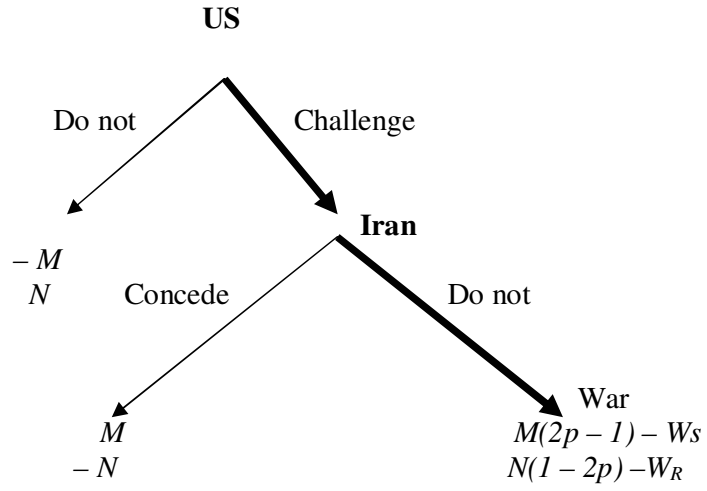

Fig. 5. Equilibrium 3 (Extensive form)

These outcomes are figured out in table 1.

Table 1: Parameters

EQUILIBRIUM OUTCOMES	**PARAMETERS**
Eq. 1: {the US challenges, Iran concedes}	$p > 1 - \frac{Wr}{2N}$
Eq. 2: {the US does not challenge, Iran does not concede}	$p < min\,(1 - \frac{Wr}{2N}, \frac{Ws}{2M})$
Eq. 3: {the US challenges, Iran does not concede}	$\frac{Ws}{2M} < p < 1 - \frac{Wr}{2N}$

According to this model, there are three different equilibria. In equilibrium 1, knowing that Iran will concede, the US challenges Iran and wins the game. In equilibrium 2, knowing that Iran will not concede the US does not venture the war cost and does not challenge Iran. Then Iran wins the game. In the equilibrium 3, even though the US knows that Iran will not concede, the US challenges Iran and the equilibrium would be war. In the chart above, these results are described in terms of '*p*' which is the probability of the US' winning the war. Roughly, it is seen that the lower '*p*' is, the higher the probability of Iran's possession of nuclear weapons. Similarly, as '*p'* increases, the probability of the US victory increases as well. The result would be a war, if '*p*' is somewhere in the middle. These outcomes will be interpreted in detail in the next chapter of this study.

4.2 Incomplete Information Game

There are games, called incomplete information games, where some players know more than the others about the rules of the game. Players may typically have limited information about each other's preferences and therefore payoff functions (Gintis, 2000: 284). Accordingly, we now assume that Iran is uncertain about US war costs and model it by this incomplete information game tree.

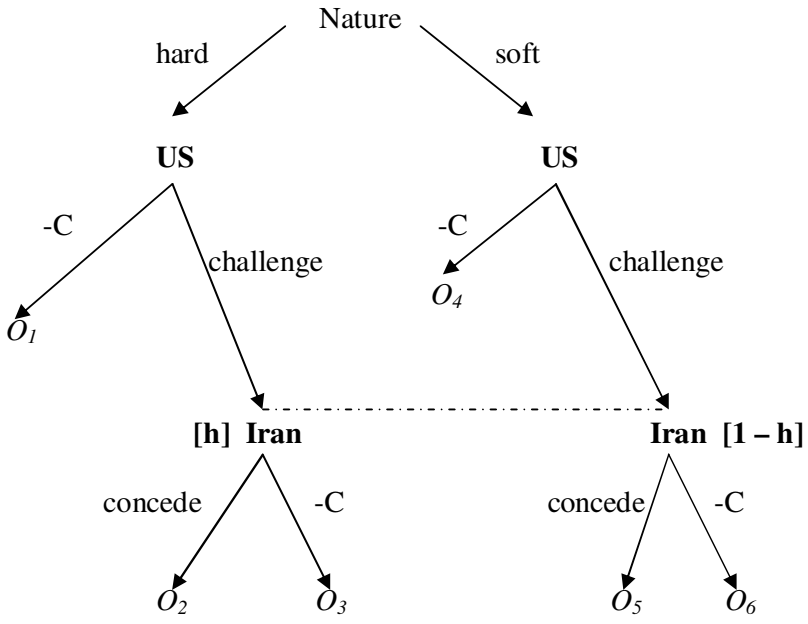

Fig. 6. Incomplete Information Game

The game presented in figure 6 starts with "nature", a chance move that determines whether the US is hard or soft. Hard US reflects that the US war costs in a possible war with Iran is low, and soft US reflects that it is high. This game is an

incomplete information game because while the US knows its type, Iran does not know it. Thus, intermittent line links Iran's information set.[10] The players have two different strategies. The actions of the US are to challenge or not to challenge Iran. If the US does not challenge Iran, the game ends and Iran acquires nuclear weapon capability. If the US challenges Iran, then Iran either concedes or does not concede. Since this is a sequential game, the moves are not simultaneous. In other words, Iran acts after seeing that the US challenges. However, Iran is unsure about the type of the US.

If the US (Hard) does not challenge, the outcome becomes O_1 and the game ends. If the US (Hard) challenges and Iran concedes then the outcome becomes O_2. The outcome O_3 results from US (Hard) choice of challenge and Iran's no concession. If the US (Soft) does not challenge, the outcome becomes O_4 and the game ends. If the US (Soft) challenges and Iran concedes then the outcome becomes O_5. The outcome O_6 results from US (Soft) choice of challenge and Iran's no concession. The outcomes are described in the table 2.

[10] For a detailed paper in which an incomplete information game is analyzed see: Güner, Serdar. and Daniel Druckman. 2000. "Identification of A Princess Under Incomplete Information: An Amarna Story," Theory and Decision 48: 383-407 and Güner, Serdar. 2007. "Greek-Turkish Territorial Waters Game," In Rudolf Avenhaus and I. William Zartman, Diplomacy Games: Formal Models and International Negotiations. New York: Springer, 181-193.

Table 2: Outcomes

The US does not challenge Iran, when the US is respectively hard and soft.	O_1, O_4
The US challenges and Iran concedes, when the US is respectively hard and soft.	O_2, O_5
The US challenges Iran and Iran does not concede, when the US is respectively hard and soft.	O_3, O_6

After stating and defining the outcomes, there is a need to make preference ordering of the outcomes for the US (Hard), the US (Soft) and Iran separately. It is sure that US victory outcome is the best for both the US (hard) and the US (soft). The difference between the soft and the hard US preference orderings is the ranks of the war outcome and the Iranian victory outcome. For the US (hard), the war outcome is better than Iranian victory because the war cost for the US (hard) is low. However, for the soft US, this order is reversed because the war is more costly for the US (soft) than the US (hard). Thus, the worst outcome is war for the US (soft), but it is Iranian victory for the US (hard). So, the preference orderings can be written down as follows:

The US (Hard): $U_{us}(O_2) > U_{us}(O_3) > U_{us}(O_1)$

The US (Soft): $U_{us}(O_5) > U_{us}(O_4) > U_{us}(O_6)$

For Iran, it is sure that the best outcome is not to be challenged which is provided by O_1 and O_4. Iran believes that a war with the hard US is costly. Thus, Iran prefers to concede if the US is hard. However, if the US is soft, Iran prefers not to

concede because of the belief that a war with the soft US is not that much costly. Consequently, it can be said that conceding to the US (hard) is better than conceding to the US (soft), and not conceding to the US (soft) is better than not conceding to the US (hard). So, the Iranian preference ordering can be written down as follows:

$U_I(O_2) > U_I(O_3), U_I(O_5)$

$U_I(O_6) > U_I(O_3), U_I(O_5)$

In incomplete information games, since the uninformed player does not know in which state of the world it is acting, the player utilizes conditional probabilities to decide which action is the best option for him. "Beliefs are conditional probabilities. Let A be a state of the world and B an event. The probability of B given A, written p(B\A), specifies the likelihood that B will occur given that A is the state of the world. Bayes's Theorem uses the conditional probabilities of states given events… Let $(Ai)^{n}_{i=1}$ be the set of states of the world, and B an event. Then $p(A_i \backslash B) = \frac{p(Ai)\,p(B \backslash Ai)}{\sum_{i=1}^{p} p(Ai)\,p(B \backslash Ai)}$."[11]

Let's say *p(h)* is the probability of the US being hard, *p(s)* is the probability of the US being soft, *p(c\h)* is the conditional probability that the US challenges given it is hard, *p(c\s)* is the conditional probability that the US challenges given it is

[11] See Morrow, James. 1994. Game Theory for Political Scientists. New Jersey: Princeton University Press: 163 and Güner, Serdar. 1998. "Signalling in the Turkish-Syrian Water Conflict," Conflict Management and Peace Science 16 (2): 185-206.

soft, and $p(h\backslash c)$ is the conditional probability that the US is the hard given that it challenged Iran.

$$p(h\backslash c) = \frac{p(h)\,p(c \backslash h)}{p(h)\,p(c \backslash h) + p(s)\,p(c \backslash s)} = \frac{h.1}{h.1 + (1-h)1} = h$$

Here, $p(h) = h$, then $p(s) = 1 - h$

Also, $p(c\backslash h) = p(c\backslash s) = 1$ in this pooling equilibrium.[12]

It means that the probability that the US is hard given it challenges, $p(h\backslash c)$, is 'h'. So, the probability that the US is soft given it challenges, $p(s\backslash c)$, is '$1–h$'. Thus, if both types take the same action, it is said that the prior beliefs are equal to the posterior beliefs. Then, Iran is going to compare its expected payoffs from conceding and not conceding given these beliefs. Iran's expected payoff from conceding given that the US challenged is:

$$EU_I(c\backslash c)=hU_I(O_2)+(1–h)U_I(O_5)$$

Iranian expected payoff from not conceding given the US challenged is:

$$EU_I(\text{-}c\backslash c)=hU_I(O_3)+(1–h)U_I(O_6)$$

If Iranian expected payoff from conceding is greater than from not conceding, then Iran concedes.

$$EU_I(c\backslash c) > EU_I(\text{-}c\backslash c)$$

$$hU_I(O_2)+(1–h)U_I(O_5) > hU_I(O_3)+(1–h)U_I(O_6)$$

Iran concedes if $h > \dfrac{U_I(O6) - U_I(O5)}{U_I(O6) - U_I(O5) + U_I(O2) - U_I(O3)} = \alpha$

[12] Pooling equilibrium is an equilibrium where all types play the same strategy.

Iran does not concede if $h < \dfrac{U\iota(O6) - U\iota(O5)}{U\iota(O6) - U\iota(O5) + U\iota(O2) - U\iota(O3)} = \alpha$

Equilibrium 4:

We have defines 3 equilibrium in complete information game. Thus, this equilibrium is the fourth. Suppose that $h > \alpha$, and Iran concedes under US challenge. The US obtains $U_{us}(O_2)$ and $U_{us}(O_5)$. Since $U_{us}(O_2) > U_{us}(O_1)$ and $U_{us}(O_5) > U_{us}(O_4)$, the US (either the hard or the soft) challenges Iran, if $h > \alpha$. Thus, the equilibrium is *{(Challenge, Challenge), Concede; $h > \alpha$}*. In this equilibrium, the parenthesis reflects the US decision. The US challenges when it is both hard and soft. Iranian decision is to concede in this equilibrium when $h > \alpha$.

Equilibrium 5:

Suppose that $h < \alpha$, and Iran does not concede to the US challenge, then the US obtains $U_{us}(O_3)$ and $U_{us}(O_6)$. Since $U_{us}(O_3) > U_{us}(O_1)$, the US will challenge if it is hard. However, it will not challenge if it is soft because $U_{us}(O_4) > U_{us}(O_6)$. Thus, the equilibrium is *{(challenge, do not challenge), do not concede; $h < \alpha$}*. In this equilibrium, US decision is challenge and no challenge when it is hard and soft respectively, and Iran's decision is no concession when $h < \alpha$.

CHAPTER V

DISCUSSION

In this chapter, the equilibria are interpreted and discussed. We should first interpret the results to present what the models tell us about the problem. Secondly, the contribution of this study to the existing literature and the benefits of using model will be put forward.

5.1 Interpretation

5.1.1 Equilibrium 1: US Victory

The equilibrium 1 holds when $p > 1 - \frac{Wr}{2N}$. It means that US victory without Iranian military confrontation depends on the probability of the US' winning a war, Iranian war cost, and the value of nuclear weapons for Iran. The equilibrium holds when US victory likelihood in a war exceeds a threshold. The threshold changes

depending upon variations in Iranian war cost and the value Iran attributes to nuclear weapons. If Iranian war cost is equal to or greater than two times the value Iran attributes to nuclear weapons, the threshold becomes zero or negative. Under that condition, the outcome is always US victory because US victory likelihood in a war is between 0 and 1. Contrarily, if Iranian war cost is zero, then the threshold becomes 1. Since US victory likelihood cannot exceed 1, under that condition the equilibrium 1 can never be the outcome. In any condition where Iranian war cost is less than two times the value Iran attributes to nuclear weapons and greater than zero, there is a chance for the equilibrium 1 to be the outcome. However, at this time, the probability of US' winning the war is also equally important. The above inequality is the same as $p + \frac{Wr}{2N} > 1$. Here, there are two terms, sum of which should exceed 1 for US victory outcome. The first term is the probability of US victory likelihood in a war and the second term is Iranian war cost over two times the value Iran attributes to nuclear weapons. For instance, if you take that the probability of US' winning the war is 0,5 then the equilibrium 1 becomes the outcome when Iranian war cost is greater than the value Iran attributes to nuclear weapons. Consequently, as long as US victory likelihood in a war decreases; the value Iran attributes to nuclear weapons should also be decreasing when Iranian war cost is fixed, or Iranian war cost should be rising when the value Iran attributes to nuclear weapons is fixed. The region determining the equilibrium 1 is seen in figure 7.

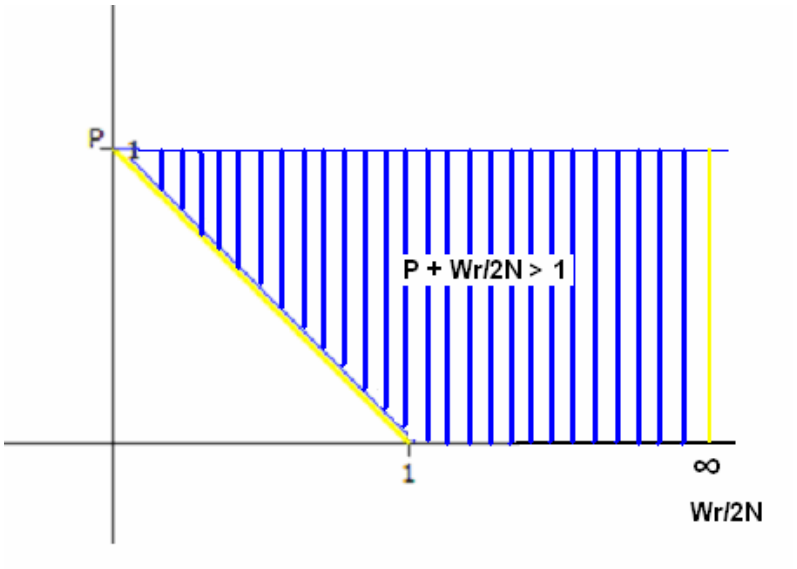

Fig. 7. Graphical representation of the region determining the equilibrium 1

As long as the probability of the US' winning a possible war and Iranian war cost increase, and the value of nuclear weapons for Iran decrease, Iranian concession is much more likely. Knowing that Iran will concede, the US inevitably prefers to challenge Iran. US challenge will force Iran to abandon its nuclear weapons program, and as a result the US will win the game. In other words, Iranian concession and US victory are mostly depended on Iranian cost-benefit calculations. The same logic is put forward in the study made by the National Intelligence Estimate. It is stated in the judgment of the institution that "only an Iranian political decision to abandon a nuclear weapons objective would plausibly keep Iran from eventually producing nuclear weapons – and such a decision is inherently reversible" (National Intelligence Estimate, November 2007). The National Intelligence Estimate puts the emphasis on Iran's decision to concede and asserts that the US victory can only

occur by Iranian decision to abandon its program. Iranian decision makers can make such a decision by taking Iranian war cost and its desire for nuclear weapons into account. In the same study made by the National Intelligence Estimate, the Iranian nuclear program is also analyzed retrospectively. It is argued that Iranian decision to halt its nuclear program in 2003 was also based on Iranian cost benefit calculations. Iran halted its nuclear program in 2003 because of the international pressure. Iran did not make an irrational rush but cost-benefit estimation on political economic and military bases and abstained from going on the program (National Intelligence Estimate, November 2007).

Even though it is strongly believed by many scholars (for example, Takeyh, 2007a: 186-187) that Iran's pursuit of nuclear weapons is security based and Iranians are very determined to get the weapon, some of them say that Iran's program is a part of its bargain with the West. Its nuclear determinedness is a bluff to grab more concessions from the West until Iran is persuaded to stop the program (Friedman, 2005: 37). Such concessions can be composed of the US security guarantees on the Persian Gulf, unfreezing Iranian assets held by the US, and lifting the sanctions on Iran (Pollack, 2004: 395). The people who make this estimation believe that the value Iran attributes to nuclear weapons is low and Iranian war cost is high enough. Thus, they expect that the US coercion will surpass Iranian resistance and Iran will concede at the end of the game.

Takeyh (2004-05: 61; 2007a: 186-187) argues that as long as a state regards the possession of nuclear weapons as indispensable for its security, it never backs down. He continues that former nuclear pursuer states such as Brazil, Argentina and South Africa have given up their nuclear ambitions and ceased their nuclear programs primarily due to the diminishing external security threats and consequently the value they attribute to nuclear weapons. Thus, it can be said that if Iran is not that much determined to acquire nuclear weapons and if it is possible to persuade Iran to forgo its nuclear development program, firstly, the US should offer some security guarantees to Iran. Such security guarantees can diminish the value that Iran attributes to nuclear weapons and Iran may give up developing its nuclear weapon program. Otherwise, it is difficult to persuade Iran to back down.

5.1.2 Equilibrium 2: Iran's Victory

> As long as Iran believes that the costs of pursuing nuclear weapons are manageable and the benefits of forgoing them are uncertain or negligible, it will maintain its present course. Of course, we can never know if any combination of incentives and disincentives will get the Iranians to abandon their quest (Einhorn, 2004: 31).

The quotation above is an excellent depiction of Iran's nuclear venture. According to the complete information game model, for Iran's acquisition of nuclear weapons without a US military confrontation, $p < min\ (1 - \frac{Wr}{2N}, \frac{Ws}{2M})$ should be

obtained. The probability of US' winning the war should be exceeded by the minimum of two thresholds. The first threshold changes depending upon the variations of Iranian war cost and the value Iran attributes to nuclear weapons. The second threshold changes depending upon US war cost and the value the US attributes to Iran without nuclear weapons. If Iranian war cost is equal to or greater than two times the value Iran attributes to nuclear weapons, then the first threshold becomes equal to or smaller than zero. Thus, equilibrium 2 cannot be the outcome because the probability of US' winning the war should be smaller than the minimum threshold. Similarly, if the US war cost is zero, the equilibrium cannot be the outcome because second threshold becomes zero and the probability of US' winning the war cannot be negative. Thus, for equilibrium 2 to become the outcome, two conditions must be provided. First, two times the value Iran attributes to nuclear weapons must be greater than Iran's war cost and second, US war cost must be greater than zero. As long as US victory likelihood in a war increases; the value Iran attributes to nuclear weapons should also be increasing when Iranian war cost is fixed, or Iranian war cost should be decreasing when the value Iran attributes to nuclear weapons is fixed. At the same time, if US victory likelihood increases, US war cost should also be increasing when the value US attributes to the elimination of Iran with nuclear weapons is fixed, or the value US attributes to the elimination of Iran with nuclear weapons should be decreasing when US war cost is fixed. The regions determining the equilibrium 2 for the first threshold and the second threshold are seen in figure 8 and figure 9 respectively. The equilibrium 2 becomes the outcome when both conditions are provided.

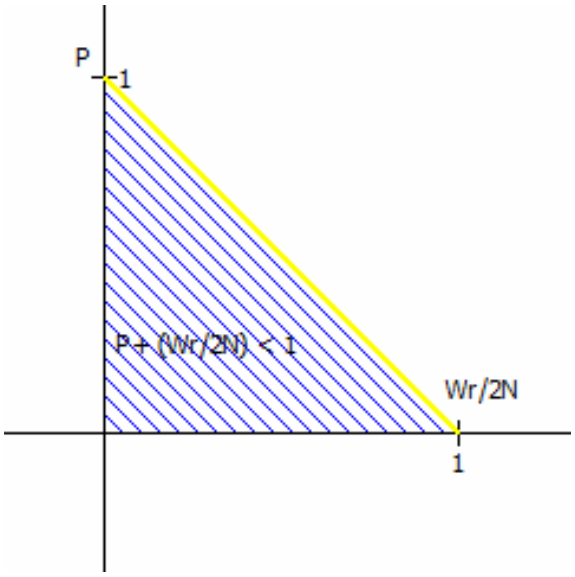

Fig. 8. Graphical representation of equilibrium 2 (first threshold)

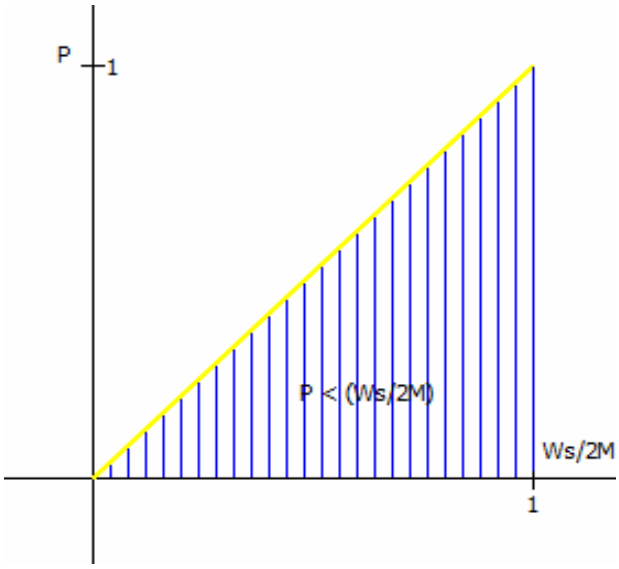

Fig. 9. Graphical representation of equilibrium 2 (second threshold)

This equilibrium is firstly based on the probability of the US' winning a possible military confrontation, '*p*'. The smaller the '*p*' is, the less willing to wage a war the US would be. Since this is a perfect and complete information game,

knowing that the US does not have such an initiative to take military measures, Iran does not give up developing its nuclear program and acquires nuclear weapon capability. If the US is suspicious about the success of a military attack on Iran and if the US does not believe that the benefits of such an attack exceeds its cost, then the US abstains from waging a war against Iran. What are the factors that decrease the probability of US likelihood of victory and increase US war cost? These factors can be gathered under three main titles: The first is the widespread location of Iranian nuclear sites, the second is the need to get a global support against Iran which is very difficulty to receive, and the third is Iran's retaliation power.

It is known that the nuclear sites in Iran are widespread and there are some under ground nuclear facilities in the country that the US military forces cannot strike. Thus, it is obvious that a US strike may postpone Iran's nuclear weapon program for few years, but also makes Iranians more ambitious to have these mass destruction weapons and the situation would be much more problematic for the US in the long run (Fitzpatrick, 2006: 5). In addition, to have a high probability of success in any kind of coercive policy towards Iran, including the military option, the US needs the assistance of other main actors of international politics, like Russia, China, and the EU. However, it is not plausible to think that the US is able to receive such assistance. None of these big powers of international politics are concerned about and afraid of Iran's nuclear development program as much as the US does. On the contrary, Russia and China have well-grounded relations with Iran which are based on trade, commerce, energy and nuclear issues, and which are also continuously

developing (Bill, 2001: 90-94). Kibaroglu (1999: 280-281) believes that Russian and Chinese support for Iran will not be long lasting because in the future, Russia and China will be uncomfortable with a powerful Iran that has nuclear weapons. He continues that it is very likely that their regional interests will clash and this will deteriorate Iran's relations with Russia and China. As a result the Russian and Chinese support to Iran will be ceased. However, such deterioration in the relations has not been observed till now. Takeyh (2007b: 19-20) emphasizes the difficulty of receiving a global support against a state and containment of that state which projects its influence through indirect means. He says that since Iran projects its influence through "indirect means like supporting terrorism, financing proxies, and associating with foreign Shiite parties", it is difficult for other states to provide help for the US to isolate, contain, or deter Iran. This is not the case for only the global powers, but it is difficult to receive such a support against Iran from the regional states as well:

> Given current ballistic missile ranges of possible WMD-armed foes (e.g., Iran, Iraq, Libya, and North Korea), regional allies such as Israel, the Gulf States, and Japan might fear that they will be attacked if the US launches military attacks (Bayman and Waxman, 2002: 215).

The people (for example, Kaplan, 2006: 13; Falk, 2006: 5) who believe that the probability of the US' winning a war, p, is quite low base their arguments on Iran's retaliation power against a US attack. Basically, four assets of Iran are emphasized: Hezbollah, Iranian missiles, Shiite people in Iraq, and oil card. In case of a US attack, doubtlessly Iran would use its assets and take advantage of the US

vulnerabilities. In such a case, Iran would not hesitate to supply support for Hezbollah in its terrorist activities against both the US and Israel. Iran can also provoke the Shiites in Iraq into such terrorist activities and rebellions against the US forces in Iraq. Falk has clearly and briefly juxtaposed the combination of Iran's retaliation options and I quoted below:

> Iran has the means to launch a devastating retaliation with conventional weapons, including its Shahab-3 missiles, which can reach targets in Israel with reasonable accuracy. And Iran has other military options, including intervention on the Shiite side in Iraq, which could turn the disastrous US occupation there into a worse nightmare, with skyrocketing casualties. Iran could also vastly increase its support to Islamic resistance forces in the Palestinian territories and to Hezbollah in Lebanon…As the world's fourth-largest oil producer, Iran could plunge the world into an immediate deep recession by embargoing its oil if it is attacked, or if an attack appears imminent…an Israeli or US attack on Iran would almost certainly strengthen Islamist tendencies throughout the region as well as put intense pressure on Arab governments to react much more strongly against the United States and Israel (Falk, 2006: 5).

The above stated factors decrease '*p*' and increase *Ws*. This means that on the one hand, these factors cause decline of the probability of the US' winning a possible war with Iran because these factors indicate the US vulnerabilities and Iran's retaliation opportunities. On the other hand, as long as the validity of these factors rises, a dramatic augmentation is observed in the US war cost, Ws. Knowing that the US is striving to avoid such a confrontation and vulnerable to the effects of a possible war, Iran will be more courageous not to concede against the US challenge. It means that Iranian expected war cost will relatively decrease and Iran will be less hesitant to wage a war and less willing to concede. Knowing that Iran will not

concede under these conditions, the US prefers not to challenge Iran and Iran builds its own nuclear weapons.

5.1.3 Equilibrium 3: War

For the condition of war, $\frac{Ws}{2M} < p < 1 - \frac{Wr}{2N}$ should be obtained. The war equilibrium is depended on 'p' that should be in the middle of two thresholds. To obtain such a condition, firstly $\frac{Ws}{2M} < 1 - \frac{Wr}{2N}$ should exist. Unless this inequality can be obtained, there will not be an interval for 'p' to be put between these two thresholds. We can write down this inequality also as $\frac{Ws}{2M} + \frac{Wr}{2N} < 1$. If such a condition occurs and there is an interval for 'p', then it should also be said that the closer $\frac{Ws}{2M} + \frac{Wr}{2N}$ is to 1, the tighter the interval for 'p' becomes, and the probability of war decreases. Contrarily, the smaller $\frac{Ws}{2M} + \frac{Wr}{2N}$ is, the wider the interval for p becomes, and the probability of war increases. In other words, rising war costs for both player decrease the likelihood of war, the increase in the importance of nuclear weapons for Iran and the threat posed to the US by a nuclear Iran increase the likelihood of war. The region in figure 10 determines the existence

of an interval for p and in the direction of the arrow, the interval for p widens and the probability of war increases.

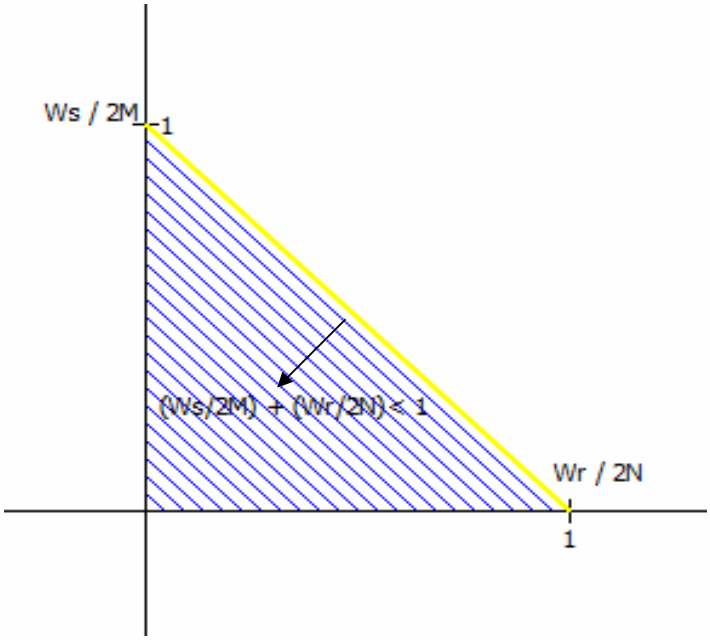

Fig. 10. Graphical representation of equilibrium 3

In addition, the above inequality can also be written as $\frac{Ws}{2M} < \frac{2N - Wr}{2N}$. When we solve this inequality for M, N, W_R and W_S respectively, we reach these conditions:

$M > \frac{WsN}{2N - Wr}$, $N > \frac{WrM}{2M - Ws}$, $W_R < 2N - \frac{WsN}{M}$, $W_S < 2M - \frac{WrM}{N}$. For war, the value Iran attributes to nuclear weapons and the value the US attributes to the elimination of Iran with nuclear weapons should exceed some thresholds. On the other hand, some thresholds should exceed the war costs for the existence of war. These conditions indicate that: As long as the value Iran attributes to nuclear

weapons and the value the US attributes to the elimination of Iran with nuclear weapons increase, the likelihood of war increases as well, while the war costs of both the US and Iran increase, the likelihood of war decreases.

In that case, besides that it is difficult to estimate the exact war cost, it is obvious that the war costs for both the US and Iran would be huge. These huge expected war costs make both rivals hesitant about taking part in a war and abstain from military confrontation. Consequently, the probability of war decreases. The threat that the nuclear Iran poses to the US is composed of some parts. The most important parts are; firstly, Iran's contact with terrorists and the expectation that a nuclear Iran can transfer its nuclear weapons to terrorists. Secondly, it is anticipated that Iran's nuclear weapons may trigger the other states in the region. Since the other regional states, like Saudi Arabia, Egypt, Syria, and Turkey, would most probably feel insecure because of Iran's nuclear weapons, they may prefer to respond to Iranian nuclear threat by acquiring same weapons (Pollack, 2004: 377). This inevitably would damage the global non-proliferation regime and its reliability. Thirdly, there would be a shift in favor of an antagonistic power, Iran, in the regional balance of power context and Iran may share its nuclear capabilities with Syria (Fitzpatrick, 2006: 21-22). It is also believed that the main initiative that pushes contemporary regional powers like Libya and Iran, to have nuclear weapons is not only the aim of deterrence, but also the desire to have the nuclear capability to use coercive policies on their neighbors and gain regional preeminence (Byman and Waxman, 2002: 205-206). Thus, acquisition of nuclear weapons by these states will

inevitably cause further destabilization of the region. Fourthly, Iranian civil-military relations are also creating distrust on Iran's possible actions in case it acquires nuclear weapons capability:

> Regional adversaries' propensity to use WMD may also be affected by their domestic political institutions. Developing world militaries in general suffer from poor civil-military relations and cumbersome command and control procedures. Thus, a small clique in the military or government could conceivably use WMD without the full backing of the rest of a regime. In Iran, for example, The Islamic Revolutionary Guard controls the country's WMD assets and has at times acted independently of the elected Iranian leadership (Byman and Waxman, 2002: 207-208).

Besides, Israel is inciting the US to use a coercive policy towards Iran and this increases the likelihood of war. Israel perceives Iranian acquisition of nuclear weapons as a threat because by having nuclear weapons Iran will have strong military options against Israel. Iran may launch its nuclear missiles towards Israel or transfer nuclear weapons to Hezbollah or Hamas, and it will be easier for Iran to attack conventionally to Israel because of less likelihood of Israeli retaliation (Sadr,2005: 62). Because of such facts, Israeli lobby in the US affecting US decision-makers in favor of waging a war against Iran and this fact increases the likelihood of war between the US and Iran.

On the Iranian side, the value that Iran attributes to nuclear weapons is mostly emanating from Iranian security considerations. Iran is pursuing nuclear weapons because of its distrust to both the western and regional powers emanating from

history. Iran has two unstable neighbors in the east, namely Afghanistan and Pakistan. In addition, the existence of the US troops in the west in Iraq pushes Iran to have nuclear weapons.

> One way of assessing Iran's intentions is through the logic of the Islamic Republic's presumed motivations. Facing foes on several sides and several neighbors armed with nuclear weapons, Iran is presumed to have security motivation for arming itself, particularly when it sees how American enemies that have nuclear weapons survive while Iraq's regime, which did not have them, no longer exists. A compelling need for national prestige and regional leadership adds to the motivations (Fitzpatrick, 2006: 6).

5.1.4 Equilibria 4 and 5

In incomplete information game model, we have found 2 equilibria: equilibrium 4 and 5. In equilibrium 4, if the probability of US being hard type exceeds the threshold 'α', Iran prefers concession. Knowing that Iran will concede; the US, no matter it is hard or soft, challenges Iran. In equilibrium 5, the threshold 'α' exceeds the probability of US being hard type and Iran prefers no concession. The US again challenges if it is hard, but does not challenge if it is soft.

The threshold α depends upon different utilities Iran obtains. The nominator α measures the relative value of the war outcome with respect to Iranian unilateral concession when the US is soft. Its denominator is the sum of the term in the

nominator and the relative value of Iranian unilateral concession with respect to the war outcome when the US is hard. The threshold α is closer to zero if and only if Iranian unilateral concession provides greater utility to Iran than the war outcome when the US is hard. It is closer to one if and only if the war outcome provides greater utility to Iran than its unilateral concession when the US is soft.

As the threshold α is approaching to zero, there is an increasing chance for the probability of the US being hard to exceed α as in equilibrium 4. This increases the likelihood of Iranian unilateral concession and the US victory. Otherwise, as the threshold α is approaching to one, there is an increasing chance for the probability of the US being hard to be exceeded by α as in equilibrium 5. In that case, the outcome would be war or the US unilateral concession, if the US is hard or soft respectively. According to the model by following these preference orderings, it is seen that the hard US never deviates from its strategy of challenging. The soft US deviates from its strategy of challenging when the threshold α exceeds the probability of the US being hard, as it is seen in equilibrium 5.

It is expected that Iranians know hard US does not deviate from its strategy of challenging. Iran may think that if the US was hard type, it would not have waited that long and would have made a military attack. As long as the US does not urge Iran to stop its nuclear facilities by the threat of an imminent military attack, Iranian belief that the US is soft type is getting stronger, and it becomes very much difficult to make Iran concede in the long run. As Kagan (2006) argues, the US has lost so

much time by not mobilizing its military power against Iran and the time is passing in favor of Iran. Thus, he believes that the US should prompt its military power against Iran as soon as possible.

However, a US military venture against Iran has many potential drawbacks and uncertainties for the US as well. It is believed that US coercive policies towards Iran or a US military strike can only serve for the strengthening of the hand of the hard-liners and the Islamic Regime in Iran (Rubin, 2002: 43-44; Friedman, 2005: 38). Such US strict oppositions to Iranian nuclearization not only causes to the solidification of Iranian community around the national goal of acquiring nuclear power but also causes the arousal of the historical distrust to the US and the West. In other words, "the more the United States pushes Iran to stop uranium enrichment, the more it is likely to turn the nuclear issue into a cause that's all about defending the country's sovereignty and dignity"(Heuvel, 2006: 3). Besides, in case of a military attack by the US, Iran would not hesitate to respond the US by indirect means like supporting terrorist groups and provoking Shiite people in Iraq which would make the war much more costly for the US.

In that sense, the election of President Obama may change the Iranian perception of the US. Obama seems to have more flexible attitude towards Iran than his predecessor George W. Bush. Obama is criticized because of his initiatives to open the direct negotiations with Tehran (Tancredo, 2009). Such an attitude can be regarded as a reason that strengthens the Iranian perception of the US is soft.

Consequently, it makes Iranians much more determined to get nuclear weapons. On the other hand, Obama is the first US President who talks about the elimination of nuclear weapons in significant amounts (Backing Obama's Vision for a nuclear-weapons-free world, 2009). This is an important step in building nuclear weapons free zones around the world and the US initiative in this policy is important. Making the Middle East a nuclear weapons free zone might be the best policy to make Iran stop its nuclear program. Although it is very difficult to make such a big conversion in this geography primarily because of Israeli opposition, Obama is a chance for the US to apply such a policy and to create a mutual trust and a rapprochement between the US and Iran.

The scholars who have contributed to the literature about the nuclear tension between the US and Iran can be divided into two groups as moderates and extremes. Moderate scholars (Waltz, 2007: 137; Katz, 2005: 60-61; Takeyh, 2004-05: 52-55; Sadr, 2005: 70; Takeyh, 2007a: 173; Nasr and Takeyh, 2008: 89) believe that Iran has acceptable reasons in pursuing nuclear weapons. Security is Iran's main concern and the aim of Iran's nuclear venture is deterrence. Iran is not a bandit state that aims to use its nuclear weapons on the enemies or give these weapons to terrorists. According to them it would be unwise for Iran to give its nuclear weapons to an organization on which Iran does not have a hundred percent control. These scholars believe that a nuclear Iran would not be threatening the world security more than any other nuclear state because the Islamic ideology or any other extreme value is not leading the decision makers in Iran, but the realpolitik. These moderate scholars

(Lang and Johnson, 2006: 27-29; Kaplan, 2006: 13; Mc Faul et al., 2006-07: 124-125; Haass, 2005: 72-73) generally do not favor a US military attack on Iran. They believe that a preventive strike is not capable of destroying whole Iranian nuclear program and it can only cause delaying the program for few years. They emphasize on US vulnerabilities and Iran's retaliation power against a US attack. They also believe that an external coercion that is posed to a country like Iran may arouse the nationalistic sensations among the public even if most of the Iranian people are not content with the existing regime. Since these scholars do not favor militarist actions by the US, they are more pro-diplomacy. They (for example, Dorraj, 2006: 328-332; Fairbanks, 2001: 447; Einhorn, 2004: 32) say that the US tries to apply a policy of 'all sticks but no carrots'. However, the US should also try some carrots, not only the sticks because such a compelling US policy towards Iran makes Iranians more eager to have nuclear weapons. They are favoring US concessions and stating that ending US sanctions would weaken the hand of hard-liners in Iran.

On the other hand, the extremes (for example, Friedman, 2005: 36; Byman and Waxman, 2002: 205-206; Perkovich, 2003: 4-5; Russell, 2004: 42-43 Chossudovsky, 2005; Kagan, 2006) strongly believe that because of Iran's support to terrorists and its search for nuclear weapons, Iran is a threat for both its neighborhood and the world, and Iran should be interrupted before it acquires nuclear weapons. They say that Iran provided conventional weapons to terrorists and it may also provide nuclear weapons when it acquires them. Iranian decision makers are not rational enough. Thus, they may apply coercive policies if Iran becomes a nuclear

power and this leads to the destabilization of the region. Besides, the instability in Iranian civil-military relations is another aspect strengthening the danger a nuclear Iran can pose. According to them (for example, Sadjadpour: 127), the national interest and the interest of the ruling cadres are not the same in Iran which makes it difficult to establish the basis for diplomacy.

This study contributes to the literature discussing the tension between the US and Iran by modeling it. Modeling makes the problem more concrete and helps the reader see the main variables and their interactions by avoiding the inessential details. By the complete information game model, we have reached two thresholds and we have seen the relation between the probability of US' winning a war with Iran and the thresholds. When this probability is greater than the thresholds, US victory becomes the outcome. Iran's victory is the outcome when the probability is smaller than the thresholds. The outcome is the war, when the probability is between two thresholds. By adding such mathematical determinants to the literature, we have made the facts, which have been discussed before by many scholars, more concrete and comprehensible. Thus, the reader can easily understand the motivations of the actors and the reasons of their actions. By following the arguments of previous scholars in the literature, this study is more prone to be parallel with the view point of above described moderate scholars who expect neither a US military attack on Iran nor an Iranian unilateral concession. As long as the benefits of a US attack on Iran are uncertain and the US vulnerabilities are high, such an adventure would be too dangerous for the US whose troops are still busy in Iraq and Afghanistan.

Besides, it seems that Iranian nuclear venture is not a bluff against the West. The value of nuclear weapons for Iran is tremendously high. It has historical reasons about Iran's security, and it is a goal supported by all factions of Iranian community. The incomplete information game model strengthens this argument. The model showed that the US with low war cost does not deviate from its strategy of challenging. The US deviates from challenging, when it is high war cost type and Iran's no concession is expected. As long as the US does not make a military attack on Iran, Iran's expectation that the US is high war cost type is getting stronger. Consequently, it becomes much more difficult to make Iran concede in the long run.

CHAPTER VI

CONCLUSION

There are three models to explain why states go nuclear. The security model envisages that states go nuclear in order to create deterrence against a nuclear enemy state. The domestic politics model says that the interests of some domestic actors may urge states to devote their capabilities to have nuclear weapons. Lastly, the norms model presents that states want to have nuclear weapons, not because they directly benefit from them, but because the weapons have symbolic effect on the reputation of states. The security model is predominantly superior in describing Iranian nuclear venture. Iranian distrust to the outsiders, both in the West and in the Middle East, pushed Iran to have nuclear weapons and to create a credible deterrence against these enemy states. Besides that, Iranian unstable region and the existence of the US troops close to its territory are the other security considerations for Iran.

The interaction between the US and Iran on Iranian nuclear venture and both side's attitudes towards each other create a vicious circle. On one side, the US is not happy with Iranian nuclear investigations. Due to Iranian cordial relations with

terrorists, it is expected that in case Iran acquires nuclear weapons, it may transfer its nuclear technology to terrorists as well. In addition, Iranian acquisition of the weapons may trigger other regional unsavory states' ambitions to have the same weapons. Because of these considerations, the US challenges Iran and threatens its security in order to compel it to stop its nuclear program. However, the Iranian nuclear program is developed primarily to protect itself against outsiders, especially the US and to provide its security. The Islamic Revolution of 1979 had no interest in the nuclear program. Immediately after the revolution, the new Islamic government ceased Shah's nuclear program. However, it was after Iran-Iraq war that Iran decided to resume the program. In the war, the western support to Saddam made Iran feel alone and insecure. The only way to deter the militaries of the West was to get nuclear weapons. Thus, the nuclear tension between Iran and the US is a vicious circle. Since the Iranian nuclear program is mostly security based, the continuing US challenge to Iran does not make the Mullahs stop the program but makes them much more eager to get nuclear weapons.

There are three US policy options: diplomacy, military operation and regime change. Although there are significant obstacles for diplomacy, the policy of true carrots and sticks is the most viable option for initiation of the basis of diplomacy between the US and Iran. In that policy option, the rewards should be big enough to develop the Iranian economy, and sanctions should be severe enough to destroy the economic life in Iran. The critiques of a military attack on Iran are exceeding the supporters. Since Iranian nuclear sites are scattered around the country and some of

them are under ground, there is no chance to destroy Iran's all nuclear sites. Thus, an air strike can only retard Iran's nuclear program for few years. Besides, the US is vulnerable to Iranian retaliation. Although it is believed by some people that economic sanctions are essential for a regime change in Iran, for many others it is not the case. External coercions may reveal the national feelings and strengthens the hard-liners inside the country.

In this game theoretical study, the complete information game model gives us some parameters to discuss and interpret, and the results provided by incomplete information game strengthen the argument that was made in former discussions on complete information game. In complete information game model, it is seen that Iranian nuclear venture is based on its cost-benefit estimation. As long as Iran thinks that the benefits of pursuing nuclear weapons exceed the cost, Iran does not give up going nuclear. If it is contrary, then Iran will give up. The US may prefer not to challenge Iran because of its disadvantaged position. For instance, the widespread location of Iranian nuclear sites decreases the probability of US victory. On the other hand, if both sides do not back down, then the outcome would be war. In incomplete information game model, it is seen that if US expected war cost is low then the US does not deviate from its strategy of challenging. Thus, as long as the US does not attack Iran, Iranians' belief that US expected war cost is high gets stronger. Consequently, Iran does not concede in the long run. Knowing that Iran will not concede, the US does not challenge if it is high war cost type and Iran acquires nuclear weapons.

As the difficulties of winning a war with Iran are taken into consideration, it is understood that making Iran concede is not an easy task. On the other hand, it is not reasonable to expect the US to wage a war against Iran because of Iranian unique features: its huge territory, widespread nuclear sites, nationalist people, and retaliatory powers like its connections with Hezbollah and Shiites in the region, Iranian Missiles and its oil card. If Iranians are not bluffing and if they are determined to get the nuclear weapon capability, primarily because of security considerations, sooner or later Iran will have nuclear weapons capability. On the other hand, if the Mullahs intend to use their nuclear program as leverage in their bargain with the West, they can only be persuaded to give up their program only by guaranteeing the security of the Islamic Regime. Because of the fact that the Iranian rulers are primarily interested in the survival of the regime and their standing in power, economic and political concessions will not be significant for them as long as the survival of their power and authority in Iran is not maintained. The Iranian rulers are not insane radical decision-makers who aim to employ the Islamic militancy to change the regimes in its neighborhood in favor of Islamic fundamentalism. They are just opportunistic people underpinning the conditions that guarantee their predominance, power, and survival in Iran.

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