

# Impacts of the US Trade and Financial Sanctions on Iran

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## 1. INTRODUCTION

THE United States has increasingly used economic sanctions in recent years as a means to promote its foreign policy objectives. The US unilaterally, and/or through its influence at the United Nations' Security Council, has imposed economic sanctions on certain countries that have challenged its wishes. The US is concerned that possible access to nuclear, chemical and biological weapons by the so-called 'rogue states' may endanger its interests in some parts of the world (Huntington, 1999). The US regards preserving its domination over the Persian Gulf countries strategically very important due to the fact that these countries possess about two-thirds of the world oil and gas reserves. Since its inception in 1979, the Islamic Republic has challenged the US domination of the Persian Gulf region. In response, the US has used economic sanctions to force the Islamic regime to change its hostile behaviour. The economic sanctions on Iran were originally started by President Jimmy Carter in 1979 and have been more or less in effect in various forms until the present time.

President Clinton used economic sanctions for dual containment of Iran and Iraq during his administration. In April 1995, he tightened the sanctions by announcing comprehensive trade and investment embargoes against Iran. The official reasons for imposing the embargoes were Iran's continued support for terrorism, pursuit of access to nuclear weapons, and supporting groups that use violence to oppose the Middle East peace process. Surprising to many observers, the US did not include the clerical regime's abuse of human rights as one of the official reasons for imposing the embargoes.

The literature on sanctions is concerned with assessment of effectiveness of unilateral and multilateral sanctions as well as their costs to the target and sender countries. Examples are the work of Hufbauer, Schott and Elliot (1990) and Richard D. Farmer (2000). Some researchers have contended that sanctions

policies are generally ineffective in the post-Cold War era.<sup>1</sup> Some others, however, have argued that sanctions can be an effective foreign policy tool when targeted smartly on the ruling decision makers (Cortright and Lopez, 2002). The US sanctions on Iran provide an interesting case for examining these arguments and can shed light on how the sanctions' effectiveness could be improved. The effectiveness of US sanctions on Iran has been specifically investigated in a number of studies. Jahangir Amuzegar (1997a and 1997b) argues that the US sanctions have not produced the anticipated results or transformed the Islamic regime. Patrick Clawson (1998) indicates that the sanctions have not persuaded Iran to change its behaviour. Kamran Dadkhah and Hamid Zangeneh (1998) point out the US can better achieve its goals through some sort of dialogue with Iran. Ernest Preeg (1999) claims that the net assessment of the economic impact of US sanctions on Iran is negative and believes the US should unilaterally lift the sanctions. Hossein Alikhani (2000) has conducted a general study of the sanctions against Iran from a political and historical standpoint. His overall evaluation is that the sanctions have failed politically to influence Iran. Also, Hossein Askari et al. (2001) have examined the economic sanctions on Iran. They believe, despite significant cost on both countries, Iran's objectionable policies have not changed, and therefore the US should be more restrictive in the use of economic sanctions.

This article assesses the effectiveness of the US unilateral economic sanctions on Iran by a somewhat different approach compared to the prior studies. It compiles data and detailed information from various sources to assess the sanctions' impacts and brings the subject up to date. The article begins with a review of the types and volumes of goods that have been historically traded between Iran and the US so as to understand the two countries' trade dependency. Then it applies the concept of welfare loss to approximate the effects of trade sanctions. The article attempts to quantify the impact of the financial sanctions by using a new approach. It measures the adverse effect of the financial sanctions by assessing the excess-finance charges Iran has been forced to pay as a result of the sanctions. The estimated results are then compared with estimates made by others in prior studies. Subsequently, the overall success or failure of the sanctions is evaluated in the light of recent events. Furthermore, suggestions have been made to improve the efficacy of the sanctions while reducing their harsh effects on the Iranian population.

## 2. AN OVERVIEW OF THE SANCTIONS EPISODES

Before the Iranian revolution in 1979, the United States was one of Iran's major trade partners. In 1978, the year before the Iranian revolution, the US was the

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<sup>1</sup> For a study of economic sanctions ineffectiveness, see articles by Kimberly Ann Elliot and Gary Clyde Hufbauer; by Jonathan Eaton and Maxim Engers; and by Philip I. Levy in the *American Economic Review* (1999, pp. 403–20).

second largest exporter to Iran; it had a 16 per cent share of Iran's imports after Germany which had a 19 per cent share. After the revolution, relations between the two countries deteriorated as a group of students on 4 November, 1979, detained 52 American hostages in the US Embassy's compound, which continued for 444 days. The hostage crisis ultimately led to a breakdown of diplomatic relations between the two countries on 7 April, 1980. Subsequently, the US initiated a series of economic measures and sanctions against Iran in order to free the American hostages. The sequence of the sanctions episodes are summarised in Table 1.

In 1992, the US became concerned that Iran's development of military means could endanger American interests in the Persian Gulf. That led the US to take measures to prevent Iran from producing conventional arms, ballistic missiles, nuclear bombs, chemical and biological weapons. Consequently, in May 1993, the US adopted the dual containment policy towards Iran and Iraq, which meant containing Iran and Iraq simultaneously by means of economic sanctions in order to protect US interests in the Persian Gulf (Lake, 1994). The American policy towards Iran, however, was not well received by the US allies.

#### *a. Reactions of the US Allies*

The US expected its allies to support the sanctions by boycotting purchase of Iranian oil, but none of them did. They did not want to change their commercial relations with Iran as the US wished. They argued while the US was buying about 20 per cent of Iran's oil and selling it to other countries, why should they be prevented from doing the same? Because oil is a fungible commodity, Iran's oil could be swapped with other countries' oil for import into the US. Thus, there was a big loophole in the US sanctions policy that made it an ineffective boycott. As a result, the US tightened the sanctions in order to close the loophole. Hence, on 30 April, 1995, President Clinton announced that the US would cut off all trade and investment ties with Iran, including purchase of Iranian oil.<sup>2</sup> The new sanctions supplemented the previously imposed ones that had been in effect since 1984 and constituted a full embargo against Iran.

After closing the loophole, the US was anticipating that this time its allies would join the sanctions, but none of them did. They had too much at stake for not doing business with Iran. Their trade volume with Iran was substantially higher compared to the US. Specifically, in 1994, Germany exported four times more to Iran than the US, Japan twice as much, Italy twice as much, and France slightly more than the US. Moreover, they did not believe the sanctions could have that much political impact on Iran's behaviour. Hence, France, the UK and

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<sup>2</sup> Hearing Before the Committee on Banking, Housing, and Urban Affairs, United States Senate, *The Iran Foreign Sanctions – S. 1228* (11 October, 1995, p. 2).

TABLE 1  
Historical Timeline of the US Sanctions on Iran

| <i>Date</i>         | <i>Stated Reasons for Sanctions</i>   | <i>Policy Actions</i>  | <i>Nature of Sanctions</i>  |
|---------------------|---|--|---|
| 4 November, 1979    | 60 American hostages are taken in the US embassy in Tehran by a group of students who are followers of Ayatollah Khomeini | President Carter invokes section 232 of the Trade Expansion Act of 1962.             | US embargoes oil import from Iran   |
| 13 November, 1979   |   | US House of Representatives vote   | Aid and military assistance to Iran are prohibited  |
| 14 November, 1979   |   | President Carter invokes International Emergency Economic Power Act                  | \$12 billion Iranian deposits in the US banks and foreign subsidiaries are frozen   |
| 7 April, 1980       |   |  | US embargos exports (except food and medicine) to Iran  |
| 19/20 January, 1981 |   | US signs agreement with Iran in Algiers, Algeria                                     | US transfers part of the Iranian assets to an escrow account in exchange for release of the US hostages   |
| 19 January, 1982    |   | President Ronald Reagan lifts trade sanctions  | Business contracts and commercial agreements resume between the two countries   |
| 13 January, 1984    | Iran is accused of being involved in bombing of the US Marine Barracks in Lebanon in October 1983                         | Iran is added to the list of countries accused of supporting international terrorism | US prohibits foreign aid, grants, use of credit or financial assistance and restricts transfer of weapons and ammunition  |
| 30 March, 1984      |   | US Department of Commerce imposes anti-terrorism controls on Iran                    | Export of aircraft and related parts and components are prohibited, except with valid licences  |
| 1985–1986           | None  | Iran–Contra deal   | Little control over exports to Iran   |
| 28 February, 1987   | Iran is accused of not taking adequate actions to control narcotics production, trafficking and money laundering          | President Reagan invokes section 481 of the Foreign Assistance Act of 1961           | Financial assistance to Iran by Export–Import banks and the Overseas Private Investment Corporation is prohibited. US representatives in international banks are instructed to vote against loans to Iran |

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|--------------------|--|---|--|
| 23 September, 1987 | Iran's attitude against peaceful settlement in the Iran-Iraq War and on-going support of international terrorism | Department of Commerce restricts exports to Iran and requires validated licences  | Export and re-export of self-contained underwater breathing apparatus and related equipment to Iran are prohibited                         |
| 23 October, 1987   |  |   | Prohibition expands to include 15 high-tech products   |
| 29 October, 1987   | Supporting terrorism and unlawful military action against US flag vessels  | President Reagan issues an executive order invoking section 505 of the International Security and Development Cooperation Act of 1985 | US imposes ban on import of Iranian goods and services, mainly crude oil. Exceptions are petroleum products refined from Iranian crude oil |
| 1989–1991          | Iran obtains substance for manufacturing chemical and biological weapons   | Department of Commerce imposition of foreign policy export control  | Export to Iran of substances which can be used in manufacturing of chemical and biological weapons is prohibited                           |
| 23 October, 1992   | Iran's efforts to access sophisticated technology with military application                                      | President George Bush signs Congress's National Defence Authorisation Act   | Export of dual-use items to Iran is prohibited   |
| 5 May, 1995        | Iran's opposition to Middle East peace, terrorism and acquiring weapons of mass destruction                      | President Clinton issues an executive order invoking sections 202/203 of the International Emergency Economic Power Act               | US imposes comprehensive sanctions on all bilateral trade and investment in Iran   |
| 5 August, 1996     | Sponsoring terrorism   | Extra-territorial sanctions: Iran-Libya Sanctions Act   | US penalises any foreign company that invests more than \$20 million in Iran's oil sector  |
| August 2001        |  | Following Congress, President G. W. Bush extends ILSA for another five years  |  |
| January 2002       | Harbouring terrorism   | President George W. Bush labels Iran as 'an axis of evil'   |  |

Sources: Compiled from Mahavash Ale-Rassol (1993) and Hossein Alikhani (2000); further updates are by the author.

the other European countries did not agree to participate in the US embargo. In 1992, the EU had adopted the so-called 'critical dialogue' policy, which meant criticising the Islamic regime's behaviour on some issues of concern while having diplomatic and economic relations with it (Struwe, 1998). The EU continued to stick to its 'critical dialogue', leaving the US sanctions entirely unilateral. Subsequently, the US Secretary of State Warren Christopher asked the allies to prevent their firms from filling the vacancy created by withdrawal of the US companies. Contrary to US wishes, shortly after, the French oil company Total took over a \$600 million deal on the Sirri oil project, which had been agreed on to be awarded to Connoco prior to the US embargoes.

Consequently, the US had to take more measures in order to force other countries to cooperate with the sanctions against Iran. Hence, on 11 October, 1995, Republican Senator Alfonse D'Amato, then the Chairman of the US Senate Banking, Housing and Urban Affairs Committee, proposed a bill (S. 1228) for extra-territorial measures to penalise foreign persons who exported petroleum products, natural gas or related technology to Iran. This bill was later signed into law by President Clinton on 5 August, 1996, and became known as the Iran Libya Sanctions Act (ILSA).

The sanctions on Iran have deteriorated the US economic conflict with Europe and Japan because Europe has done business with Iran without fear of the US extra-territorial sanctions and Japan has agreed to sign a contract for development of Iran's largest oil field Azadegan despite US opposition. Also, Iran has indicated that it may demand euros instead of dollars for its oil sales in the future. As Fred Bergsten (2001) has indicated, it seems we are facing the formation of a tripolar economic order in the world due to the strength of Europe and Japan in East Asia, which is challenging US economic supremacy.

#### *b. Easing Sanctions to Support Reformers*

On 23 May, 1997, Mohammed Khatami, a moderate cleric, who had promised to implement political and economic reforms in Iran, was elected the President of the Islamic Republic. The Clinton administration eased economic sanctions to support Khatami to succeed in his reforms and to create a prelude for dialogue with his administration. Hence, on 28 April, 1999, President Clinton ended sanctions on food and medicine to Iran, Libya and Sudan. The official reason for the waiver, as was stated by the Under Secretary of State Stuart Eizenstat, was that food and medicine generally do not contribute to a nation's military capabilities and/or support for terrorism.<sup>3</sup> In February 2000, when Khatami's reformer factions gained a substantial majority in the parliament, the US again responded by

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<sup>3</sup> 'US to Ease Sanctions on Iran, 2 Others', *Washington Post* (29 April, 1999, p. A01).

further easing of the sanctions. In March 2000, the US lifted import sanctions on some key Iranian non-oil goods, including carpets, dried fruits and pistachios.

Candidate George W. Bush during his election campaign had hinted he would lift the sanctions on Iran.<sup>4</sup> However, in August 2001 after the Congress approved the extension of ILSA for another five years, he signed it. Subsequent to the tragic events of 11 September, 2001, in his State of the Union address in January 2002, President Bush labelled Iran along with Iraq and North Korea as the 'axes of evil'. This ended the period of *rapprochement* that had been initiated by the Clinton administration and hinted at a change in US policy towards Iran. Since the US-led invasion of Afghanistan in autumn 2001 and Iraq in March 2003, some have speculated that Iran might be the next US target. So far, the US has not threatened to use military force against Iran. Observers think that because the US policy of supporting Khatami's reformist faction has not led to any noticeable change in Iran's policies, the US has shifted its policy to support the Iranian people for a regime change in Tehran (Katzman, 2003). Some Iranian opposition groups had also argued earlier that the US policy of supporting Khatami is a mistake. In their view, Iran's theocratic regime does not change by replacing one clergy by another who is considered as more moderate, and the clerical regime in its totality must be targeted by the sanctions. This seems to be a plausible argument after the February 2004 parliamentary elections in which the hardliners gained a substantial majority over the moderates because some opposition factions boycotted the elections. As it appears the new parliament will strengthen the hardliners' power position in the clerical regime.

### 3. THE ECONOMIC IMPACT OF TRADE SANCTIONS

There are typically two analytical tools that can be used to assess the economic impact of trade sanctions.<sup>5</sup> One is the graphical technique of offer curves. An offer curve shows the willingness of a country to trade at various possible terms of trade (Krugman and Obstfeld, 1994). William Kaempfer and Anton Lowenberg (1992) use an offer curves diagram to evaluate the economic impact of trade sanctions. They examine the deterioration of terms of trade by plotting the offer curves diagram of the sanctioning countries and the target country. Such an analysis is graphically interesting but it does not lead to any numerical estimate

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<sup>4</sup> The Republican vice-presidential candidate Dick Cheney, in a speech given at the World Petroleum Congress in Calgary, Canada, called for 'an end to investment sanctions against Iran'. Reported by Reuters (14 June, 2000).

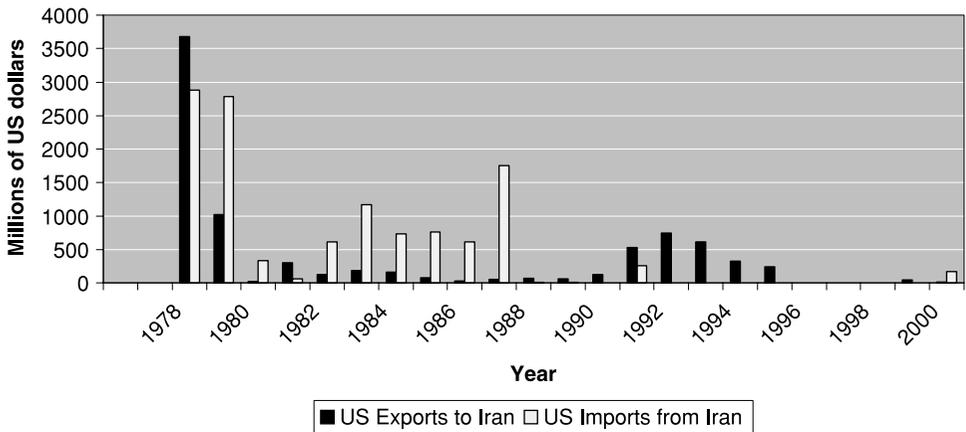
<sup>5</sup> Game Theory has also been used to analyse the outcomes of economic sanctions; see Daniel Drezner (1999). In addition, the gravity model of bilateral trade can be applied; see, for example, Hossein Askari et al. (2003).

of the economic damage. Another analytical framework for estimating costs of trade sanctions is the concept of consumer surplus (Pugal, 1999). Such an approach has been used by Gary Hufbauer and Jeffrey J. Schott to estimate the cost of economic sanctions (Hufbauer and Schott, 1983). They drive a sanction multiplier that is essentially the ratio of the absolute change in economic welfare (measured by consumer surplus) to the corresponding absolute change in the value of trade. Because of the theoretical assumptions that are used and lack of accurate knowledge of elasticities of supply and demand, the multiplier that is computed by this method leads to a rough approximation of the welfare loss.<sup>6</sup>

### *a. The Impact of the US Export Sanctions*

In order to understand the impact of US trade sanctions on Iran, it is necessary to look at typical traded goods and their volumes between the two countries. The historical pattern of trade volume between the US and Iran since 1978 is shown in Figure 1. As is shown, after the Iranian revolution in 1979, US exports to Iran were substantially reduced due to the US export embargo. The US exports to Iran remained negligible due to Iran's own import embargo of US-made

FIGURE 1  
US Trade with Iran



Source: *Direction of Trade Statistics Yearbook*, various issues (1978–2000), International Monetary Fund.

<sup>6</sup> By means of algebra, it is shown that the amount of the welfare loss due to trade sanctions is inversely related to the sum of price elasticities of demand and supply for the exported goods to the sanctioned country. Welfare loss is approximately equal to  $P dQ/(Ed + Es)$ , where  $P$  is the price of the exported goods (or services) and  $dQ$  is the reduction in quantity of exported goods to the target country,  $Ed$  and  $Es$  are respectively price elasticities of demand and supply for the exported goods.  $P dQ$  represents the volume of exports that are sanctioned.

products, which was finally lifted in 1991. During this period some American goods were imported to Iran through intermediaries from other countries in multiples of their original prices. In 1991, when Iran lifted the embargo, imports from the US started to grow and reached the peak of about \$750 million in 1992. In 1993, US exports started to decline and reached about \$329 million or 2.60 per cent of Iran's total imports in 1994; that is, the year before the comprehensive sanctions were imposed. This figure placed the US at the bottom of the list of the main exporters to Iran. In 1994, Germany was the top exporter to Iran with the export volume of about \$1,740 million, which was about 13.7 per cent of Iran's total imports.

The major category of US exported goods to Iran was machineries and electronics. The fine quality of American products of this nature is well known. Therefore, the sanctions forced Iran to import equivalent products of lower quality and possibly at higher prices from other countries. The second category was foodstuffs that could have been obtained from elsewhere.<sup>7</sup> The remaining were mostly industrial goods including oil drilling and oil field equipment. Overall, all of the items were essential goods and were rather price inelastic.

Because most of the US exported goods to Iran were highly essential goods with little or no substitutes, this made Iran's demand for such products relatively inelastic in the short run. The supply of US equivalent spare parts and products in the world market, in the short run, are inelastic because suppliers need time to make similar products. In the long run, however, they become gradually elastic. Using this information gives an average sanction multiplier of 0.25.<sup>8</sup> Hence, the welfare loss is approximately equal to 25 per cent of US exports to Iran before the sanctions were imposed in 1994. Iran imported \$329 million (2.6 per cent of its total imports) goods from the US in 1994. The import volume was reduced to zero in 1996. This gives a welfare loss of about  $(0.25)(\$329) = \$82.25$  million. Based on this conjectural estimation, Iran suffers \$82.25 million loss annually for not being able to import the needed goods from the US. In 2000, Iran's GDP was 579 trillion rials; that is, equal to \$72.4 billion based on 8,000 rials/dollar exchange rate at that time. This means that the welfare loss resulted from US export sanctions is about 0.11 per cent of Iran's GDP. The non-oil import sanctions pressure on the Iranian economy is estimated below.

<sup>7</sup> *Ettela'at, Faraz Va Nashib Mobadelat-e Tejarati Iran Va Amrica* (Ups and down of Iran-US Trade Relations) No. 363 (26 October, 1995, p. 6).

<sup>8</sup> Since in the long run both demand and supply curves gradually become elastic, it is reasonable to assume that both elasticities are in absolute terms between 1 and  $\infty$ . Substituting these limits for the elasticities in the formula will give a lower and upper limit for the sanctions multiplier, which are the lower limit  $= 1/\infty = 0$  and the upper limit of  $1/(1 + 1) = 0.50$ . Using the average of the two limits will give a multiplier equal to 0.25. This value is reasonably close to the multipliers that have been empirically found by Hufbauer and Schott (1985), which are in the range of 0.10 to 0.50 for this kind of case.

*b. The Impact of the US Non-oil Import Sanctions*

Before the revolution, the US was a major importer of Iranian oil. This was temporarily halted during the hostage crisis. The US resumed importing Iranian oil in April 1982. The direct import of Iranian oil to the US, however, was discontinued in 1987 after the United States banned imports of Iranian oil. But US companies were still purchasing about 20 per cent of Iranian oil for export to other countries. Iran's direct exports to the US were solely non-oil items. Persian rugs were the major item that, on average, realised about \$8.67 million per year before the comprehensive sanctions were imposed.<sup>9</sup> The rest of the items were insignificant amounts of jewellery and handicrafts. Items of this nature are luxury and highly price elastic and are labour intensive. Decrease in demand for the products of this nature due to the sanctions forced their prices lower in the world market. The lower prices of non-oil exports caused their production to decrease and contributed to the already high rate of unemployment in Iran, especially among the young female workers who weaved the rugs under harsh conditions. In the meantime, US consumers had no difficulty substituting these high luxury goods from other countries, or they could go without them. The US sanctions caused Iran's total carpet exports to decline in 1996 to almost one-third of its pre-sanctions year.<sup>10</sup> After the US sanctions on certain non-oil items were lifted in March 2000, Iran carpet exports to the US soared to \$96 million by the end of 2000.<sup>11</sup> That amounted to 16 per cent of Iran's total \$581.2 million carpet exports.<sup>12</sup>

As described above, most of the US imports from Iran were luxury goods, which have similar substitutes. Hence, price elasticity of the US import demand has to be higher than 1. Iran's export supply for these goods is inelastic in the short run, but becomes gradually elastic in the long run. Therefore, the welfare loss is approximately equal to 25 per cent of the non-oil exports from Iran.<sup>13</sup> The pre-sanctions non-oil export to the US from Iran was about \$10 million per year on average, which is negligible. But under normal trade relations, import of non-oil products into the US would have been potentially higher. In 1999/2000, Iran's non-oil export was 5,900,225 million rials, equivalent to about \$737 million at the exchange rate of 8,000 rials/dollar. In the absence of the sanctions, non-oil export to the US could have been at least equal to Germany, which was 1,854,861 rials or \$232 million in 1999.<sup>14</sup> Applying a sanction multiplier of 0.25 would

<sup>9</sup> *Ettelle'at*, during 1992 to 1994 about \$26 million worth of carpets was exported to the US.

<sup>10</sup> Central Bank of Iran, *Economic Report and Balance Sheet of Central Bank of Islamic Republic of Iran* (1996–97, p. 61).

<sup>11</sup> *Iran Times*, No. 27 (7 September, 2001, p. 4).

<sup>12</sup> Central Bank of Iran, Iran's Foreign Trade Statistics, *Annual Review*, 2000/01 (1379).

<sup>13</sup> Based on the fact that price elasticity of export supply has to be between 1 and  $\infty$  in the long run, substituting these limits for  $E_s$  and  $E_d$  will lead to the lower and upper bounds of zero and 0.5 for the sanction multiplier. The average of the lower and upper limits equals to 0.25.

<sup>14</sup> *Iran Statistical Yearbook*, Statistical Centre of Iran, Tehran (1999/2000, p. 412).

result in a welfare loss of \$58 million. The impact on the Iranian economy can be even higher with consideration of a net-export multiplier.

*c. The Impact of US Oil Import Sanctions*

In 1994, Iran's oil export was 2.6 million barrels per day, worth about \$13 billion per year. Of this US companies were buying 600,000 barrels per day valued at about \$3.5 to \$4.0 billion per year at that time.<sup>15</sup> In 1995, when the US imposed the comprehensive sanctions on Iran, the purchase of Iranian oil by American companies was effectively ended. The companies were told they could no longer buy Iranian oil even if it was not to be imported into the US. As a result, Iran temporarily suffered some negligible losses for transporting some of its oil for storage to far distant places such as the coast of South Africa. But before long, Iran was able to find new buyers for its oil because of its good quality. Meanwhile, the American companies bought oil from other sources.

In the long run, however, the oil import embargo was ineffective. This can be discerned by applying the Price Leadership model to the Organisation of Petroleum Exporting Countries (OPEC) cartel (Nicholson, 1990). This model assumes Saudi Arabia as the price leader (the dominant firm) with other OPEC members and non-members constituting a competitive fringe of firms (a group of firms that act as price takers in a market dominated by a price leader). Under the existing setting in the international oil market, OPEC's power for oil prices has been reduced to a single member, that is Saudi Arabia (Chalabi, 2000). This model reveals that oil prices do not change as a result of the oil import embargo due to competition of other oil exporters in the competitive fringe. The demand curve facing Iran in the international oil market is highly elastic (horizontal). Hence, Iran can sell its entire oil export supply at the prevailing price set by the price leader, Saudi Arabia. Therefore, the import ban neither affected the Iranian oil export nor the US oil import in the long run, which indicates the welfare loss is zero.

As was stated, in the long run Iran was not affected by the oil boycott. Therefore, adding up the losses from prohibition on US exports to Iran (\$82 million) and the imports from Iran (\$58 million), which amounts to \$140 million per year, is the total trade sanctions' cost. These figures are shown in Table 3 along with the estimates of the adverse effect of the financial sanctions that are found in the next section.

#### 4. THE IMPACT OF FINANCIAL SANCTIONS

To assess the impact of US financial sanctions, it is necessary to understand how the flow of debt and equity capital to Iran has been affected by the sanctions.

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<sup>15</sup> Senate Hearing, *The Comprehensive Iranian Sanctions Act of 1995* – S. 277 (1995, p. 24).

For this purpose Iran's borrowing needs for its development projects and investment in its oil sector are examined.

As summarised in Table 1, US sanctions included some financial measures that deprived Iran from financing by the Export-Import Bank, export credits, loan guarantee and export insurance. Moreover, the US instructed its representatives in international financial institutions to vote against extension of credit or other financial assistance to Iran. These institutions included the World Bank, the International Development Association, the Asian Development Bank and the International Monetary Fund. The financial obstacles were originally initiated in 1984 and were supplemented with the comprehensive sanctions in 1995, which prohibited all commercial and financial transactions with Iran. The financial measures weakened Iran's financial ability and forced it to find alternative financing at substantially higher cost from commercial banks in other countries.

*a. The Impact on Foreign Borrowing*

Iran was a major World Bank borrower in the 1960s. The country's borrowing, however, was halted in 1975 because of higher oil prices in the 1970s, which made Iran virtually needless of foreign financing. When the Islamic Republic was founded following the Iranian revolution in 1979, the policy of no foreign borrowing was enforced. Iran's eight-year war with Iraq (1980–1988) partly destroyed the country's infrastructure and badly damaged the economy. Iran desperately needed capital to rebuild its war-torn economy. In addition, in the early 1990s, Iran needed substantial capital for its development projects. Hence, the country had to resume its foreign borrowing from the World Bank and other institutions. In 1991, Iran borrowed \$250 million from the World Bank for an earthquake assistance plan. That loan coincided with freeing a number of American hostages in Lebanon apparently with the help of the Iranian government. Furthermore, during 1990–1993, Iran borrowed \$847 million from the World Bank for six development projects.<sup>16</sup>

Iran borrowed further in the early 1990s and amassed about \$30 billion foreign debt in 1993.<sup>17</sup> As Iran ran into financial crisis in 1993, it could not pay its short-term debt and needed to reschedule its balance due to long-term loans. At such a crucial time, the US pressured its allies to prevent Iran's access to the multilateral Paris Club to reschedule its debt. Hence, Iran had to obtain loans in less favourable bilateral terms.<sup>18</sup> Also Japan put on hold a \$460 million loan to finance building a hydroelectric project in Iran. Concurrently, the US used its influence to

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<sup>16</sup> World Bank News Release No. 2000/352/S (May 2000).

<sup>17</sup> 'Waking Up From A Nightmare', *The Banker* (September 1993, pp. 43–48).

<sup>18</sup> Senate Hearing, *The Comprehensive Iranian Sanctions Act of 1995* – S. 277 (1995, p. 5).

stop new loans to Iran. The US representatives were instructed to oppose loans to Iran under a US anti-terrorism law that requires the US to vote against any loans by the World Bank or any other international financial institution for countries that are listed as supporters or sponsors of international terrorism.

Because of low oil prices during 1998, Iran for a second time experienced a heavy foreign debt burden in early 1999 and had to squeeze imports and investments in its development programmes in order to save foreign exchange for payment of its debt service obligations.<sup>19</sup> In February 1999, Iran had to convert about \$2 billion of its short-term debt to loan, in order to prevent default. In 1999, despite US objections, Iran was close to obtaining a \$200 million loan from the World Bank that was for financing two Iranian development projects. However, on 23 June, 1999, due to Iran's arrest of 13 Iranian Jews on charges of espionage, the World Bank decided to put the loan on hold.<sup>20</sup> The World Bank's interruption of loans to Iran under US pressure further weakened the creditworthiness of Iran at the time that the country was in financial crisis.<sup>21</sup> The US objection to the World Bank loans is continued to the present time. However, the US has only a 17 per cent voting share in the World Bank and without the support of other member countries cannot do much. Therefore, on 18 May, 2000, despite the US representative's objection, the World Bank approved two new loans to Iran after seven years of suspension. The \$232 million loans were single currency LIBOR-based loans with a maturity of 17 years and a five-year grace period. The rate of interest on this kind of loan is about 0.2 to 0.6 per cent above the LIBOR.

After the revolution, Iran suffered a major 'brain drain' as many of its educated elites and wealthy entrepreneurs migrated to the US and other countries (Torbat, 2002). There are currently more than 325,000 Iranian immigrants in the US who mostly left Iran after the revolution.<sup>22</sup> Some of them have funds in the US that can be invested in Iran. They are, however, wary of investing in Iran because of the political risk associated with instability of the theocratic regime. Also the sanctions have further caused loss of confidence of investors. Nonetheless, the regime has been able to attract some foreign funds for its oil field development projects in the form of buyback contracts.

### *b. The Impact on Financing Oil Projects*

The primary impact of US financial sanctions has been the reduction of funds for financing the Iranian oil development projects. Because the oil sector is

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<sup>19</sup> 'Iran', *Middle East Economic Survey*, No. 7 (15 February, 1999).

<sup>20</sup> 'Loan to Iran Stalls after Arrest of Jews', *Washington Post* (23 June, 1999, p. A18).

<sup>21</sup> *Middle East Economic Digest*, 'Showdown at the World Bank', Vol. 39, No. 37 (15 September, 2001, p. 5).

<sup>22</sup> US Bureau of the Census, the Census 2000 for foreign-born population (2002).

heavily capital intensive, large amounts of investments are needed to expand the sector. Shortage of domestic capital has delayed investment in oil development projects. Most of Iran's onshore oil fields are aged and some major oil facilities were heavily damaged during the Iran-Iraq War. In order to boost its oil and gas production, Iran needed to develop its untapped fields. The development of the fields required large amounts of capital that Iran did not have and was not able to borrow. According to the Islamic Republic Constitution, foreign ownership of natural resources is prohibited. To circumvent the constitution, the National Iranian Oil Company (NIOC) opened some of its oil fields to international oil companies in the form of 'buyback' contracts.

To finance its oil development projects, in 1991, Iran opened several of its oil fields to international oil companies and offered them a rate of return of about 10 per cent for its proposed buyback contracts. It argued that because the reserves are guaranteed, the contracts are almost risk free and for that reason the rate of return should be close to the bond rates that were in high single-digit range at that time. The international oil companies that were worried about the political risks and instability of the Islamic Republic were not satisfied with the offered rate and were not willing to take the contracts unless the rate was close to 20 per cent.<sup>23</sup> Some of the proposed fields had been known for some time and some had different names before the revolution. The experts within the NIOC had insisted that Iran should develop these fields by itself because of their richness. But the field development projects had to be put on hold due to Iran's financial crisis in 1993, which was aggravated further by the US financial sanctions. Hence, in 1995, NIOC was forced to offer better rates of return on its contracts to attract international oil companies' interest. To award more buyback contracts, Iran initiated an oil and gas conference in Tehran in November 1995. Despite the US sanctions warnings, about 40 foreign oil, gas and engineering companies participated in the conference to acquire information about the contracts. However, financing of the oil development projects became more difficult as the US imposed extra-territorial sanctions on Iran in 1996.

President Clinton prohibited American investments in Iran's oil projects by invoking the International Emergency Economic Power Acts and by the Iran-Libya Sanctions Act. Under the International Emergency Economic Power Acts, regulations prohibit US persons to engage in the development of Iranian oil resources. Also, exports of goods, technology and services from the United States to Iran, including re-export of certain US origin goods and technology, were prohibited. Under ILSA, companies that invest more than \$20 million in any one

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<sup>23</sup> Odone, Toby, 'Iran: A Test Case in Opening Its Oil Fields to Foreign Investment in the Slow Way', paper presented at the Institute for Global Management & Research, George Washington University, DC (October 1998).

year in Iran's oil sector are penalised. The sanctions against the companies included denial of US government contracts, loans and export credits.<sup>24</sup>

The major contracts that Iran has offered to other countries' firms since April 1995 are listed in Table 2. The buyback contract terms are confidential and their details are not even disclosed to the Iranian parliament.<sup>25</sup> The figures in Table 2 are based on information that has been gradually leaked to the media. As is shown in Table 2, Iran signed about \$9 billion worth of oil buyback contracts with foreign companies till 2001. Therefore, Iran has been able to find replacements for American oil companies but the absence of American oil companies to compete with others and the fear of the US secondary sanctions have led to less competitive terms for Iran.

### *c. The Cost of Financial Sanctions*

The most important damage to the Iranian economy from the financial sanctions is due to the poor investment environment that has resulted. In the absence of the sanctions, Iran could have obtained much better terms and/or could have financed the oil projects itself. It is tough to calculate the amount of damages to Iran's economy that has been specifically caused by the financial sanctions as various factors are involved and their costs are unknown. No doubt, the financial obstacles caused Iran to sign unfavourable oil contracts and forced it to borrow money at high cost. Here it is attempted to estimate the damages that the financial sanctions have caused by adding up the excess finance charges Iran endures in the buyback contracts and the extra interest charges it pays on its foreign debt balance.

The international oil companies' capital expenditures on the buyback development projects are equivalent to debt and not equity. The reason is, Iran bears the entire risk of the projects and is obligated to fully compensate the oil companies for their investments and other expenses they incur. Therefore the rates of return that Iran has guaranteed to the oil companies for their capital expenditures are too high. Iran initially proposed a rate of return of about 10 per cent but ultimately offered 15 to 18 per cent rates for several contracts. Both the Sirri and the South Pars fields' contracts were signed with attractive rates of return in the range of

<sup>24</sup> *The Iran Foreign Sanctions Act – S.1228*, Hearing before the committee on Banking, Housing, and Urban Affairs (11 October, 1995, pp. 25–47).

<sup>25</sup> The Petroleum Finance Company, *Upstream Brief* (21 January, 2000), the terms of the buyback contract as is explained in this industry newsletter: 'The foreign contractors submit development plans with a cost estimate. The contractors then negotiate a contract whereby the foreign contractor fully funds development. Once production commences, the contractors are allowed to recover development costs, interest on capital expenditures, and a remuneration fee (service fee). The amount of the remuneration fee is such that the contractor recovers capex over a 3 to 5 year period with the fee providing 20% ( $\pm 3\%$ ) internal rate of return'.

TABLE 2  
Iran's Oil Buyback Contracts

| <i>Date Awarded</i> | <i>Contractors</i>                                  | <i>Home Countries</i>       | <i>Oil Field<br/>(former name)</i> | <i>Initial Investment<br/>in Million \$</i> | <i>Repayments &amp; Remuneration<br/>in Million \$</i>                             |
|---------------------|---|-----------------------------|------------------------------------|---|--|
| July 1995           | Total (70%) and<br>Petronas (30%)                   | France, Malaysia            | Sirri A&E                          | \$600                                       | N.A.   |
| 28 September, 1997  | Total (40%), Petronas<br>(30%), Gazprom (30%)       | France, Malaysia,<br>Russia | South Pars                         | \$2,000                                     | \$600 interest + \$1,400<br>remuneration + \$2,000 initial<br>investment = \$4,000 |
| April 1999          | Elf (46.75%)/Bow Valley<br>(15%), Elf/Agip (38.25%) | France, Canada              | Balal<br>(Bahram)                  | \$169                                       | \$31 interest + \$79<br>remuneration + \$169 initial<br>investment = \$279         |
| March 1999          | Elf (55%)/Agip (45%)                                | France, Italy               | Doroud<br>(Daryoush)               | \$540                                       | \$160 interest, \$300<br>remuneration + \$540 initial<br>investment = \$1,000      |
| November 1999       | Royal Dutch Shell                                   | England                     | Sorush (Korosh)<br>& Norouz        | \$800                                       | \$205 interest + \$450<br>remuneration + \$800 initial<br>investment = \$1,455     |
| July 2000           | Eni (60%), Petropars (40%)                          | Italy, Iran                 | South Pars<br>(phases 4 & 5)       | \$3,800                                     | N.A.   |
| 30 June, 2001       | ENI (60%), NaftIran (40%)                           | Italy, Iran                 | Darkhoain                          | \$965                                       | N.A.   |
| <b>Total Value</b>  |   |                             |                                    | <b>\$8,874</b>                              |  |

Notes:

Table compiled by the author from several sources.<sup>26</sup> N.A. stands for not available.

<sup>26</sup> Mainly from Mina, Parviz, *Morori Bar Ghrardadhai-e Nafti Iran Pas Az Enghelab* (Review of Iran's Oil Contracts after the Revolution), *Mehregan: An Iranian Journal of Culture and Politics*, Vol. 9, Nos. 3&4, Fall 2000 to Winter 2000, and the Energy Information Agency website, [www.eia.gov/emeu/cabs/caspgrph.html](http://www.eia.gov/emeu/cabs/caspgrph.html); further updates from *Dow Jones*, *Reuters* and *Euromoney*.

15 to 18 per cent, which were close to the rates the oil companies had originally asked for. A lower rate of return in the range of 12 to 15 per cent might have been negotiated if Iran was not under sanctions. The buyback contracts' excess charge can be used as a proxy for measuring the cost of the financial sanctions on these projects. Recently, because of criticism of the buyback contracts, Iran has reduced the rate of return it offers to the oil companies to about 12 per cent.<sup>27</sup> Hence, using an approximated 3 per cent premium will amount to about \$266 million annual excess charge that Iran has paid for the \$8,874 million contracts it has signed since 1995.<sup>28</sup>

Likewise, the extra interest charge that Iran has paid on its outstanding foreign debt can be used as a proxy to estimate the sanctions' effect on the country's borrowing needs. In 1999, Moody's Investor Services rated Iran's sovereign debt to be B2,<sup>29</sup> which carried a spread of about 3.5 to 4 per cent above LIBOR. The sanctions pressures, however, caused Moody's to remove its credit ratings on Iran in June 2002. Moody's said the reason for withdrawal was the US government concern that 'such ratings could be inconsistent with the US sanctions' on Iran. This was at the time that Iran intended to issue its first eurobond underwritten by BNP Paribas and Commerzbank AG. Standard & Poor's has no rating on Iran and Fitch, a unit of French conglomerate Fimilac SA, rates Iran B+, that is five notches below investment grade.<sup>30</sup> The low rating is due to Iran's substantial political risk. Despite the rating removal, on 10 July, 2002, Iran's Central Bank proceeded to issue a 625 million eurobond denominated in euros to foreign investors. The bond matures in five years and offers 8.75 per cent annual interest. This was the first international bond Iran had issued since the 1979 revolution. Some were suspicious that the purpose of issuing the bond was to restructure the \$2.23 billion debt Iran had accumulated since 1990 at the French bank BNP Paribas.<sup>31</sup> However, Iran announced that the purpose of the bond was to create a benchmark for future bond financing and to boost the country's creditworthiness. Given the success of its debut, Iran launched its second bond in December 2002. The second eurobond was 375 million euros underwritten by the same institutions. It matures in five years and has a coupon of 7.75 per cent, that is 1 per cent lower than the previous one, reflecting a lower interest rate environment since the previous bond was issued and increased acceptance of the Iranian bond due to the strength of oil prices.

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<sup>27</sup> Dinmore, Guy, 'Iran's Oil Crisis Threatens to Drain Country's Lifeline', *Financial Times* (7 May, 2002).

<sup>28</sup> In the absence of information on details of cash flow and exact timing of the investments, it is not possible to assess the excess charge precisely.

<sup>29</sup> *Financial Times*, 'Iran Plans Rare Foray into Bonds', front page (31 August, 2001).

<sup>30</sup> Angela Pruitt, 'Moody's Credit Rating on Iran Roils the US', *The Wall Street Journal* (5 June, 2002, p. B12).

<sup>31</sup> *Euromoney* (August 2002, p. 26).

Iran's eurobonds reveal how much US sanctions have affected Iran's position in the international debt market. The first eurobond had an 8.75 per cent coupon and was priced at 99.23 yielding 8.95 per cent with a spread of 4.25 above LIBOR. The rate is not too high compared with some other countries with a similar debt rating. For example, the Arab Republic of Egypt with a rating of BB1 has a spread of about 3.80 over LIBOR, and Lebanon with a rating of B3 has a spread of 6.40. It is reasonable to assume that in the absence of sanctions, Iran's rating would have been at least equal to that of Egypt which is about 0.50 of a point lower than the rates Iran currently pays. In 1999, Iran's foreign exchange obligations were \$21.2 billion and foreign debts were \$10.35 billion.<sup>32</sup> Iran's foreign debt structure included about \$1.3 billion World Bank loans, \$1 billion eurobonds, and about \$8 billion commercial loans with higher interest rates. The excess interest charges Iran pays can be estimated based on what is observed in the international debt market. Iran pays a premium of about 0.5 per cent for the \$1 billion eurobonds, no premium on its World Bank debt, and about 1 per cent premium on average for the other \$8 billion debts. As a result, the sum of extra interest charges would be about \$85 million per year.

US sanctions have also caused losses to Iran for not permitting the international oil companies to swap oil with Iran and/or pass oil through its pipelines. The three states of Azerbaijan, Kazakhstan and Turkmenistan on the shores of the Caspian Sea do not have access to open seaports and have to transport their oil through pipelines to distant foreign ports for export. Experts believe exporting the Caspian oil through Iran's pipelines has the lowest transportation cost. The sanctions, however, have prevented the Caspian oil to cross Iran. For example, in April 1998, the Mobil Oil Company which had developed oil fields in Turkmenistan wanted to deliver its oil to Iran's northeast border in exchange for Iranian oil delivered to Mobil at the Persian Gulf. Also in the autumn of 1998, Optimarket of Irving, Texas, wanted to swap Kazakhstan oil with Iran. Both of the proposed swaps were rejected under the sanctions laws.<sup>33</sup> Recently, Iran completed building a pipeline from Neca on the Caspian Sea shore to the Tehran refinery specifically for the Caspian oil swap. Because of the sanctions, however, the pipeline construction was postponed for a while and Iran missed the profit it could have made. This pipeline route can transport about 370,000 barrels of Caspian oil per day at the lowest cost. The oil swap from this source potentially could have generated about  $(0.370)(365)(0.50) = \$67.5$  million per year profit for Iran. This is based on an estimation of \$0.50 net profit out of the \$2 per barrel transportation fee Iran would receive from the swap.<sup>34</sup> Moreover, there have been other pipelines proposed to transport the Caspian oil, one from Kazakhstan via

<sup>32</sup> Iran Central Bank, *Annual Review*, 2000/01 (1379).

<sup>33</sup> *Iran Times*, No. 8 (7 May, 1999, p. 1).

<sup>34</sup> *Iran Times*, No. 18 (18 July, 2003, p. 4).

Turkmenistan to Khark Island (Iran) on the Persian Gulf and another one from Baku, Azerbaijan, to Tabriz, Iran. The cost of constructing and operating the pipelines along with their future revenues depend on too many unknown variables. The transit pipelines' volumes are planned to be in the range of 1.2 to 1.4 million barrels per day and will cost about \$1.7 billion to construct.<sup>35</sup> Laying the pipelines is a highly political issue and its future is uncertain due to the US sanctions. Iran's gains from these pipelines could have been at least \$219 million per year based on a rough estimate of \$0.50 per barrel profit. Hence, the swap and the transit pipelines combined could have generated about \$286 million per year for Iran in the absence of the sanctions. Adding the \$286 to the \$266 million excess charges paid for the buyback contracts and \$85 million extra interest charges mentioned earlier will result in \$637 million total financial sanctions cost per year. In the following section the total costs of trade and financial sanctions are recapitulated in Table 3.

#### 5. THE TOTAL SANCTIONS' COST ON IRAN

The sanctions' costs on Iran estimated earlier are summarised here and the results are compared with the estimates made by others in the prior studies. Column 5 in Table 3 recapitulates estimates of the trade and financial sanctions damages on the Iranian economy in this study. The total sanctions cost is \$777 million per year, that is about 2.7 per cent of Iran's \$28 billion total exports and/or about 1.1 per cent of Iran's \$70 billion GDP in 2000.<sup>36</sup> The annual cost of the sanctions to the Iranian population is about \$12.1 per person.

For comparison, as is shown in column 2, Preeg's (1999) assessment of the US sanctions' adverse effect on the Iranian economy is in the range of \$1,500 to \$2,600 million per year on average for 1998–2000. Also, column 3 shows Askari et al.'s (2001) estimate of \$1,187–1,348 million for year 2000. Askari et al. (2003) have used the gravity model of bilateral trades supplemented with observed values of non-trade-related factors. Column 4 shows estimates of the Institute for International Economics (IIE) for 1995–1999, which amount to \$750 million per year by applying the concept of welfare loss.<sup>37</sup>

As is shown in Table 3, the prior studies' results differ in emphasising trade and non-trade sanctions' costs. Preeg's estimates are high compared to others; his estimations are entirely by judgemental observation of the trade and financial flow between the two countries. The IIE emphasises trade-related costs by using

<sup>35</sup> Energy Information Administration (July 2002, [www.eia.gov/emeu/cabs/caspgrph.html](http://www.eia.gov/emeu/cabs/caspgrph.html)).

<sup>36</sup> The GDP and Export figures are from Iran's Central Bank, *Annual Review* 2000/01 (1379).

<sup>37</sup> The Institute for International Economics, Case 84-1 US v. Iran ([www.iie.com/topics/sanctions/iran3.htm](http://www.iie.com/topics/sanctions/iran3.htm)).

TABLE 3  
Adverse Impact of US Trade and Financial Sanctions on Iran (per year in millions of dollars)\*

| <i>Cause of Economic Damage</i>  | <i>Estimates by Ernest H. Breeg. Economic Damage 1998–2000 (Methodologies applied: judgemental)</i> | <i>Estimates by Askari et al., 2000 (Methodologies applied: Gravity model/ judgemental)</i> | <i>Estimate by IIE Average 1995–1999 (Methodologies applied: welfare loss)</i> | <i>Estimates by the Author 2000–2001 (Methodologies applied: welfare loss, price leadership model, judgemental)</i> |
|--|---|---|--|---|
| <b>Trade Sanctions' Costs</b>  | <b>\$700–\$1,300</b>  | <b>\$27</b>   | <b>\$500</b>   | <b>\$140</b>  |
| Prohibition on US imports (non-oil) from Iran  | \$500–\$1,000   | N.A.  | N.A.   | \$58  |
| Prohibition on US exports to Iran  | \$100–\$200   | \$27  | \$100  | \$82  |
| Prohibition of marketing oil to third countries by American companies  | \$100   | 0   | \$400  | 0   |
| <b>Financial Sanctions' Costs</b>  | <b>\$800–\$1,300</b>  | <b>\$1,160–\$1,321</b>  | <b>\$250</b>   | <b>\$637</b>  |
| Prohibition on US investment & ILSA sanctions on third countries (buyback contracts)   | \$300–\$500   | \$700–\$840   | \$250  | \$266   |
| US pressure to limit economic assistance, loans, etc.  | \$500–\$800   | \$70–\$91   | N.A.   | \$85  |
| Oil swap and pipeline costs  | N.A.  | \$390   | N.A.   | \$286   |
| <b>Total Sanctions' Cost (Total economic damage)</b>   | <b>\$1,500–\$2,600</b>  | <b>\$1,187–\$1,348</b>  | <b>\$750</b>   | <b>\$777</b>  |
| Total Sanctions' Cost as a percentage of Iran's exports in 2000 (\$28,345)   | 5.3% to 9.1%  | 4.1% to 4.7%  | 2.6%   | 2.7%  |
| Total cost as a percentage of Iran GDP in 2000 at current prices of 579 trillion rials (or \$70.3 billion at 8,000 rials/dollar exchange rate) | 2.1% to 3.6%  | 1.6% to 1.9%  | 1.0%   | 1.1%  |
| Per capita sanctions' costs based on Iran's population of about 64 million in 2000   | \$23.4 to \$40.5  | \$18.5 to \$21.1  | \$11.7   | \$12.1  |

Note:

\* Estimates are annual averages for the latest year available and are rounded.

various sanction multipliers ranging from 0.05 to 0.30 to compute welfare loss. The IIE understates the cost of non-trade sanctions and concentrates on flow of oil and merchandise trades as compared to Askari et al. who emphasise non-trade-related costs of debt and capital flow throughout the sanctions period. This study emphasises the impact of financial versus trade sanctions' costs and uses more recent information as well as a different approach to assess the financial sanctions' costs. The total cost of the sanctions estimated in this paper is within the range of the prior studies, and close to the lower side of the range. Having completed an estimation of the sanctions costs, the economic and political effectiveness of the sanctions are discussed in the next section.

## 6. OVERALL EFFICACY OF THE SANCTIONS

The overall efficacy of the sanctions is composed of their economic and political effects. As was discussed, both trade and financial sanctions have succeeded in damaging the Iranian economy. The political effect of the sanctions in terms of achieving their objectives, however, has been minimal. In general, the main factors to consider in the evaluation of economic sanctions' effects are the size of the two countries' economies and the length of time that the sanctions have been imposed. Since the United States' economy is large, it has highly elastic trade curves. It does not depend on a particular country for its imports or exports. When the US imposes sanctions on a small country like Iran, because of its large market share outside of the target country, it is able to easily replace the missing trades with those of other countries. At the same time, Iran is more dependent on trade with a large country like the US. Therefore, the trade sanctions put some pressure on Iran when they were initially imposed. However, in the long run, their efficacy has gradually diminished. This has been due to the fact that elasticities are higher in the long run than in the short run. The more time has passed, the more Iran has been able to adjust to the sanctions and has been able to find alternative sources for the US-made products.

### *a. Economic Effect*

Sanctions are considered to be economically successful if they can significantly damage the economy of the target country while little damage is done to the economy of the imposing country. In the case of Iran, as was estimated earlier, economic costs are significant while damage to the American economy is negligible due its large size. Hence the sanctions have been economically successful.

The *short-term* effects of the embargo when initially imposed in April 1995 were disruption in Iran's oil export and volatility in the foreign exchange market. The embargo temporarily reduced Iran's income from oil exports, increased tanker

chartering costs, and increased crude oil storage costs. Iran had to find new buyers for roughly 440,000 barrels per day of oil that American companies were buying from Iran in 1995. The embargo sharply reduced the value of the rial after it was announced. In two weeks the rial fell by a third to 7,500 rials/dollar from its pre-sanction rate of 4,200 rials/dollar. The rial later partly recovered and fluctuated in the range of 5,000 to 6,000 rials/dollar for a while. The government put an official ceiling of 3,000 rials per dollar to maintain stability of the exchange rate, but that could not affect the rial value in the black market. The rial value continued to be less than half of the official rate, and reached to 8,000 rials/dollar in 1999. The embargo caused shortage of hard currency and forced Iran to cut on its imports, which in turn led to higher domestic prices. The embargo also prevented Iran from easy access to foreign capital and made Iran unable to repay its foreign debt on time. Subsequently Iran was forced to reschedule its debt in 1999. The embargo also delayed Iran's oil development and infrastructure projects due to the barrier created in flow of foreign capital to Iran. Furthermore, Iran had to sign the oil buyback contracts at highly inflated terms.

The *long-term* effect of the trade sanctions on the Iranian economy is minimal. The earlier sanctions forced Iran to find alternative suppliers to replace US-made products. In fact Iran's import embargo of American products, which was initiated in retaliation to the US sanctions at the time of the American hostage crisis in 1979, was continued until 1991. As a result, Iran's dependence on imports of American-made products has remained minimal. In the meantime, Iran has been able to import its needed technology from other countries and has been able to finance its oil development projects by non-US firms, although at higher costs. As was estimated, the financial sanctions' impacts were very powerful, constituting about 82 per cent of the total \$777 million cost. Furthermore, the financial sanctions' impacts will probably last for much longer.

Aside from the sanctions' economic damages, the ruling clergy's ideological economic policies are much to be blamed for Iran's economic ills. The Islamic government policy of economic independence detached Iran from the globalisation process and has been an obstacle to the transfer of capital, technology and know-how to the Iranian economy. Because the economy is mainly empowered by oil exports, it is the lower oil prices or the volume of exported oil that cause economic downturn in Iran, rather than the limited economic hardship that the US sanctions have caused. The long-term effect of the embargo can be significant only if the export of Iranian oil is cut off entirely. That has not happened because the embargo remained more or less unilateral. No other country except Israel joined the embargo. The US extra-territorial sanctions under the Iran-Libya Sanctions Act, as discussed earlier, displeased US allies because they did not want their firms to miss the opportunity to participate in Iran's lucrative oil and gas investments. Ultimately, the US had to grant a waiver to some EU member countries for the oil and gas buyback projects. The European Union argued that

dialogue and engagement would work better than economic isolation. Particularly Germany and Italy believed that supporting the sanctions would jeopardise the repayment of loans they had given to Iran. The reality is that European countries, except Norway and Britain, do not export oil and do not have significant domestic oil reserves. They import most of their oil for consumption from abroad compared to the US which imports less and has some untapped reserves in Alaska. Hence the export of more Iranian oil improves the terms of trade in their favour in the international oil market.

*b. Political Effect*

Sanctions are politically successful if they can achieve their intended goals. In the case of Iran, political success of the sanctions is not quite notable yet. There are some other factors besides the sanctions that also affect Iran's relations with the US. These include the EU's 'critical dialogue' policy, the pressures from the Iranian opposition groups, and the consequence of US-led military occupation of the neighbouring countries of Afghanistan and Iraq. Nonetheless, the ruling clergy's behaviour regarding some of the issues targeted by the sanctions has begun to change. The following are the developments in the clerical regime's conduct regarding the targeted issues.

*Terrorism.* The regime has been accused of being involved in a number of terrorist incidents and assassinations.<sup>38</sup> One incident is a car bomb which destroyed the Israeli Embassy in Buenos Aires, Argentina, in March 1992. Another incident was the explosion of the Khobar towers complex, which housed US military personnel near Dhahran, Saudi Arabia, in June 1996. Also assassinations of more than 45 Iranian opposition leaders in Europe from 1989 to 1996 have been blamed on the regime's hit squads.<sup>39</sup> Despite strong evidence of the regime's involvement in the assassinations on European soil, the EU continued to be silent and pretended its policy of 'critical dialogue' was working. The EU's lucrative trade and oil contracts with Iran came before the issues of terrorism and human rights violations. None of these incidents have been proven in court except for the assassination of three Kurdish dissidents and an interpreter who were gunned down in a Mykonos restaurant in Berlin in September 1992.<sup>40</sup> After the Berlin

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<sup>38</sup> The assassinations included the former Prime Minister of Iran, Shahpour Bakhtiar; the Iranian TV celebrity and poet-singer, Fereydoon Farokhzad; and a number of other political leaders and dissidents.

<sup>39</sup> Timmerman, Kenneth R., 'Time to End "Critical Dialogue"', *The Wall Street Journal-Europe* (10 June, 1996).

<sup>40</sup> The court found that Iran's Minister of Intelligence and Internal Security, Ali Fallahiyan, had authorised the execution of the leader of the Kurdish Democratic Party of Iran, Sadiq Sharafkandi, and two aides.

court found in 1996 that high authorities of the clerical regime were directly responsible for the Mykonos murders, the 'critical dialogue' policy became more serious. The case verdict forced the EU member countries to take a tougher stance against the Islamic regime. Approximately, at the same time the US extra-territorial sanctions came into effect. Since 1996 both the US sanctions and the EU's critical dialogue policies have become stricter, no terrorist incidents or assassinations outside Iran have been linked to the clerical regime. Furthermore, in July 1998, the EU asked the Islamic government to disassociate itself from Salman Rushdie's death sentence.<sup>41</sup> Inside Iran, however, the so-called 'chain murders' of political dissidents were systematically continued until November 1998 when the Islamic government admitted that a group within its own intelligent ministry had carried out the 'chain murders', including the slaying of the prominent opposition leader Darush Forohar and his wife.<sup>42</sup> Thus, it appears that both US and EU policies have been somewhat effective to curtail terrorist activities of the regime in the later years.

*Human Rights.* The US had not originally included human rights abuse of the clerical regime in the list of reasons for imposing the sanctions. In July 2002, however, the US added the regime's human rights abuse as another reason for the continuation of the sanctions. This concurred the stance of the US with the EU on this issue. Nonetheless, the regime continues to ignore human rights and civil liberties. There are still a large number of political dissidents, journalists and university students in jail for opposing the regime, and the government continues to discriminate against women and persecutes religious minorities. Although the living conditions are not good in Iran, there have been fewer disorders as a result of economic miseries than discontents due to lack of political freedom and social justice. Public unrest and demonstrations have increased and have made it difficult for the regime to maintain stability, mainly due to the latter problem. Despite the economic hardship that the sanctions have brought to the Iranian people, the ruling clergy have continued to stick to its Islamic slogans. There has been significant opposition to the regime from the intelligentsia, including the students and the liberal press. Nevertheless, the clergy regime has blamed US sanctions for failure of its own economic policies. So far the regime has been able to hold on to power by arresting and imprisoning the key opposition figures, and closing the critical press. It appears, therefore, that no significant progress has been made to date on the human rights issue despite the sanctions.

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<sup>41</sup> The fatwa against Salman Rushdie was ordered by Ayatollah Khomeini in 1989. He was accused of blasphemy against Islam in his book *The Satanic Verses*.

<sup>42</sup> A report of the murders written by Robert Morton reprinted in *Hoover Digest*, 'Midnight in Tehran', No. 3 (1999, pp. 121–23).

*Nuclear Technology.* On this issue, some information has recently begun to surface. On 9 February, 2003, President Khatami disclosed that Iran had discovered and extracted uranium to produce nuclear energy that will be used strictly for Iran's nuclear power plants. Khatami has since insisted that it is Iran's legitimate right to obtain nuclear energy for peaceful purposes. Iran is a signatory to the treaty on the non-proliferation of nuclear weapons. In June 2003, Mohamed El-Baradei, the Director General of the International Atomic Energy Agency (IAEA), visited Iran to investigate the matter. In his report El-Baradei stated that Iran had not fully met its obligations under the Nuclear Non-Proliferation Treaty because it failed to disclose some of its sophisticated nuclear facilities.<sup>43</sup> Also in February 2004, it was revealed that Iran has obtained some essential means for developing nuclear technology from the neighbouring Muslim country of Pakistan with the assistance of a Pakistani top scientist.<sup>44</sup> But that happened between the early 1980s and 1993, before the US and EU policies became strict. Because the regime has voluntarily revealed some information regarding its nuclear programme, it seems on this issue that the US and EU policies have overlapped and some progress has begun to emerge.

*The Middle East Peace Process.* On this issue, the regime has continuously favoured Palestinian militants in their cause, but recently has kept a low profile to support violence. That might be due more to fear of US military attacks than to the effect of sanctions. Yet, the hardliners have maintained their anti-US attitude. For instance, after the parliamentary elections in February 2004, the Supreme Leader Ali Khamenei said, 'The losers in this election are the United States, Israeli Zionists and the country's enemies'.<sup>45</sup> He meant the US backing of reformist factions failed to generate a pro-US new parliament in Iran.

Overall, on the issues where both the US and the EU have had common concerns, more progress has been made. This indicates that international support to coordinate foreign policy can work better than unilateral actions. Nonetheless, it has been politically infeasible for the US to adopt the EU's engagement policy. US engagement with Iran would have been strongly criticised by the conservative factions in the US who want strong government action against the clerical regime, which is listed as a supporter of terrorism. While many Iranian immigrants expect the US to hold a tough stance against the ruling mullahs, many both inside and outside Iran have mixed feelings about the sanctions. They feel the sanctions

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<sup>43</sup> International Atomic Energy Agency, *Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran*, reported by the Director General, derestricted (19 June, 2003).

<sup>44</sup> 'Pakistan's Nuclear Secrets Sold: The Net Closes on Abdul Qadeer Khan, Top Nuclear Proliferator', *The Economist* (7–13 February, 2004, p. 38).

<sup>45</sup> 'Iran's Supreme Leader Says Poll a Blow to US', by Parinoosh Arami, Tehran (*Reuters*) (21 February, 2004).

have hurt the Iranian people while the ruling mullahs and their family members have amassed a substantial amount of assets and have substantial amounts of money in their personal bank accounts abroad.<sup>46</sup>

## 7. CONCLUDING REMARKS

The analysis in this article indicates that the US sanctions have had some economic success by causing damage to the Iranian economy. The trade sanctions' effects on Iran's non-oil exports and capital goods imports have been significant as compared to their effect on Iran's oil exports. Iran could find other buyers for its oil in a rather short time due to the fact that oil is a fungible commodity and the world market for oil is to a certain extent competitive. The financial sanctions' impact on Iran has been greater than those due to the trade sanctions. The financial sanctions have curtailed Iran's ability to borrow funds and to finance its oil development projects. Because of the sanctions, Iran has paid higher rates of interest on its loans and has guaranteed excessively high rates of return on investment on its oil buyback projects. On the whole, the trade and financial sanctions' cost to Iran was estimated to be about 1.1 per cent of Iran's GDP; this is a significant hindrance to Iran's economic growth, which has been at a rate of 4.7 per cent per year on average over the last five years. The political success of the sanctions has not been quite so notable. However, recently some progress has emerged on the targeted issues about which both the US and the EU have common concerns.

The study of sanctions on Iran reveals some important policy implications. The case indicates, that in choosing between trade and financial sanctions, the policy maker's choice should be the more powerful financial sanctions. This case also shows that unilateral import sanctions on crude oil are ineffective because of its fungible nature and ease of transshipment. This implies that financial sanctions with selective export restrictions could have led to almost the same results as comprehensive sanctions. Many experts believe that sanctions, despite their implementation complexity and limited effectiveness, still offer a far more attractive policy than pre-emptive military strikes. Sanctions can be an important foreign policy option if they are targeted smartly and with the cooperation of other countries. Sanctions do not cost lives on the battlefields and are far less damaging to the US politically than military intervention. Some experts believe that the use of smart sanctions maximise the pressure on the ruling regime while limiting their unintended side effects (Cortright and Lopez, 2002). In the case of Iran,

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<sup>46</sup> For accumulated wealth of the clergies and their cronies see: 'Millionaire Mullahs', by Paul Klebnikov, *Forbes* magazine (21 July, 2003, pp. 56–60). Also a detailed list of their bank accounts' balances abroad has been reprinted in *Mardom-e Khavar-e Mianeh* ('The Middle East People', 21 March, 1999, pp. 143–74), Alfred Hemingway Publishing, Los Angeles, CA.

therefore, more precise targeted sanctions along with political pressure on the ruling clergy could have been a more effective policy than the comprehensive sanctions. The US policy of promoting the moderate Khatami's administration has not been fruitful. In fact, in February 2004, many of the reformist candidates were disqualified to run for the new parliament by the hardliners' Council of Guardians. This effectively put an end to any hope for reforms from within the clerical regime. This shows that the clergy ruling class in its entirety should have been targeted by the sanctions. A travel ban on the ruling clergies, their families and associates, along with freezing their personal bank accounts abroad would have been a wise policy to pursue. Publicising the clerics' repressions, mismanagement and corruptions via the Persian-language radio and TV stations abroad can be an effective policy to weaken the regime in the long run. Pressuring the ruling clerics to resign will calm down Islamic fundamentalism throughout the region and will pave the way for better relations with the West and the modernisation of Iran.

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