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Iran

Trade and Foreign Exchange Policies in Iran

Reform Agenda, Economic Implications and Impact on the Poor

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Currency Equivalents

Currency Unit = Iranian Rial (RIs)
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Tehran Stock Exchange Rate (TSE): US\$1 = RIs 7,970
Iranian Fiscal Years end March 20

Principal Abbreviations and Acronyms Used

CAS	Country Assistance Strategy
GDP	Gross Domestic Product
DFI	Foreign Direct Investment
EDBI	Export Development Bank of Iran
EPZ	Export Processing Zones
FTZ	Free Trade Zone
FYDP	Five-Year Development Plan
IBRD	International Bank for Reconstruction and Development
IO	input-output
LIBOR	London Interbank Offered Rate
ISIRI	Institute of Standards and Industrial Research of Iran
MENA	Middle East and North Africa
MPO	Management and Plan Organization
NTB	Non-Tariffs Barriers
RIs	Iranian Rials
TSE	Tehran Stock Exchange
WBI	World Bank Institute
WTO	World Trade Organization

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EXECUTIVE SUMMARY

This report describes Iran's trade and exchange rate policies, proposes and explains a reform program, and develops a computable general equilibrium of Iran's economy to estimate the gains—to the economy as a whole and to the poor—likely to accrue from various reform options. The report also recommends a program for sequencing the reforms.

Government Domination of the Economy and the Retreat from Economic Reform

For the past two decades, Iran's economy has been dominated by the government. During this period overall economic performance has been disappointing. Per capita GDP was 16 percent lower in 1998 than in 1979, and inflation averaged 20 percent a year over the two-decade period (IMF 2000). In the decade between 1988 and 1998, per capita GDP growth was at least positive, but averaged just 3 percent a year.

The government began to liberalize its economic policies during the First Five-Year Development Plan (1990/91–1994/95), under which GDP growth rose to an average annual rate of 6 percent. Faced with the slump in oil prices in the mid-1990s, the U.S. embargo on trade and investment, the bunching of scheduled debt repayments, and the inability to obtain new foreign financing, however, the government interrupted the reforms. In response to the fall in foreign exchange receipts, it tightened import licensing controls and allowed the rial to become increasingly overvalued at the official exchange rate. Queues for foreign exchange developed, the premium of the open market exchange rate over the official rate increased dramatically, the annual inflation rate rose to 19 percent in the period 1989–94 and to 40 percent in 1994–95, and annual GDP growth slowed to 4 percent in the period 1994–98.

Progress on Reform and the Government's Current Reform Agenda

The election of President Khatami in 1997 strengthened the reform movement and allowed Iran to improve its relations with the rest of the world. The upturn in world oil prices that began in 2000 has allowed Iran to reduce its foreign debts and reinstate a reform program. These developments have helped the government make very substantial progress toward reform in the past three years. In 2000 arrears on official debts were cleared, and foreign exchange reserves rose substantially. The macroeconomic situation has been stabilized, and both the fiscal balance and the balance on the current account of the balance payments are positive. In addition, significant trade and foreign exchange reforms have been implemented:

1. Substantial progress has been made toward eventually unifying Iran's multiple exchange rates. The multiple exchange rate system now operates mainly as a way of subsidizing imports of "essential" goods, prices of which are controlled.
2. Many nontariff barriers on imports have been replaced by their tariff equivalents. Restrictive import licensing requirements required by the Ministry of Industry were lifted on 781 products during 2000. Another 114 items were exempted from the restrictive licensing requirements of other line ministries, bringing to 895 the total number of items from which nontariff barriers have been removed. At the same time, import taxes on many of these items were increased in an attempt to compensate domestic producers for loss of protection. As of October 2000 no restrictive licensing conditions applied to 2,795 of the 5,113 six-digit Harmonized System of product codes used in Iran.

3. Import licensing requirements have also been eased by expanding the “positive list” of items that can be imported relatively easily by firms that earn their foreign exchange by exporting or that buy foreign exchange on the Tehran Stock Exchange. At the time of the foreign exchange crisis of 1998/99, the positive list included just 31 broad categories of importable items. By early 2000 it contained 41 items, and the number was raised to 77 in November 2000 .
4. Licensing restrictions on exports have been eased.
5. Customs procedures for both imports and exports have been simplified and delays reduced.
6. Many redundant compulsory export standards have been eliminated.
7. Exporters have been given improved access to imported inputs at world prices. The government has used duty drawback and temporary exemption schemes, free-trade and special economic zones, and export finance agencies to encourage exporters, albeit with limited success.
8. Part of the anti-trade bias of the indirect tax system has been removed by raising the sales tax rates on some domestic products to approximate parity with those on the corresponding imported products. When a value-added tax is introduced, the remaining anti-trade bias of the indirect tax system will be completely removed.

The government has already made significant progress in implementing trade and foreign exchange reforms, but it intends to do much more. The ambitious plan of reform outlined in the Third Five-Year Development Plan (2000/01–2004/05) calls for unifying the multiple exchange rate system and abolishing exchange controls on the current account, removing nontariff barriers to trade and gradually reducing tariffs, and encouraging the growth of nontraditional exports. International experience suggests that these reforms will benefit most Iranians and help the poor if appropriately targeted. They will also help Iran gain membership in the World Trade Organization (WTO).

Estimating the Benefits of Reform

Changes in trade and foreign exchange policy affect both the economy as a whole and the poor as a group. To estimate the effects on both groups, we develop a multisector computable general equilibrium model of the Iranian economy.

The estimated welfare gains from adopting trade and foreign exchange reforms in Iran are extremely large (table 1). Constant returns to scale numerical modeling estimates have often found that trade liberalization increases the welfare of a country by only about 0.5–1.0 percent of GDP. In contrast, in Iran we find welfare gains of as much as 50 percent of household consumption or about 19 percent of total GDP.¹ These very large estimated gains reflect the unusually high level of distortions at the starting point of the reform. Our results also indicate that the proposed reforms are pro-poor.

In addition, all the reforms discussed in this report generate revenue for the government. As summarized in table 1, we estimate that the government’s budget surplus will increase by 1.4 percent of GDP from tariffication of non-tariff barriers alone, by 5.3% of GDP from removal of foreign exchange subsidies alone, and by 13.3 percent of GDP from removal of energy subsidies alone.

¹ Household consumption is about 37 percent of GDP. Unless otherwise noted, we report estimates as a percent of household consumption, rather than a percent of GDP. Welfare results as a percent of GDP are therefore 37 percent of the values reported as a percent of household consumption.

Tariffing nontariff barriers increases aggregate welfare and helps the poor

Based primarily on Ministry of Industry estimates, we estimate that the tariff equivalence of nontariff barriers in Iran is about 17 percent of the value of imports. Assuming that the rents from nontariff barriers are dissipated through rent-seeking, we estimate that tariffication of nontariff barriers will lead to an increase in aggregate welfare of 3.4 percent of the value of household consumption in the benchmark equilibrium. This gain in welfare is generated from the reallocation of the resources wasted on obtaining import licenses.

The impact on the poor is strongly affected by what the government does with the additional revenue it receives. We assume that the government distributes the additional revenue it receives back to households in equal amounts. Even though the poor are not targeted by this distribution mechanism, the poor will gain substantially from this policy reform. Because they have such small incomes, even small transfers can represent a significant portion of the income of the poorest households. In fact, the income of the poorest rural household type is estimated to rise 23 percent, while that of the poorest urban household type is estimated to increase 11 percent.

Setting a uniform tariff rate of 15 percent helps the poor more than setting a maximum tariff rate of 25 percent

Both setting a maximum tariff rate of 25 percent and establishing a uniform tariff rate of 15 percent result in significant increases in welfare, but the poor gain much more from uniform tariffs. The uniform policy helps the poor more because it generates greater revenue for the government. Lowering tariffs to 15 percent or less is also likely to be a requirement for admission to the WTO. The favorable experience of other developing countries with uniform, or near uniform, tariffs is summarized in section 2.4.

Eliminating foreign exchange subsidies disproportionately helps the poor, especially if the gains are distributed as lump-sum payments

Subsidies to foreign exchange represent more than 6 percent of Iran's GDP. We estimate that eliminating these subsidies and distributing the gain as lump-sum payments would increase aggregate welfare by 6.9 percent of consumption. Moreover, although some of the subsidies for purchases of imports are intended to assist the poor, it is the poor who would disproportionately gain from this policy.

If instead of distributing the gain as lump-sum payments the government were to provide consumption subsidies for essential commodities, the welfare gain to the poor would be slightly lower (6.7 percent). More interestingly, the welfare gains to the poor would be much lower (46 percent of the value of consumption instead of the 72 percent gained under a lump-sum payment). These results show that well-intentioned policies for the poor can have perverse effects. Even though the direct income payments we consider are not targeted at the poor, they do a better job of improving the welfare of the poor than commodity subsidies, which are perceived to target the poor.

As a practical matter, efficient safety mechanisms for the poor are difficult to implement. The World Bank and the government of Iran have agreed to a followup study on the efficient distribution of the fiscal surplus from subsidy reduction and tariffication of non-tariff barriers. The mechanism we assume, however, does allow us to assess and quantify the distributional consequences, including on the poor, of the existing pattern of subsidies and licenses.

Combining trade and exchange rate reform results in a welfare gain equal to more than 12 percent of consumption

Tariffing nontariff barriers, unifying the exchange rate, and setting a uniform tariff rate of 15 percent yields a combined welfare gain of 12.3 percent of consumption. If tariffs are completely eliminated, the welfare gain rises to 12.7 percent of consumption. The poor gain enormously from these combined policies but, interestingly, they gain more from the 15 percent uniform tariff than the zero tariff, which leaves less fiscal surplus to distribute.

Eliminating petroleum subsidies doubles or triples the incomes of the poorest household types

Petroleum prices in Iran are only about 10 percent of world prices, and subsidies on petroleum products cost the government an estimated 18 percent of GDP. If the fiscal surplus from eliminating the petroleum product subsidies is transferred back to households in equal amounts, the income of the poorest urban household type doubles, while that of poorest rural household type increases by more than 200 percent. Adopting both energy and exchange rate reform yields even larger gains. Under this strategy, the income of the poorest urban household type rises 116 percent, while that of poorest rural household type rises 239 percent. All households gain, but the percentage gains decrease with the income level of the household.

Combining trade, energy, and exchange rate reform generates the largest welfare gains

The largest welfare gains accrue from adopting tariffication, tariff reduction, exchange rate unification, and energy pricing reform. Under this scenario, the gain to the Iranian economy is estimated at about 50 percent of the value of consumption following the combined reforms.

Table 1. Estimated Gains from Reform (percent of consumption)

<i>Policy step</i>	<i>Marginal rise in real income due to this policy step</i>	<i>Total rise in real income due to all steps up to and including this one</i>	<i>Total increase in real income due to all steps up to and including this one^a</i>		<i>Change in Government Fiscal Surplus from this Policy Step (% of GDP)</i>
			<i>Poorest rural household type</i>	<i>Poorest urban household type</i>	
Tariffication of nontariff barriers	3.4	3.4	23.3	11.1	1.4
Reduction of tariffs to 25 percent	0.7	4.1	15.6	8.3	0.7
Reduction of maximum tariff from 25 percent to 15 percent [	1.4	5.5	20.2	10.9	1.0
Removal of exchange rate subsidies to "essential" imports	6.9	14.0	95.6	44.3	5.3
Removal of fuel subsidies	32.9	50.1	292.2	143.1	13.3

Source: Authors' estimates.

Suggestions and Recommendations

Our analysis of Iranian trade and foreign exchange policy suggests that the government could increase the welfare of the nation as a whole while improving the relative welfare of the poor by adopting the following reforms:

Replacing nontariff barriers by equivalent tariffs and reducing tariffs

- We strongly support the government's policy of replacing nontariff barriers by their tariff equivalents. Once all restrictive import licensing conditions have been removed for almost all goods other than those banned for noneconomic reasons, there will be no need for any list of goods that may or may not be imported using a particular source of foreign exchange. Moreover, we recommend continued efforts by the government to remove non-tariff barriers in technical regulations on goods and sanitary and phytosanitary standards on agricultural imports. The economy will benefit over the long-term with continued movement toward regulatory regimes which are centered on streamlined requirements, including acceptance of manufacturers declarations of conformity to import requirements in all but the most sensitive areas of health, safety, or environmental regulations.
- The static inefficiencies caused by high trade barriers and the cross-country evidence that openness promotes economic growth suggest that reducing import taxes, rather than merely replacing nontariff barriers by their import tax equivalents, makes sense. We recommend that the government aim at achieving a uniform tariff of 15 percent by 2005—with an eye, perhaps, to eventually abolishing tariffs altogether.
- In Annex 5A, we explain how a system to compensate the poor for the removal of price subsidies on the consumption of essential commodities can be implemented, based on the system Iran has in place for the distribution of ration coupons for edible oils, sugar and cheese.

Reforming taxation

- We strongly support the government's plans to replace the current system of piecemeal and anti-trade biased sales taxes by a trade-neutral value-added tax.
- We do not support the current policy of granting income tax exemptions to income earned from exporting.

Eliminating fuel subsidies

The substantial subsidies provided for fuel in Iran place a burden on the fiscal budget and introduce serious distortions into the economy. For these reasons, the government may want to continue eliminating these subsidies.

Unifying the exchange rate

We strongly support the government's plans to unify the multiple exchange rates. Provided that alternative ways of compensating the poor can be devised and administered, there is also a case for removing subsidies on the consumption of items currently imported at the official exchange rate. Making

recommendations on how best to help the poor is outside the scope of a review of trade policy, however, and should be dealt with by specialists on the design of social safety nets.

Promoting exports and reducing anti-export bias

Iran's duty drawback and exemption schemes mitigate some of the adverse effects of its import barriers. So too do its free-trade and special economic zones. We therefore support these programs, but suggest ways in which they might be improved.

- *Drawbacks and exemptions.* To improve the system of duty drawbacks and exemptions, the authorities could consider setting up a specialized unit within the Customs Department to administer both schemes. They could also reduce the period within which exporters can claim duty drawbacks to three months after export and require all firms that receive exemptions from duties on imports to be used as inputs into exports to place bank guarantees for the full amount of the duty, but no more.
- *Free-trade and special economic zones.* To achieve its aim of transforming the free-trade and special economic zones from import-processing zones into true free-trade zones, the government could accompany reductions in the economywide barriers to imports from foreign countries with the abolition of the preferential treatment of imports into the customs territory of Iran from the free-trade zones and special economic zones. Specifically, it could abolish the \$80 allowance of duty-free imports from the free-trade zones for domestic shoppers and reform the "value-added rule," which currently allows limited amounts of duty-free imports from the zones to the mainland. Exports from the zones to the mainland should be subject to the same regulations and duties that apply to imports from foreign countries. The government could also speed up the administrative procedures for approving requests by investors to shift funds into or out of the zones.
- *Export credits, guarantees, and insurance.* In our view, there is no good economic case for preserving, let alone increasing, Iran's subsidies to export finance. Such schemes are used by almost all countries around the world to subsidize manufactured exports, however, and it appears almost inevitable that they will be retained in Iran. To improve the functioning of these mechanisms, the government could ensure that the amount and form of the subsidies provided by the Export Guarantee Fund of Iran and the Export Development Bank of Iran are consistent with the limits on export finance subsidies contained in the WTO's Agreement on Subsidies and Countervailing Measures and in the conventions of the Berne Union. It could also allow other financial institutions to engage in export finance on whatever terms they choose by deregulating lending to exports. The proportion of each bank's loans that must be allocated to export lending could also be deregulated, thus allowing banks to lend as much, or as little, as they wish.
- *Compulsory export standards.* We support the government's plan to adopt a system for product standards that covers health and safety issues but steps back from attempts at full export quality control. The standards system should rely upon market-driven and private sector-led product and process standards. Firms should lead in design and implementation of these voluntary standards. The competitive forces of international market competition will drive quality improvements over time.

Sequencing Reforms

Announcing a credible plan for reform would help minimize uncertainty. The Third Five-Year Development Plan represents an excellent step in this direction, but still more information is required. The abrupt removal of subsidies to "essential imports" and of protection of domestic manufacturers of most

other imports may cause dislocations to existing firms, particularly state-owned enterprises, and perhaps raise the already high level of unemployment.

To avert such consequences, we recommend a gradual sequencing of reforms, based on the following guidelines (table 2):

- During the first two years of the reform program, the government could adopt export promotion measures.
- The government could aim to complete the process of transforming nontariff barriers into their tariff equivalents and unify exchange rates by March 2002.
- It could aim to phase out partial compensation for the loss of subsidies to “essential imports” (those previously imported at the official exchange rate), apply a uniform tariff rate of 15 percent on all items, and eliminate fuel subsidies by March 2005. Once a low uniform tariff has been achieved, the government could replace the existing commercial benefit tax and customs duties by a tariff at the new rate.

Table 2. Recommended Sequencing of Reforms

<i>Date reform completed</i>	<i>Exchange rate</i>	<i>Nontariff barriers</i>	<i>Trade taxes</i>	<i>Duty drawbacks, temporary admissions, and free-trade and special economic zones</i>	<i>Additional export facilitation measures</i>	<i>Fuel subsidies</i>
September 2001		Eliminate nontariff barriers on at least half of all six-digit harmonized system code items.	Raise commercial benefit tax on all items that are tariffed (about 2,000 harmonized system codes) to compensate for removing nontariff barriers.	<p>Announce reform of free-trade and special economic zones, including the elimination of the tourist shopping allowance and the realignment of export policy with that of the mainland through a national trade policy reform, which would take effect the following March.</p> <p>Create a special unit in the Customs Department for handling duty drawback and temporary admissions of imported items for re-export or for use as inputs into exports.</p> <p>Reduce duty drawback claim period from three to two years; reduce export claim period to a maximum of three months; reduce temporary admission collateral requirements to international norm.</p>	<p>Align Export Guarantee Fund programs and incentive schemes of the Export Development Bank with WTO Agreement on Subsidies and Countervailing Measures and Berne agreements.</p> <p>Continue to move toward standards which are private sector developed and remove government controls. Institute system for technical regulations and SPS measures over imports which removes discriminatory, duplicative requirements.</p>	<p>Convert all oil revenues at Tehran Stock Exchange rate.</p> <p>Retain real fuel subsidy rates, but include them explicitly in the budget.</p>
March 2002	<p>Unify all exchange rates at managed floating rate (the Tehran Stock Exchange or the negotiated rate).</p> <p>Bring existing</p>	Complete process of tariffication of nontariff barriers, subject to exceptions on religious and national heritage grounds and a few special economic cases.	Reduce commercial benefit tax across the board by enough to leave total effective trade taxes unchanged when imports are valued at the Tehran Stock Exchange rate for tax purposes. Reduce maximum trade tax rate to	<p>Reform free-trade and special economic zones policy incentives by eliminating tourist allowance and realigning exports to mainland with national trade policy reform.</p> <p>Perform cost-benefit analysis of port and electricity plant for Kish and Qeshm.</p>	Continue to move toward standards requirement based on health and safety.	Raise domestic fuel prices to at least 40 percent of world prices.

<i>Date reform completed</i>	<i>Exchange rate</i>	<i>Nontariff barriers</i>	<i>Trade taxes</i>	<i>Duty drawbacks , temporary admissions, and free-trade and special economic zones</i>	<i>Additional export facilitation measures</i>	<i>Fuel subsidies</i>
	implicit subsidies to debt repayment, defense, essential imports, and infrastructure projects on-budget.		100 percent and average rate to 30 percent.	Pursue implementing Automated System of Customs Data.		
March 2003	Reduce subsidies to debt repayment to 50 percent.		Reduce average tariff to 25 percent, with a maximum tariff of 60 percent.			Raise fuel prices to 60 percent of world prices.
March 2004	Reduce subsidies to debt repayment to 25 percent.		Reduce the average tariff to 20 percent, with a maximum tariff of 40 percent.			Raise fuel prices to 80 percent of world prices.
March 2005	Eliminate remaining subsidies to debt repayment. Maintain managed floating exchange rate.		Unify all import duties at 15 percent. Replace commercial benefit tax and customs duty by a single import tariff.			Remove all remaining fuel subsidies.

1. THE NEED FOR REFORM AND THE GOVERNMENT'S REFORM AGENDA

1) Iran's economic performance in the last two decades has been very disappointing. This is highlighted by the fact that per capita GDP was 16 percent lower in 1998 than in 1979. However, the most important single reason for this poor performance was not any domestic economic policy, but the long and costly war with Iraq. Fluctuations in oil prices and the US embargo also adversely affected the economy. Once the war with Iraq had finished, economic performance began to improve slowly; in the decade ending in 1998 per capita GDP growth was positive, although it averaged only 3 percent per year. Although less important than the war with Iraq, Iran's domestic economic policies have not been conducive to rapid economic growth. Economic performance has been and still is hampered by administered prices; large, poorly targeted subsidies; multiple exchange rates (which remain important, despite recent progress in reducing disparities among them); trade restrictions; and state domination of economic activity. All banks in Iran are state owned, and most large firms are owned by the state or by the quasi-public religious foundations (*bonyads*).

2) The government tried to liberalize the economy during the First Five-Year Development Plan (1990/91–1994/95), but its plans collapsed under the pressures of a fall in oil prices, the U.S. embargo on trade and investment, and a tight debt repayment schedule. Instead of adopting a policy of fiscal and monetary restraint, the government imposed nontariff barriers on imports, tightened exchange controls, and expanded domestic credit. The result was stagnation, inflation, and a debt crisis.

1.1 The Case for Lowering Barriers to Trade: Iran's High Barriers Reduce Growth

3) Iran's nontariff barriers are much higher and more pervasive than those of most other developing countries. One study of 43 developing countries for which data were available for the period 1995–98 found that restrictive licensing conditions applied to just 10 percent of imports and prohibitions applied to another 2 percent (Michalopoulos 1999).² In contrast, even after the October 2000 replacement of many nontariff barriers by their tariff equivalents, restrictive licensing conditions still applied to 45 percent of six-digit harmonized system codes in Iran. Of the 43 countries in Michalopoulos's data set, only India (at 94 percent) had more pervasive import licensing.

4) The unweighted economywide average of the tariff equivalents of Iran's existing tariff and nontariff barriers is about 30 percent, according to the estimates we present in the next section. Between 1996 and 1998 only 7 of 150 developing and industrial countries for which estimates of average tariffs were available for at least one of the years 1996–98 had average tariffs that exceeded 30 percent (table 1.1). Of course, a much larger number of countries may have had combined tariffs and nontariff barriers that exceeded 30 percent. Nevertheless, since nontariff barriers have fallen greatly in many developing countries in the past decade and average tariffs in most countries have fallen further since 1996–98, these data suggest that Iran has one of the highest rates of protection in the world.³

5) Historical experience conclusively demonstrates the massive economic costs of all-encompassing government intervention in economic affairs. The period since World War II provides several examples

² Nontariff barrier coverage in Michalopoulos's study is measured as the proportion of two-digit harmonized system codes to which nontariff barriers apply.

³ Michalopoulos (1999) argues that following the 1994 Uruguay Round Agreements, the use of nonautomatic licensing, quotas, tariff quotas, voluntary export restraints and price control measures such as variable charges, minimum prices, and voluntary export price restraints is at its lowest level in more than 50 years.

of pairs of countries that began with similar living standards, factor endowments, institutions, and cultures and which, as a result of historical accidents over which they had no control, chose radically different economic strategies (Hungary and Austria, the German Democratic Republic and the Federal Republic of Germany, the Republic of Korea and the Democratic People's Republic of Korea). These comparisons come very close to meeting the conditions for controlled experiments in the natural sciences and remove all reasonable doubt over the fact that countries with relatively free market economies outperform those in which the state exercises rigid control over the economy.

Table 1.1 Average Unweighted Tariff Rates for Countries with Highest Tariffs and Selected Other Countries, 1996–98 (percent)

Country	1990	1996	1997	1998	Average 1996–98
<i>Countries with average tariffs of more than 30 percent</i>					
Pakistan	64.8	41.7	--	--	41.7
Morocco	--	--	36.7	--	36.7
Cambodia	--	35.0	--	--	35.0
India	81.8	38.7	35.0	30.0	34.6
Bahamas	--	32.0	--	--	32.0
Burkina Faso	--	32.2	32.2	31.1	31.8
Egypt	--	--	35.5	26.8	31.2
<i>Selected other countries</i>					
Algeria	--	--	--	24.2	24.2
Argentina	20.5	11.2	11.3	13.5	12.0
Brazil	32.2	--	11.8	14.6	13.2
Chile	15.0	--	11.0	11.0	11.0
China	40.3	23.6	17.6	17.5	19.6
Indonesia	20.6	13.2	--	9.5	11.4
Malaysia	--	8.7	9.1	--	8.9
Mexico	11.1	12.6	12.6	13.3	12.8
Nigeria	35.7	--	24.4	23.4	23.9
Philippines	27.8	14.3	13.4	10.7	12.8
Saudi Arabia	--	13.0	--	--	13.0
South Africa	11.0	8.8	8.7	5.6	7.7
Thailand	39.8	--	--	20.1	20.1
Tunisia	27.4	--	--	29.9	29.9
Turkey	--	--	13.5	12.7	13.1
Average developing country (<i>n</i> = 127)	32.9	18.6	17.0	17.5	13.8
Average industrial country (<i>n</i> = 23)	7.9	5.3	5.0	4.4	4.9

-- Not available.

Note: All tariff rates are based on unweighted averages for all goods in ad valorem, or applied, rates, or most favored nation rates, whichever data were available for a longer period. The full data set (available at http://www1.worldbank.org/wbiep/trade/TR_Data.html) contains 150 countries.

Source: WTO, IDB CD ROM database and Trade Policy Review – Country Report, Various issues, 1990-2000; UNCTAD, Handbook of Trade Control Measures of Developing Countries – Supplement, 1987 and Directory of Import Regimes, 1994; World Bank, Trade Policy Reform in Developing Countries since 1985, WB Discussion Paper #267, 1994, The Uruguay Round: Statistics on Tariffs Concessions Given and Received, 1996 and World Development Indicators, 1998-99; OECD, Indicators of Tariff and Nontariff Trade Barriers, 1996; IDB, Statistics and Quantitative Analysis data, 1998.

6) Many econometric studies of developing countries have also found a significant relationship between openness and growth.⁴ Whether trade openness is essential for rapid growth or is simply

⁴ See in particular Edwards (1992, 1993, 1998); Dollar (1992); World Bank (1993); Harrison (1996); and Sachs and Warner (1995).

correlated with other variables that are harder to measure, such as the scope for private enterprise, cannot be determined from these studies. The question of which elements in a reform package are most important is of only secondary importance to a country contemplating a broad program of reform, however. Moreover, common sense suggests that each piece of a reform package enhances all other pieces: removing tariffs is unlikely to help growth much if all trade is controlled by the state, and opportunities for profitable international trade cannot be readily exploited if investment is controlled by restrictive licensing arrangements. Similarly, no modern market-based economy can function efficiently without an efficient financial sector and a secure legal framework. The most important question facing a country contemplating a package of across-the-board reforms is thus whether adopting the entire package will promote growth. On this question there are no reasonable grounds for skepticism: relatively free and open market-based economies outperform rigidly controlled and closed ones.

7) The evidence that extensive government interference in the economy reduces growth seems unequivocal. In addition, as the simulation results of our computable general equilibrium model show, reducing government interference could both help the poor and strengthen the government's budgetary position.

1.2 Earlier Efforts at Reform in Iran

8) In Iran's first attempt at reform—the First Five-Year Development Plan (1990/91–94/95), initiated after the end of the war with Iraq—the government embarked on a large infrastructure reconstruction program that included total investment of 30–35 percent of GDP. During this period the government also pursued an aggressive agenda of economic policy reform, decontrolling domestic prices, removing many trade restrictions, liberalizing the foreign exchange system, and initiating the privatization of public enterprises. Together with the reconstruction program and an expansionary fiscal policy in support of an ambitious social program, these policies resulted in an impressive 7 percent average annual growth rate during the Plan period. Social indicators also improved significantly, placing Iran in the ranks of the best performers in its income category and region.

9) The government's over expansionary fiscal stance resulted in large macroeconomic imbalances, however. Given Iran's limited access to longer-term external financing, the large current account deficit was financed by a surge in short-term debt and excessive drawing on foreign exchange reserves. In 1994, when the bunching of short-term debt coincided with lower than expected oil prices, an external payments crisis emerged. Large payment arrears led to a series of policy reversals, including the reinstatement of multiple exchange rates and the halting of the privatization process as the unemployment and social situation worsened.

10) During the Second Five-Year Development Plan (1995/96–1999/2000), the economy's performance deteriorated and the average rate of growth was less than 2 percent per year—far below the projected 5.1 percent projected in the Plan. In addition to structural impediments, growth was constrained by the excessive compression of imports (reaching up to 50 percent in some years) needed to make room for external debt repayments as Iran's access to external financing remained restricted. Management of the unstable macroeconomic situation left little leeway to address structural reform issues. Macroeconomic instability was further heightened when the United States announced the extension and intensification of economic and financial international sanctions (the 1996 D'Amato Act). Passage of this act dampened expectations and triggered a run on foreign exchange and consumption goods markets that induced a sharp depreciation (of about 50 percent) of the free exchange rate to 6,200 rials per U.S. dollar. In April/May 1996 consumer prices rose 14 percent, bringing annual inflation to 59 percent. In yet

another attempt to control the foreign exchange crisis, the authorities raised to 100 percent the export repatriation and surrender requirement and ordered all foreign exchange transactions to go through the banking system, effectively ending the nonbank foreign exchange market. The bunching of repayments of rescheduled debt was exacerbated again by the sharp drop in oil prices in 1998/99, inducing a second external payment crisis, another bilateral rescheduling, and a fiscal deficit of 6.7 percent of GDP, despite drastic cuts in capital expenditures and delays in implementing public investment projects.

1.3 The Government's Current Reform Agenda

11) Prospects for the reforms Iran so badly needs have recently improved. Since his election in 1997, President Khatami has demonstrated his intention to reform the economy by opening it up to the rest of the world in order to achieve a higher level of investment and growth while continuing to build on the excellent social progress achieved to date. Plans for reform have been greatly assisted by the recovery of oil prices, which helped stabilize the macroeconomic situation. Iran's budget registered a surplus of 1 percent GDP in 1999/2000—up from a deficit of 6.7 percent the previous year—and a similar surplus is expected in 2000/01. Balance of payments difficulties have also eased significantly since 1998/99, and the current account registered a surplus of 5.1 percent of GDP in 1999/2000. Perhaps the most positive development in Iran's macroeconomic situation is the fact that it has cleared its arrears on external debts and built up its official foreign exchange reserves. As a result, the annual cost of servicing external debts has fallen, and will continue to fall over the next few years.

12) Since 1998 Iran has made considerable progress in reforming many areas of economic policy. It has reduced the disparities among the various exchange rates produced by exchange control regulations, granted exporters much easier access to inputs at world prices, removed most barriers to exports, and replaced a large number of nontariff barriers to imports by tariffs. The government has also applied for membership in the World Trade Organization (WTO) and, with passage of the law for the Third Five-Year Development Plan on April 5, 2000, committed itself to the use of the market mechanism as a means of regulating foreign trade. Article 115 of the Third Five-Year Development Plan indicates the government's plans to eliminate nontariff barriers to foreign trade and substitute tariff barriers at their equivalent level.

13) The process of tariffication of nontariff barriers—an essential step for WTO membership—is proceeding rapidly. Of the 5,313 tariff lines in the Iranian code, nontariff barriers have been removed on almost 1,900 tariff lines, and the decision has been made to remove nontariff barriers on another 895 tariff lines. An intergovernmental committee led by the Ministry of Commerce determines the timing of converting tariff barriers on particular products and recommends the equivalent tariff level.

14) The government also recognizes the need to introduce foreign competition in the Iranian marketplace. Thus following tariffication, it is expected that tariff levels will be lowered. This will also be an important step in the process of gaining admission to the WTO, which has required low to moderate tariff barriers in acceding countries in recent years.

15) The Third Five-Year Development Plan also commits the government to liberalizing financial controls, removing most remaining restrictions on exports, and replacing the very inefficient system of piecemeal overlapping sales taxes with a value-added tax. Several economics ministers hope to move beyond the reforms outlined in the Plan to reduce fuel subsidies, privatize some state-owned enterprises, unify the exchange rates completely, and rapidly complete the process of replacing nontariff barriers by tariffs.

2. IRAN'S IMPORT REGIME

16) The main restrictions on imports are licensing requirements and exchange controls. There are two main taxes on imports: customs duties and the so-called commercial benefit tax, which acts just like a customs duty, but has grown in importance because it can be changed by administrative decree. The rates of both these taxes are low. In addition, domestic sales taxes and income tax have minor implications for trade because they are applied at different rates to domestic activities and international trade. This section quantifies and analyzes these policies and suggests how they might be reformed.

2.1 Import Licensing Regulations

17) Iran's system of import licensing is governed by three overlapping classifications of goods. The first classification is set out in the import and export regulations of the ministry of commerce, which lists the ministries whose permission is needed to obtain a license to import the goods corresponding to each of the 5,113 six-digit harmonized system codes used in Iran. The second classification is the list of goods that can be imported with foreign exchange earned from non-oil exports (henceforth the "positive list"), which contains 77 broad categories of goods (table 2.1). The third classification, defined in Sub-Article 29 of the Budget Law for 2000/01, is the subset of the positive list that is exempt from the requirement that imports of goods on the positive list must be paid for with foreign exchange earned from non-oil exports.

Table 2.1. The Positive List

- | |
|---|
| <ol style="list-style-type: none">1. Raw materials, parts, and spare parts for industrial mining sectors2. Equipment and machinery for industrial and mining sectors3. Agricultural equipment and machinery and spare parts4. Raw materials, equipment, and spare parts for irrigation systems5. Various kinds of chemical fertilizers6. Hybrid seeds of vegetables, grass, micro-elements, and peat moss7. Yarn8. Packaging equipment and harvest machinery for tea and olives9. Packaging paper for compounds and potassium carbonate powder10. Stretch films11. Equipment for packaging and packaging of agricultural products12. Meat13. Butter14. Cheese starter (whey)15. Fish meal16. Eggs, larvae, hatchlings, and other requirements for aquatic species17. Fishing equipment, including buoys and other navigation equipment18. Cold storage equipment and facilities for fishing, slaughterhouses, and poultry19. Milk and cheese packaging equipment20. Fertilized eggs and chicks for all types of poultry and ostriches21. Frozen semen and cattle embryos and cattle and containers for transporting nitrogen22. Wool and yarn for carpets and materials for washing, preparing, and packaging carpets23. Burlap and jute yarn and cloth24. Tires (for light, semi-light, and heavy vehicles) |
|---|

Table 2.1 (continuation)

25. Black cloth for women's veils and <i>chadors</i>
26. Iron and steel
27. Medical, hospital, and laboratory equipment and machinery spare parts
28. Paper and cardboard
29. Tea
30. Poultry meat and feeding stuffs for poultry
31. Electric instruments and hand tools
32. Spare parts for all types of automobiles and roadmaking equipment
33. Industrial and marketing services
34. All types of seeds, cuttings, saplings, bulbs, and plants
35. Raw materials, spare parts, and other requirements of the agricultural sector
36. Equipment and supplies for office machines
37. Gas-operated coolers
38. Spectacle lenses and frames (excluding sunglasses and fashion wear)
39. Spare parts and household appliances
40. Photographic film
41. Powdered milk for infants
42. Models designed for educational purposes
43. Paints, dyes, and coloring for industrial use
44. Pumps and fire extinguishers
45. Stationery and instruments for mechanical drawing
46. Glass for watches and clocks
47. Locks and padlocks
48. Grains (peas, beans, lentils etc.)
49. Office machinery
50. Medicinal soaps
51. Life vests, life belts, and safety helmets
52. Facsimile machines and teleprinters
53. Cellular phones
54. Cinematographic equipment
55. Sports equipment and parts and accessories thereof
56. Desalinators
57. Flasks
58. Tamarind
59. Grass and hay mowers
60. Gloves (surgical, industrial, protective, sports, and other)
61. Cigarettes
62. Wristwatches
63. Hand-operated sewing machines
64. Photographic cameras
65. Automobile accessories
66. Coffee and cocoa
67. Sewing and knitting needles, scissors, and shears
68. Electric filament or discharge lamps
69. Various types of lamps and light fittings
70. Nail files and hair clippers

Table 2.1 (continuation)

71. Closed circuit TV cameras
72. Chillers
73. Pumps used at filling stations
74. Buckles
75. Adhesive tape
76. Anti-explosive lights
77. Thermostats

Source: Ministry of Commerce.

18) In addition to licensing, imports are also subject to quarantine controls. These controls do not appear to be misused to provide protection from foreign competition. Iran also imposes mandatory quality standards on imports, which are sometimes used to protect domestic producers.

19) Some goods on the positive list do not correspond exactly with the classification of items in the import and export regulations, and the existence of overlapping classifications complicates import licensing arrangements. Nevertheless, goods that are treated liberally under one classification are usually treated liberally under the other. It is thus possible to summarize the licensing system in a way that is approximately correct. At least when the world price of oil is high enough to provide the government with buoyant foreign exchange receipts, licenses to import goods on the positive list can usually be obtained, often with only minimal registration formalities. In contrast, licenses to import goods that are not on the positive list are very difficult to obtain. Other than by smuggling, the most practical way of bringing these goods into Iran is to import them into the free-trade zones (within which importing is possible without a license) and then use the procedures by which limited quantities of goods can be legally imported without licenses from these zones into the customs territory of Iran (see section 4).

20) In Iran, as in some other developing countries, free-trade zones provide two loopholes in the import licensing procedures. First, as explained in more detail in section 4, firms in the zones can export some of their output to the mainland without obtaining import licenses. Second, the import regulations allow small but often commercially viable quantities of any goods (other than the very small number subject to outright bans) to be imported by travelers from the zones into the customs territory of Iran. The mission did not obtain detailed information on these procedures from the officials who actually administer them. We were informed, however, that even goods loaded onto trucks can sometimes be imported from the zones, provided that they are accompanied by groups of workers or other passengers—each of whom is entitled to import up to \$80 of goods a year—on whose behalf they are supposedly being imported. Passengers and workers often import goods for their own use, and they are also regularly hired to import the kinds of appliances that are light enough to be carried by an individual, checked in as passenger baggage at a port or airport, or transported in the back of an automobile.

21) The overlapping import licensing lists interact in complicated ways. Imports of some products that correspond to some of the harmonized system codes listed in the import and export regulations, such as pork and alcoholic beverages, are permanently banned (given a classification of “0”). Others products can be imported as long as the importer satisfies the registration formalities of the Ministry of Commerce and pays the appropriate import taxes and charges. These products are designated by the classification “1.”

22) Goods are classified with ratings from 0 to 9, with many goods having multiple classifications. The most common of these designations is a 1, 2, which means that to obtain a license importers must not

only satisfy the registration formalities of the Ministry of Commerce (classification 1) but obtain the approval of the Ministry of Industry (classification 2). Other classifications indicate that approval must be obtained from other line ministries. In terms of import licensing requirements, the most important of these ministries are the Ministries of Industry, Mines, and Agriculture.

23) None of the many officials with whom the mission met was able to give an example of a good not on the positive list that has a classification of 1 (rather than a multiple classification) in the import and export regulations; if there are examples of such goods, they are extremely rare and of negligible importance. Although all, or almost all, goods classified as 1 are on the positive list, the converse is not true: many goods on the positive list have restrictive classifications, such as 1,2, meaning that the permission of the relevant line ministry is required to obtain a license to import these items. The intention of the officials in charge of implementing the process of converting nontariff barriers to tariffs is that, as imports are liberalized by changing classifications such as 1, 2 to 1, the goods will also be added to the positive list, if they are not already on it.

24) One of the main criteria used by the Ministry of Industry (and the other line ministries) in deciding whether to grant an import license is whether or not the good is produced locally. This is not a simple test to apply, since price and availability, as measured by the supplier's estimate of the time to delivery, are also relevant. So, too, is the question of whether similar locally produced goods have specifications that match, or roughly match, those of imported goods. In practice, the line ministries are strongly influenced by whether or not the good to be imported is on the positive list. Since the Ministry of Industry sees its role as promoting the domestic industrial sector and most of the goods now on the positive list are types of capital equipment, raw materials, or other intermediate inputs used in domestic production, the Ministry of Industry is much more likely to grant licenses to import a good if it appears on the positive list. Even in the case of applications for licenses to import consumption goods on the positive list that require the approval of line ministries—goods such as tea, cigarettes, meat, powdered milk for babies, optical glasses, and film—the fact that the good is on the positive list influences the line ministry in favor of granting the license. In contrast, where the special approval of a line ministry is required, success in obtaining licenses to import items on the positive list is not ensured, and the process is often slow even when it is eventually successful.

25) Since the categories of the positive list are broad and somewhat ambiguous, there is scope for importers to argue that an item they wish to import is indeed covered by one of the positive list categories. A taxi operator, for example, may argue that a fully assembled imported passenger vehicle is an intermediate input into his business. To deal with such problems, the Customs Department is in the process of adopting 8-digit, or in some cases 10-digit, harmonized system codes.

26) Importers who wish to import goods that are not on the positive list and who do not plan to make use of the loophole provided by the free-trade and special economic zones may apply to the relevant line ministries for licenses, but such applications are not likely to be granted. A special committee, whose members represent the main economic ministries and the Central Bank of Iran, has the power to grant import licenses in special circumstances, but this mechanism does not provide the basis for regular imports in commercially viable quantities.

27) Imports of goods on the positive list may be constrained by the source of the importer's foreign exchange and the payment method by which the imports are to be financed. Until the abolition of the export exchange rate in March 2000, what was traded on the Tehran Stock Exchange market as foreign exchange was really a composite bundle comprising both foreign exchange and import certificates: by surrendering export proceeds to the Central Bank, exporters obtained the import certificates needed by all applicants for licenses to import goods on the positive list. These certificates could be obtained only by

exporting or by buying them, together with some foreign exchange, on the Tehran Stock Exchange market from an exporting firm that did not wish to use all its export proceeds to pay for imports on its own account. In addition, holders of certificates to import goods on the positive list had to finance their imports by letter of credits issued by Iranian commercial banks. By ensuring that imports of most of the goods that could be imported were financed in this way, the Central Bank was able to limit demands on its foreign exchange reserves and retain control over importing firms' foreign exchange liabilities, most of which were guaranteed by the government.

28) Both these restrictions have been eased. Bank drafts can now sometimes be used in place of letter of credits, and some imports can be made without obtaining the foreign exchange needed to pay for them by exporting or by purchasing it from exporters on the Tehran Stock Exchange market. Under Article 29 of the Budget Law for 2000/01, importers using "external source" foreign exchange (as described in section 3.2) can import a subset of the items on the positive list, subject to the approval of the Ministry of Industry. The most important items in this subset are machinery; completely knocked down kits for assembling manufactured products, such as automobiles; and spare parts for such products. The most important items on the positive list that are excluded from this subset are raw materials and consumption goods.

2.2 Quantifying Tariff and Nontariff Barriers to Imports

29) Iran's trade barriers take three main forms: explicit taxes on imports, in the form of customs duties and the commercial benefit tax; licensing; and the dual exchange rate system. The trade taxes and subsidies to which the dual exchange rate system is equivalent can be clarified by noting that exchange rate unification with full compensation would be completely neutral. If all transactions now conducted at the official rate were moved to the open market rate and full compensation were provided, the domestic prices and the equilibrium level of the open market rate would not change; the levels of consumption, production, and imports and exports of every activity would therefore also remain unchanged. The import and export taxes that would result from unification with full compensation can therefore be used to provide a transparent description of the status quo. The first subsection below presents estimates of the size of Iran's explicit taxes on trade. Transparency can be taken a step farther by assuming that all nontariff barriers are replaced by their tariff equivalents. The second subsection below presents estimates of the importance of these nontariff barriers. The third subsection uses the analytical device of unification with full compensation to describe the taxes on trade that are implicit in Iran's dual exchange rate system.

The Magnitude of Iran's Explicit Taxes on Imports

30) Iran does not have an import tax that corresponds directly to the word *tariff*. Instead, it imposes two main taxes on imports: customs duties and the commercial benefit tax (import registration fees are also charged, but they are of minor importance). While the schedule of customs duties can be amended only by an act of Parliament, the rates of the commercial benefit tax can be changed by the government. Both taxes are payable in rials as percentages of the c.i.f. value of imports in rials, converted at the official exchange rate, which is now only about one-fifth the free market rate. Since Iran's customs duties were always relatively low, even relative to the official rate, and it was difficult for the government to change them, the gross overvaluation of the rial at the official rate resulted in customs duties becoming largely irrelevant. A duty of 20 percent at the official rate is now equivalent to a duty of only about 4 percent at the free-market rate; in the early and mid-1990s the rate would sometimes have been equivalent to a duty of only about 1 percent. In what follows, the sum of the commercial benefit tax and the customs duty is referred to as the total tax, or sometimes, for brevity, the tariff. Unless otherwise stated, all tax rates are expressed here based on the Tehran Stock Exchange rate, not the official rate.

31) The commercial benefit tax has become the most important tax on imports, in terms of both size and flexibility. As the government begins the process of replacing nontariff barriers by their tariff equivalents, only the commercial benefit tax is being raised to compensate producers for the loss of nontariff protection. Tariffication of nontariff barriers will therefore further increase the relative importance of the commercial benefit tax.

32) Total collected taxes on imports are very low in Iran (table 2.2), a reflection of the fact that the main instruments of commercial policy have been nontariff barriers and the system of multiple exchange rates rather than explicit import taxes. The average collected rate of tax on imports is only 2.7 percent, and the only sector on the positive list for which the collected rate exceeds 6 percent is garments, for which the average collected rate is 14.2 percent.

Table 2.2. Average Collected Import Tax Rates, 1999–2000

<i>Sector</i>	<i>Total tax, collected rate (percent)</i>	<i>Commercial benefit tax, collected rate (percent)</i>	<i>Tariff, collected rate (percent)</i>	<i>All collected taxes on imports (billions of rials)</i>	<i>Imports (millions of US\$)</i>
Agriculture	0.8	0.7	0.1	113	1,626
Petroleum products	0.1	0.1	0.0	5	510
Food, beverages, and tobacco	0.5	0.4	0.1	20	465
Mining	1.6	1.1	0.5	18	136
Chemicals	2.0	1.7	0.3	393	2,356
Furs, skins, and leather	4.1	3.6	0.6	0	1
Pulp and paper	3.0	2.4	0.7	91	367
Thread and yarn	3.8	2.8	1.1	123	393
Cloth	2.6	2.3	0.4	19	90
Garments	14.2	11.1	3.1	1	1
Nonmetal products	5.7	4.9	0.8	84	183
Iron and steel	3.5	3.1	0.4	257	901
Metal products	5.9	4.9	1.0	264	549
Machinery and nonelectrical products	2.7	2.1	0.6	656	2,990
Electrical appliances	5.5	4.2	1.2	408	915
Electrical machinery	0.5	0.4	0.1	4	96
Vehicles	3.4	2.1	1.4	199	712
Boats and aircraft	0.8	0.6	0.2	4	70
Other manufactures	3.4	2.9	0.5	89	322
All imports	2.7	2.1	0.5	2,751	12,683
Unweighted average ^a	6.1	5.1	1.0	n.a.	n.a.

n.a. Not applicable.

Note: US\$ = 8,175 rials.

a. Unweighted average rates are the arithmetic means of the collected tax ratios for the 3,063 harmonized system code items for which there were imports in 1999/2000.

Source: Data collected by Customs Department and supplied to the mission by the Central Bank of Iran.

33) Exemptions from import duties are provided for most items of capital equipment, for imports of essential items at the official rate, for imports for public investment projects, and for exporters under the temporary admission and duty drawback schemes (see section 4). Estimating the quantitative importance of exemptions would require data on the legal rates of import taxes on the same basis as the data in Table 2.2 on collected rates, that is, data on the legal rates for each item, weighted by total imports of each item. Unfortunately, such data are not readily available. Some approximations can be constructed, however.

34) The Ministry of Industry has estimated that the simple unweighted average of the sum of the legal rates of the customs duty and the commercial benefit tax for the roughly 3,000 items for which it has licensing responsibility is about 35 percent of the value of imports at the official rate (US\$ = 1,750 rials) and about 7.5 percent of the value of imports calculated at the Tehran Stock Exchange rate (US\$ = 8,175 rials).

35) The remaining 2,000 items in the six-digit harmonized system code schedule are subject to customs duty and commercial benefit tax at rates that are lower on average than those under the responsibility of the Ministry of Industry. The mission obtained a hard-copy Farsi version of the customs duties and commercial benefit tax rates for each of the 5,113 items in the six-digit harmonized system code. It did not obtain an electronic version of these schedules and did not estimate the economywide average of the total legal rate of import taxes. If we assume that the legal import tax rates on items not under the control of the Ministry of Industry are one-third of the rates applied to items that are under its control, the unweighted average for all 5,113 items identified in Iran's six-digit harmonized system code would be about 5.5 percent at the Tehran Stock Exchange exchange rate.⁵

36) This estimate of the average legal rate is about twice the average collected rate of 2.7 percent, as reported in table 2.2. However, it would not be legitimate to deduce from the ratio of the average collected rate to the average legal rate that roughly half of all imports are exempted from import taxes, because the two averages are not strictly comparable: the 5.5 percent average legal rate is a very rough estimate of unweighted legal rates for all 5,113 harmonized system items, whereas the 2.7 percent average collected rate is, by definition, an import-weighted average of the collected rates for the 3,063 harmonized system items actually imported in 1999/2000.

37) Import-weighted tariff averages are generally lower than simple unweighted averages, because relatively high tariffs generally result in relatively low imports. In the last row of table 2.2, the unweighted average of the collected rates for the 3,063 imported items was 6.1 percent. This is remarkable because not only is it much higher than the corresponding imported-weighted average of 2.7 percent, it even exceeds the unweighted average of the legal rates for all 5,113 items. If, as one might have expected, the 2,000 harmonized system codes for which no imports were recorded are ones for which import taxes are relatively high, the paradox of the average collected rate being higher than the average legal rate would be all the greater. It may be, however, that the government has never bothered to raise the commercial benefit tax rate for items Iran does not import and that the legal rates of these duties are therefore relatively low. Whatever the explanation, the mere existence of this paradox suggests that exemptions are not as widespread, nor as important, as is sometimes suggested.

The Magnitude of Iran's Nontariff Barriers to Imports

38) The mission managed to obtain quantitative estimates of the size of the average nontariff barriers to trade for eight broad sectors, covering 3,000 harmonized system codes, for which import licenses are, or were, controlled by the Ministry of Industry. Although about 2,000 more harmonized system codes were never subject to the Ministry of Industry's control, nontariff barriers on these items are widely reported to be much less important than those for which quantitative estimates were obtained.

⁵ These assumptions imply an average legal rate (relative to the border price of imports at the official exchange rate) of 25.7 percent ($0.6 \times 35 + 0.4 \times 35/3$). Multiplying this rate by the ratio of the official to the Tehran Stock exchange rate gives an average rate of 5.5 percent relative to the border value of imports at the Tehran Stock Exchange rate.

39) In March 2000 import regulations on 781 of the roughly 3,000 items under the control of the Ministry of Industry at the start of the year had been liberalized, in the sense that approval of the Ministry is no longer required. More precisely, the classification of these items in the import and export regulations has been changed from 1, 2 to 1. Most of the 781 items that were deregulated were raw materials and completely knocked down kits for local assembly. About 200 other items have been conditionally approved for liberalization in 2001/02 (table 2.3). These items are included in table 2.3 in the group of items to be liberalized in 2001/02, although some of them may be liberalized in 2000/01.

Table 2.3. Estimated Unweighted Average Rates of the Commercial Benefit Tax Needed to Compensate Producers for Tariffication of Items Subject to Ministry of Industry Licensing Requirements

Item	Items liberalized in 2000/01		Items to be liberalized in 2001/02		Items liberalized in 2000/01 and 2001/02	
	Number of items	New commercial benefit tax (percent)	Number of items	New commercial benefit tax (percent)	Number of items	New commercial benefit tax (percent)
Food and pharmaceuticals	106	24.5	21	30	127	25.4
Nonmetal products	88	19.0	29	28.7	117	21.4
Chemicals	500	8.5	60	14	560	9.3
Textiles and clothing	0	–	913	74.2	913	74.2
Metals and appliances	50	3.5	298	21.4	348	18.8
Electrical equipment	11	1.1	280	24.9	291	24.0
Vehicles	1	6.4	164	34.2	165	36.0
Machinery	25	11.3	413	15.9	438	15.2
Total	781	11.3	2,178	44.1	2959	35.4

Source: Ministry of Industry.

40) The unweighted average rate of the commercial benefit tax needed to compensate producers for the removal of the protection from imports provided by the Ministry of Industry's licensing requirements was about 35 percent at the Tehran Stock Exchange exchange rate, according to the Ministry of Industry (table 2.3). This estimate is based on the assumption that the existing rate of customs duty, which averages 2 percent at the Tehran Stock Exchange rate for items under the Ministry of Industry's control, would remain in place. The estimated tariff equivalent of the tariff and nontariff barriers that were in place in March 2000 for the 3,000 items then under the Ministry of Industry's control is therefore 37 percent. Even if the rates in tables 2.3 and 2.4 underestimate the size of existing nontariff barriers, they nevertheless measure the rates that the Ministry of Industry has recommended using to replace nontariff barriers after 2002.

41) The estimates provided by the Ministry of Industry represent the percentage rates of the commercial benefit tax estimated to be needed to compensate producers for the removal of nontariff barriers if imports are valued for tax purposes at the Tehran Stock Exchange rate, which was about US\$ = 8,175 rials in November 2000. Currently, imports are valued for tax purposes at the official rate of US\$ = 8,175 rials. If tariffication occurs while imports are still valued for tax purposes at the official rate, the rates of commercial benefit tax would therefore need to be about five times greater than those in the table in order to compensate producers for the loss of nontariff protection. In addition to the commercial benefit tax, imports are also subject to low customs duties, at an average rate of 2 percent relative to the Tehran Stock Exchange rate. The Ministry of Industry assumes that these duties will remain unchanged. On average, the total tariff equivalents at the Tehran Stock Exchange rate of existing tariff and nontariff barriers are therefore 2 percent larger than those shown in table 2.3

42) Since the nontariff barriers on the 2,000 items never controlled by the Ministry of Industry are widely reported to be less stringent than those reported in tables 2.3 and 2.4, the economywide unweighted average tariff equivalent to the sum of the existing tariff and nontariff barriers to imports is less than the 37 percent (relative to the value of imports at the Tehran Stock Exchange rate) for the items under the control of the Ministry of Industry.⁶ Our best guess is that the economywide average is about 30 percent, or perhaps slightly lower. This average understates the distortions created by existing barriers to trade because it neglects the most important effects of the dual exchange rate system. In addition, as table 2.4 reveals, the average rates shown in table 2.3 conceal large differences between the maximum and minimum rates: the maximum proposed commercial benefit tax rate for vehicles (the rate used for passenger cars) is 90 percent and that for textiles and clothing (the rate used for garments) is 100 percent. Both rates are estimates of existing trade barriers in rials, relative to the dollar value of imports converted to rials at the Tehran Stock Exchange exchange rate.

Table 2.4. Estimated Minimum and Maximum Rates of the Commercial Benefit Tax Needed to Compensate Producers for Tariffication of Items Subject to Ministry of Industry Licensing Requirements (percent)

<i>Item</i>	<i>Minimum rate</i>	<i>Maximum rate</i>
Textiles and clothing	1	100
Vehicles	1	90
Electrical equipment	1	75
Food and pharmaceuticals	2	50
Metals and appliances	1	50
Machinery	20	50
Nonmetal products	1	40
Chemicals	1	40

Note: See note to table 2.2.

Source: Ministry of Industry.

Trade Taxes and Subsidies Implicit in the Dual Exchange Rate System

43) The average level of tariffs plus the tariff equivalents of nontariff barriers is often used as an approximate indicator of the magnitude of the inefficiencies introduced by tariffs and licensing. Caution is needed in interpreting the average level of tariff and licensing barriers in an economy such as Iran's, however, because large differences exist in the exchange rates applied to different categories of imports and exports. Before 1997 part (and on some occasions all) of the foreign exchange receipts from non-oil exports had to be converted to rials at a weighted average export rate of 3,000 rials per U.S. dollar rather than at the much higher open-market rate. Although the export rate remained in existence until March 2000, non-oil exporters effectively received the full Tehran Stock Exchange rate after 1997. This reform removed a very substantial implicit tax on exporters.

44) Although the Tehran Stock Exchange rate applies to all non-oil exports, imports of "essential" items, such as fertilizers and basic foods, are imported by the General Trading Company on behalf of the Ministry of Commerce at the official rate of 1,750 rials per dollar and sold at controlled prices to ensure

⁶ In table 5.1 we present our estimates of the tariff equivalent of the nontariff barriers on all traded goods sectors. In some sectors, such as crude oil, pharmaceuticals, essential food items, and petroleum products, imports are subsidized, so the tariff equivalent of the licenses cannot be positive. This lowers the average. We estimate that the weighted average of the tariff equivalent of the nontariff barriers alone is 17 percent (where protection is calculated based on the Tehran Stock Exchange rate).

that consumers obtain the full benefit of the implicit import subsidies. One official informed the mission that unless potential exporters of essential items pay the difference between the Tehran Stock Exchange rate and the official rate, export bans apply not only to the re-export of the physical amounts of the goods that have actually been imported at the official rate but also to domestic production of the corresponding items. The mission was also informed that domestic consumption and imports of these essential items are not rationed: the General Trading Company holds stocks against fluctuations in demand and adjusts imports to maintain stocks at an adequate level. Essential items thus effectively receive an import subsidy of almost 80 percent. As a result, consumption of these items is subsidized at almost 80 percent. The overall consumption subsidy is even higher because on-budget subsidies allow flour mills to buy wheat at even less than the border price converted at the TSE rate. However, government representatives indicated that domestic producers of wheat and other essential commodities generally receive approximately the border price, converted at the TSE rate. In the case of wheat, the government controlled Grains Corporation receives on-budget subsidies to cover the losses that it makes as a result of buying some of the wheat needed to supply Iran's total demand at a controlled farmgate price which now usually approximately equal to the border price at the TSE rate, and selling it to flour mills at less than the border price at the official exchange rate.

2.3 Other Indirect and Direct Taxes

45) Iran's sales taxes and its direct taxes on corporate income and dividends are not neutral with respect to domestic activities and international trade. This section describes the main ways in which these taxes interact with international trade.

Sales Taxes

46) Iran's current system of sales taxes is complicated and raises little revenue. Taxes are applied at different rates to different products, and sales taxes inevitably cascade in the sense that less tax is collected in total if all stages of production occur within a single vertically integrated firm, than if different firms specialize in the various stages of production. The sales tax system also has an anti-trade bias and is difficult to enforce. Recognizing these problems, the government has already drawn up plans to replace the various sales taxes with a single value-added tax. This major reform is especially important because it will help end the government's excessive revenue dependence on oil.

47) Under the current system, a sales tax of 2 percent is levied on almost all imports and domestic production, except food and pharmaceuticals. This tax is known as the education tax, because the revenue goes to the Ministry of Education to finance universal free education. Additional sales taxes are imposed on both imports and domestic production of many other products. Since rebates are provided, at least in principle, if goods are subsequently exported, these taxes are equivalent to consumption taxes imposed at the same rate on imports and domestic production. However, they generally have an anti-trade bias, since the rates at which they are applied to imports usually exceed the rates applied to domestic production. The most important anti-trade biases occur in the case of cigarettes and automobiles. The sales tax treatment of some other products, such as nonalcoholic beverages, used to produce an anti-trade bias, but the sales tax on domestic production has been raised to eliminate this bias.

48) Customs duty and commercial benefit tax on cigarettes are imposed at a rate of 45 rials per cigarette. In addition, imported cigarettes are subject to a sales tax, payable to the Ministry of Finance, of 10 rials per cigarette. The corresponding sales tax on domestically produced cigarettes is 5 rials per filter-tip cigarette and 2.5 rials per nonfilter-tip cigarette. Together these sales taxes amount to about 5 percent

of the price of cigarettes, with a lower percentage charged, on average, for imported cigarettes, the average price of which is more than twice that of domestic cigarettes.

49) Imported cigarettes are also subject to an off-budget levy, from which domestically produced cigarettes are exempt, of 30 rials per cigarette. This levy is payable to the Organization for Protection of Consumers and Producers, which is affiliated with the Ministry of Commerce. The levy is nominally supposed to tax, or subsidize, imports and domestic production of certain items, of which cigarettes and automobiles are the most important, in order to equalize their domestic prices. The effect of this levy is to raise the total import tax (customs duty plus commercial benefit tax) from 26 percent to 43 percent.⁷

50) The rates of sales tax on automobiles vary by type of vehicle. A 10 percent sales tax is levied on domestically produced passenger cars. Imported passenger cars are subject to a tax equal to 70 percent of the c.i.f. value at the official exchange rate (about 15 percent of the c.i.f. value at the Tehran Stock Exchange rate). The sales taxes on vans, minibuses, and motorcycles are much lower than those on passenger cars. Although the imported vehicles pay a higher tax than domestically produced vehicles, the differences are not important, because both tax rates are low.

51) Imports of nonalcoholic beverages used to be subject to much higher rates of sales tax than domestically produced beverages. However, the sales tax on domestic production was recently raised, so that the rates on imports and domestic production are now about equal.

Direct Taxes

52) Income tax is imposed on the domestic and foreign earnings of all legal forms of Iranian companies and partnerships and on the earnings of foreign companies and legal entities in Iran (joint stock companies, limited liability companies, partnerships, and individual traders). Although corporate income is taxed at 10 percent, the revenue from this tax is low because exemptions are extensive.⁸ These exemptions are provided for in Articles 132 and 146 of the Law of Direct Taxation. Manufacturing and mining activities are exempt for periods of four to eight years from the date of commencement of operations, and 20 percent of the profits of these activities are permanently exempt. Firms in the free-trade zones are entirely exempt for the first 15 years of their operations, and half their profits are exempt for another 15 years.

53) In addition to the tax on profits, firms are legally obliged to withhold income tax on dividends paid to shareholders. The amount of tax withheld is calculated on the provisional assumption that the dividends paid are the shareholders' only source of income. Since income tax is progressive and rises to a marginal rate of 54 percent, this means that the marginal rate of dividend withholding tax rises to 54 percent for those with sufficiently large shareholdings. Shareholders are supposed to pay any remaining taxes they owe when their total income from all sources is calculated.

54) The company tax has distorting effects on international trade because all income earned from exports of finished manufactured goods and 50 percent of the income from all other exports of goods is

⁷ These rates are obtained by multiplying the taxes of 45 rials and 30 rials per cigarette by 20 and expressing the resulting taxes as percentages of the tax-exclusive price (5,000 rials – [20 x 75] rials) of a pack of 20 cigarettes. Indirect taxes payable to the Ministry of Finance are ignored, because they are small and because the ad valorem rates for imported and domestic cigarettes are not very different.

⁸ International Monetary Fund, 2000.

exempt.⁹ The exemption for exports applies not only to taxes on company income but also to the withholding tax on dividends paid by firms engaged in exporting

2.4 Policy Recommendations

55) We strongly support the government's policy of replacing nontariff barriers by their tariff equivalents. Doing so would increase the transparency of the system and transform resources currently wasted on lobbying for licenses into government revenue. Assuming that any potential government budget surplus can be returned to households as a lump-sum payment and that the resources wasted in lobbying for licenses are equal to the total value of these licenses, our computable general equilibrium model predicts that this reform would increase aggregate real consumption by 3.4 percent (see section 5).

56) Once restrictive import licensing conditions have been removed for almost all goods other than those banned for noneconomic reasons, there will be no need for any list of goods that may or may not be imported using a particular source of foreign exchange; the liberalized version of the import and export regulations will suffice. These regulations would continue to identify the small number of goods whose importation is banned for noneconomic reasons; regulations for most other goods would indicate that importers must complete the registration formalities of the Ministry of Commerce. Even this requirement might eventually be removed in most cases, as it already has been in some cases. If the requirement is retained, reducing the time required to process these requests to a maximum of seven days would help facilitate imports. Moreover, unless licenses are processed quickly, the World Trade Organization will classify the licensing requirement as a nontariff barrier. Moreover, we strongly recommend removal of non-tariff barriers in technical regulations or sanitary and phytosanitary standards which discriminate between domestic products and imports. Adopting best practice regulatory procedures in these cases and alignment with WTO principles in the Technical Barriers to Trade Agreement and the Agreement on Sanitary and Phytosanitary Standards is urged. Because of the large inefficiencies caused by high trade barriers, there is a strong case for reducing import taxes, rather than merely replacing nontariff barriers by their import tax equivalents. According to our computable general equilibrium model, the aggregate real consumption gain of 3.4 percent from tariffing existing barriers could rise to 4.1 percent if existing tariff and nontariff barriers were replaced by a uniform tariff of 25 percent. Setting the uniform tariff at 15 percent would increase the aggregate real consumption gain to an estimated 5.5.

57) There are now several examples of countries with tariff structures that are uniform or almost uniform. Estonia and Hong Kong have uniform tariffs because they practice free trade. Bolivia, the Kyrgyz Republic and Chile have virtually uniform tariff schedules of 10, 10 and 11 percent, respectively. Singapore has a simple tariff average of 0.5 percent and a standard deviation of less than 3 percent. Azerbaijan has a 15 percent maximum tariff and Bosnia-Herzegovina is reported to be about to move towards a uniform tariff. A number of other countries, including Brunei Darussalam, Ecuador, Honduras and Mexico, have tariff averages of less than 13 percent and standard deviations of less than 6 percent. The experience of these countries demonstrates that setting a low uniform tariff is feasible, and the econometric evidence referred to in footnote 2 indicates that doing so speeds up GDP growth by promoting factor accumulation and technical progress. The estimates of our model, summarized above, imply that the welfare gains at unchanged levels of technology and factor supplies would also be large. For all these reasons, we recommend that the government reduce tariffs to a uniform rate of 15 percent by the end of the Third Five-Year Development Plan.

⁹ Ministry of Commerce (1999), p.93.

58) We also strongly support the government's plans to replace the current system of sales taxes by a trade-neutral value-added tax. We do not support the current policy of granting income tax exemptions to income earned from exporting. Because revenue from corporate income tax is currently only about 2.5 percent of GDP and the revenue from income tax on individuals yields only another 1.5 percent, the distortions from these exemptions are not yet significant.¹⁰ As the private sector and income tax revenues increase in importance, however, it will become important to eliminate exemptions and create a system based on rates and a wide base. At a minimum, it is important to ensure that any exemptions from direct tax for exporters do not conflict with WTO principles.

59) The best way to remove the anti-trade biases at source is by eliminating taxes and other barriers to exports and imports, not by providing special subsidies or exemptions. One of the undesirable consequences of turning export industries into a tax shelter is that it provides an incentive for taxpayers paying high marginal rates to hold an excessive proportion of their wealth in such industries.

¹⁰ International Monetary Fund, 2000.

3. FOREIGN EXCHANGE MARKETS IN IRAN

60) Monetary growth in Iran, particularly during the 1980s, led to the rial becoming increasingly overvalued at the official exchange rate. Rather than devaluing the rial, or allowing it to float, the government set up a system of exchange controls to ration foreign exchange at various administratively set rates and to compel exporters to surrender export proceeds at less than the rate that they could otherwise have obtained. This section describes the reforms to the multiple exchange rate system that occurred in the period 1997–2000 and argues in support of the government’s plans to unify the exchange rates completely.

3.1 The Current System of Multiple Exchange Rates

61) Between July 1997, when a market in dollar certificates of deposit was established at the Tehran Stock Exchange, and March 2000, when the export rate was abolished, four foreign exchange rates existed in Iran:

1. The official floating rate (henceforth “the official rate”). The official rate applies to the portion of oil and gas receipts earmarked to finance servicing of official external debts and imports by government agencies, including specified amounts of essential goods, such as wheat and pharmaceuticals, which are sold at controlled prices. Since October 1995 the official rate has moved within a narrow band around 1,750 rials per U.S. dollar, fluctuating from a low of 1,736 rials in August 1998 to a high of 1,767 rials in April 2000 (IMF 2000).
2. The so-called official export rate, fixed at 3,000 rials per U.S. dollar from May 1995 until its abolition in March 2000. In the mid-1990s the export rate was the effective rate received for non-oil exports. However, as explained below, since 1997 the rate effectively received by exporters has been the full Tehran Stock Exchange rate. Before 1997 the export rate applied to most imports by state-owned enterprises. By 2000 most inputs imported by state-owned enterprises were made at the Tehran Stock Exchange rate, although some capital goods for public infrastructure projects are still imported at the official rate.
3. The official Tehran Stock Exchange rate, which was slightly less than 8,200 rials per U.S. dollar during most of 2000. The Tehran Stock Exchange rate is a managed floating rate set by the Central Bank of Iran. It now applies to all legal non-oil exports and to most other legal imports, except for the special cases listed above, which can still be imported at the official rate.
4. The unofficial negotiated rates, the rates at which banks trade foreign exchange with one another or buy “own source” foreign exchange from their customers. These rates can vary slightly from transaction to transaction depending on the bank, the customer, and the scale of the transaction. The negotiated rate was at a significant premium over the Tehran Stock Exchange rate in late 1998 and early 1999, when foreign exchange was rationed at the Tehran Stock Exchange rate; since mid-1999 it has been close to the Tehran Stock Exchange rate. In June 2000 the price of foreign exchange in this market was generally slightly above the price at the Tehran Stock Exchange; by October 2000, however, the Tehran Stock Exchange price slightly exceeded the negotiated rate. The small differences between the Tehran Stock Exchange and negotiated rates in 2000 probably reflect transactions costs.

62) Foreign exchange can also be traded by authorized agencies. In addition, there is a black market, in which the proceeds of smuggled exports finance capital flight and smuggled imports.

3.2 The Tehran Stock Exchange Market for Foreign Exchange and the “Negotiated” Rate

63) As the rial became increasingly overvalued at the official rate, the problems of allocating foreign exchange became ever more severe, as did the disincentives to exporters created by having to surrender export proceeds at the official rate, and the subsidies to those importers who were supplied with foreign exchange at the official rate. To alleviate these problems, the Central Bank of Iran began to auction some of the foreign exchange that it received from surrendered export proceeds and from the government’s own oil exports at the Tehran Stock Exchange. Most importers were required to buy their foreign exchange at the Stock Exchange, and only a few categories of ‘essential’ imports remained eligible for allocations of foreign exchange from the Central Bank at the much cheaper official rate. In addition, the authorities introduced a special exchange rate for the proceeds of non-oil exports, the ‘export rate’, which was higher (in rials/dollar) than the official rate, but still much lower than the rate at the Stock Exchange. Over time, the authorities gradually shifted the rate paid to non-oil exporters to the Tehran Stock Exchange rate. This subsection describes how the system operated in 2000.

The Tehran Stock Exchange Market and the “Export” Rate

64) Non-oil exporters are required to deposit the foreign exchange proceeds of their exports in an Iranian commercial bank within eight months of bringing the goods to be exported to Iran’s customs. Once the foreign exchange has been deposited in a commercial bank, exporters have two to three months within which to use the foreign exchange to pay for their own imports of goods from the positive list or instruct their bank to sell it on their behalf on the Tehran Stock Exchange market to another importer for the purchase of imports on the positive list.

65) Before March 2000 export receipts had to be surrendered to the Central Bank of Iran at the export rate of 3,000 rials per U.S. dollar. However, exporters also received import certificates that could be traded on the Tehran Stock Exchange market. Each dollar of import certificates entitled the holder both to import a dollar’s worth of goods from the positive list and to buy a dollar of foreign exchange from the Central Bank of Iran at the export rate. If, for example, the price of these certificates, together with the right to buy foreign exchange from the Central Bank of Iran at 3,000 rials per dollar, was 4,000 rials per dollar, then the effective foreign exchange rate received by exporters was 7,000 rials per dollar (4,000 rials per dollar paid at the Tehran Stock Exchange plus 3,000 rials per dollar paid to the Central Bank of Iran). In effect, therefore, even before March 2000, non-oil exporters were receiving the full Tehran Stock Exchange rate, not the export rate of 3,000 rials per dollar. The Tehran Stock Exchange rate was also the total cost of foreign exchange to importers, who had to buy both certificates at the Tehran Stock Exchange and foreign exchange from the Central Bank, at the export rate of 3,000 rials per dollar.

66) Using inflation differentials, the Central Bank sets the trend rate of depreciation of the Tehran Stock Exchange rate, intervening to smooth fluctuations around the trend. It has also made occasional step changes in the level of the Tehran Stock Exchange rate to take account of shifts in supply and demand. In addition to providing most of the foreign exchange supplied at the Tehran Stock Exchange rate, the government can also control demand by tightening or loosening import licensing, since only holders of valid import licenses are allowed to purchase foreign exchange on the Tehran Stock Exchange market.

67) However, since the Central Bank has not always been willing to vary supply to meet demand at the managed rate and import licensing can be used to control demand only with a lag, foreign exchange has sometimes been rationed even to firms that hold valid import licenses and have already purchased foreign exchange certificates on the Tehran Stock Exchange. Such rationing was especially important when oil prices fell in the second half of 1998. The Central Bank raised the Tehran Stock Exchange rate

by about 14 percent in September 1998, but the increase was not enough to reduce demand for foreign exchange to the low level to which supply had fallen. Initially, the Central Bank was reluctant either to run down its reserves or to depreciate the Tehran Stock Exchange rate any farther. It therefore made prospective importers wait their turn in a queue before allowing them to open import letters of credit. As a result, the premium of the parallel rate over the Tehran Stock Exchange rate rose to just over 20 percent for most of the period November 1998 to January 1999, jumping to almost 50 percent in February 1999.

68) To eliminate the queuing for foreign exchange, the Central Bank was forced to increase supply to the Tehran Stock Exchange market by running down its foreign exchange reserves and to raise the Tehran Stock Exchange price of certificates in two steps—by about 20 percent in March 1999 and by another 16 percent in May 1999. Together with the ongoing gradual depreciation of the Tehran Stock Exchange rate, these step changes resulted in an overall depreciation of the Tehran Stock Exchange rate of 42 percent in 1998/99 and another 20 percent in 1999/2000.

69) From June 1999 until March 2000 buoyant oil prices allowed the Central Bank to increase the supply of foreign exchange to the Tehran Stock Exchange market while increasing its price very gradually, from just below to just above 8,000 rials per dollar. As a result, the premium of the parallel market rate over the Tehran Stock Exchange rate gradually fell during this period, from just under 20 percent to almost zero.

The Negotiated Rate

70) In addition—and partially separate from—the Tehran Stock Exchange market is the market in which banks and their customers can trade foreign exchange. Residents can open accounts in which they can deposit foreign exchange without declaring its source, which could be remittances or even smuggled exports or repatriated capital flight. Nonresident travelers must declare the amount of foreign exchange they bring into Iran; having done so, they can open a *nonresident account* for the declared amount. Up to \$1,000 per person per trip can be withdrawn from these accounts for up to three trips a year. In principle, the funds can also be used to import goods not on the positive list, although in practice it is very hard to obtain import licenses for such goods. Until recently, these accounts could not be used to import goods on the positive list—indeed the official Farsi title of the positive list indicates that it is the list of goods that can be imported with foreign exchange obtained by exporting. The Central Bank now appears to have largely given up the attempt to separate the Tehran Stock Exchange market from the market for foreign exchange at the negotiated rate, however, and the two rates have been within about 1 percent of each other since the Central Bank stopped rationing foreign exchange at the Tehran Stock Exchange rate. One reason why the two rates now differ by only negligible amounts is that Article 29 of the Budget Law for 2000/01 permits some goods on the positive list to be imported without using foreign exchange obtained by exporting or purchasing it from exporters on the Tehran Stock Exchange market. If the Tehran Stock Exchange rate and the negotiated rate differ, all importers would try to buy their foreign exchange from the market in which it was cheapest, thereby driving up the price in that market, and depressing the price in the other.

3.3 The Government's Foreign Exchange Budget

71) The foreign exchange proceeds of the government's oil revenues are deposited with the Central Bank of Iran and divided into portions that are used to supply foreign exchange to the official markets listed above. Each portion is converted at the corresponding rate. Government oil revenues are the only source of foreign exchange converted at the official rate. Foreign exchange sold at the official rate is used for four main purposes: defense, public development projects, debt service, and imports of essential goods. Government oil revenues were also the main source of source foreign exchange at the export rate

until its abolition in March 2000. The Central Bank estimates that the portion supplied to the Tehran Stock Exchange market in early 2000/2001 amounted to about 60 percent of the total supply of foreign exchange to that market. The remaining 40 percent comes mainly from non-oil exports and foreign direct investment.

72) Because part of the government's oil revenues are converted at the official and export rates, its on-budget revenue from oil exports greatly understates their value at the Tehran Stock Exchange rate. In 1999/2000 the value at the Tehran Stock Exchange rate was 92.7 trillion rials—almost twice the level of recorded on-budget revenues of 44.5 trillion rials. The difference corresponds to off-budget import subsidies to state-owned enterprises, government agencies, and consumers of oil and price-controlled essential imports. In addition to these off-budget subsidies, there are on-budget subsidies to fuel consumption, which reduce its domestic price to about 10 percent of its border price at the Tehran Stock Exchange rate.

73) The proportion of the government's foreign exchange sold at the official rate fell from 96 percent in 1997/98 to 72 percent in the planned budget for 1999/2000 (table 3.1). The decline is due in part to the large increase in total revenue, which is itself due to the rise in oil prices: when its total foreign exchange revenue rises, the Central Bank increases the supply of foreign exchange to the Tehran Stock Exchange market; when total revenue falls, as it did in the period 1996/97–1998/99, the Central Bank cuts back the supply to the Tehran Stock Exchange market. In part, however, the decrease in the proportion of foreign exchange converted at the official rate also reflects the fact that types of transactions that used to be financed at this rate were moved to the export rate and, since the abolition of the export rate in March 2000, are now made at the Tehran Stock Exchange rate.

Table 3.1 Oil Revenues at Various Exchange Rates, 1995/96–1999/2000

<i>Item</i>	<i>1995/96</i>	<i>1996/97</i>	<i>1997/98</i>	<i>1998/99</i>	<i>1999/00 (estimated)</i>	<i>1999/00 (actual)^a</i>
Total revenue (billions of US\$)	15.0	19.3	15.5	9.9	14.8	—
Revenue, at Tehran Stock Exchange rate (trillions of rials)	0.0	0.0	0.0	0.0	92.7	—
Revenue, at rates used in conversion (trillions of rials),	29.4	39.1	36.4	22.6	44.5	—
<i>Share of dollar revenue converted at various rates (percent)</i>						
US\$ = 1,750 rials	83.4	77.6	96.1	95.5	71.9	72.5
US\$ = 3,000 rials	16.6	22.4	3.9	4.5	10.1	10.0
Tehran Stock Exchange rate	0.0	0.0	0.0	0.0	18.0	17.5

—, *Not available.*

Note: The proportions of revenue converted at the official, export, and Tehran Stock Exchange rates in 1999/2000 are derived from Central Bank of Iran estimates that the amounts converted were 29 percent, 4 percent, and 7 percent, respectively, of the sum of imports and exports.

Source: Central Bank of Iran.

74) State-owned enterprises used to obtain most of their foreign exchange for fixed investment and purchases of raw materials at the official rate. The ability to buy machinery and raw materials at one-fifth the price charged to private firms obviously gave these enterprises a huge competitive advantage over the private sector. Gradually, some of these items were shifted to the export and Tehran Stock Exchange rates. All purchases of raw materials by state-owned enterprises are now made at the Tehran Stock Exchange rate; the official rate for investment by state-owned enterprises applies mainly to infrastructure projects in which there is no direct competition between private and state-owned enterprises.

Nevertheless, the decisions of state-owned enterprises, government agencies, the military, and other entities involved in public development projects are presumably strongly distorted by their ability to buy imported capital items at about one-fifth the market price. The demand for outputs of state-owned enterprises is also distorted by these subsidies, which artificially reduce the cost of outputs produced by state-owned enterprise.

3.4 Policy Recommendations

75) A strong case can be made for unifying the exchange rates and making the military and the managers of public development projects face the full international prices of the goods they currently import at the official rate. If, following exchange rate unification, compensation for the loss of the subsidies currently received through pricing foreign exchange at the official rate is given to these institutions, it could be provided in a lump-sum form through budgetary allocations. Provided that alternative ways of compensating the poor can be devised and administered, there is also a case for removing subsidies on the consumption of items currently imported at the official exchange rate in order to subsidize consumption of the poor. (Recommendations on how best to help the poor are outside the scope of a review of trade policy, however, and should be left to specialists on the design of social safety nets.) According to our computable general equilibrium model simulations, if in addition to applying a uniform tariff of 15 percent the government were to eliminate subsidies to essential imports and distribute the government's revenue gains to all households in a lump-sum manner, aggregate real consumption would rise an estimated 12.3 percent—6.8 percentage points higher than the 5.5 percent increase achievable by limiting reform to imposition of a uniform tariff.

4. IRAN'S EXPORT REGIME

76) Iran's Third Five-Year Development Plan highlights the need to promote exports to enhance economic growth, and the government has already taken important steps to do so. It has removed some of the most serious direct barriers to exports and is in the process of greatly reducing those that remain. At the same time, it is trying to provide exporters with duty-free access to imported inputs by means of duty drawbacks, duty exemptions, and tariff-free zones. It has also reinvigorated two specialized financial institutions, the Export Development Bank of Iran and the Export Guarantee Fund of Iran, which provide subsidized credits, guarantees, and insurance to exporters of manufactured products. The next step may be to examine three remaining kinds of restrictions on exports:

- Exports are still bound by the Central Bank's foreign exchange surrender rules and by the setting of minimum prices for exported products. These restrictions have recently become less serious and will presumably be removed altogether when exchange controls are removed from all current account transactions.
- Exports are subject to mandatory standard certification procedures. Authorities justify this requirement on the ground that the reputation of Iranian products in world markets is a shared good that affects all exporters. In many countries, however, quality controls act as nontax barriers by which established members of an association of exporters restrict competition from new entrants to the export trade. Such measures are subject to abuse and increase costs to producers and exporters, reducing their competitiveness. Moreover, quality improvements through standards which succeed are driven by firms close to market forces. Government mandated standards which are imposed by public sector entities are often outdated, inefficient, and impose unnecessary costs on exporters.
- Some export bans and licensing requirements on primary products are still used to assist domestic manufacturers who use these products as inputs.

4.1 Checks and Controls on Exports

77) The main controls that are applied to Iranian exports are bans, licensing, minimum quality standards and surrender requirements on foreign exchange. We think that some of these controls do more harm than good, but that others are effective ways of achieving important national objectives that are sometimes non-economic. In this section we argue that the export bans and licensing requirements that genuinely serve religious, cultural, environmental and genetic objectives could be retained if not used for protective purposes. However, we argue that the surrender requirements on foreign exchange should be removed. So too should bans and licensing requirements on exports of primary products that are used to protect domestic users of these products. Finally, we recommend making sure that export standards only address health and safety requirements and are not used as a covert replacement for explicit bans and licensing

Export Licensing and Bans

78) In 1998/99 export restrictions—in the form of either outright bans or licensing by the Ministry of Commerce—applied to 32 categories of goods in Iran (table 4.1). In 1999/2000 this list was reduced to seven categories (table 4.2).

79) Comparison of tables 4.1 and 4.2 shows that a substantial part of this apparently large reduction is due to aggregating relatively narrow categories of goods into broader ones. Some export restrictions were lifted, however: eggs, poultry; onions, potatoes, lentils, detergents, soaps, glass, and tires are no longer banned or subject to licensing.

80) By the end of the Third Five-Year Development Plan, the export of only three categories of goods will be restricted: essential goods imported using government subsidies, antiques and items banned by Islamic law, and exports banned for environmental or genetic reasons. This reform marks a significant step in enhancing the environment for exports in Iran. To achieve the goal set out in the Plan it will be necessary to remove the current restrictions on exports of such products as un-sawn timber and live animals. Appropriate controls and certification procedures for the export of such items as sturgeon, caviar and rare birds and animals are needed to outlaw poaching. However, restrictions on exports of some unprocessed items (for example, live animals and un-sawn timber), combined with the absence of analogous restrictions on exports of the same items in processed form (meat, sawn timber and furniture) shows that these restrictions are being used to assist slaughterhouses and sawmills at the expense of farmers, foresters and consumers.

81) It is important that the products subject to bans based on environmental or genetic considerations are based on principles of sound science, risk, and other transparent criteria

Table 4.1 Banned Exports and Exports Requiring Permits Issued by the Ministry of Commerce in 1998/99

<i>Banned exports</i>	<i>Exports requiring permits</i>
Basic goods covered by Sub-Article 5 of the Budget Law of 1998/99	Edible eggs
Feed for livestock and poultry	One-day old chicks
Barley and maize (except peeled barley)	Bulbs and roots of pasture plants
Live sheep and goats	Timber of various forest and planted trees
Raw hides of goats	Ash cement and its clinkers; copper, zinc, and lead ingots; copper alloys; copper anodes and cathodes; aluminum ingots; iron angles, shapes, sections, and bars; steel sheets
Raw skins of goats, sheep, cows, and lambs	Wild animals and birds
Chicken meat	Onions and potatoes
Wood of walnut trees	Oil derivatives, such as thinners, solvents, engine oils, and propylene
Fuel wood and wood charcoal	Urea and various animal and chemical fertilizers
Oil seeds	Writing and printing paper and stationery
Metal scrap and waste	Flour and domestically produced tea
Lentils	Detergents and soaps
Arms and explosives	Beans and seeds for vegetable oils
Antiques	Pharmaceuticals and milk powder for infants
	Cotton products listed under code 5201 of the harmonized system, plus polyester and acrylic treads
Goods forbidden by Islamic law	Paned glass
	Tires

Source: Decision No. 19226T/80698, March 15, 1998

Table 4.2 Exports Requiring Permits in 1999/2000

Subsidized goods, including wheat, ^a sugar, detergents, insecticides and seeds other than vegetable seeds; writing and printing paper; human and animal vaccines; heavy tractors, combines and buses; fertilizers and animal feed
Animal and vegetable items that are important for genetic or environmental reasons
Pharmaceutical herbs and pasture plants
Timber in logs
Walnut wood in logs
Fuel wood and charcoal
Caviar and meat of sturgeon, except by the government fisheries company
Live sturgeon
Live sheep, goats, horses, camels, heifers, and buffaloes
Antiques and cultural artifacts
Cotton; raw skins (goats, sheep, cows, lambs); hides (goat, lambs, cows); and raw goat hair
Oil derivatives and petrochemicals
Iron and steel sections, copper ingots, copper alloys, copper anodes and cathodes; steel and aluminum ingots; zinc concentrate; scrap and waste metal
Barley, oil seeds, poultry feed, injection ampoules, and syringes

Note: Carpets, pistachios, saffron, sheep skins, and live animals can be exported only by registered traders and are subject to foreign exchange obligations.

a. Export of flour is allowed subject to the provisions of Sub-Article 2 of the 2000 Budget Law, which specifies that the exporter must pay the government the equivalent of the subsidy on imported wheat

Source: Government Circular No. 200.3691 of March 12, 1999.

82) Several other export restrictions are also used to subsidize domestic manufacturing activities that process restricted products. Important examples are the ban on exports of ore, scrap metal, metal sections, and ingots and skins and hides. Restricting exports of basic metals helps provide cheap inputs for the engineering and assembly sectors; restricting exports of skins and hides helps provide cheap inputs for the leather and shoe industries.

83) The rationale offered for export restrictions on unprocessed primary products and semi-processed manufactures is that they promote value-adding activities. This rationale may have had some validity when Iran faced a significant risk of being suddenly isolated from world markets. Now that this risk has diminished, the case for providing assistance to such activities has disappeared. If the protected downstream manufacturing activities are profitable at world prices, they have no need of such assistance; if they are not profitable at world prices, producing them hurts Iran by reducing the value of its net national product at world prices. In effect, such restrictions are taxes on the producers of raw materials, which are used to cross-subsidize the manufacturing sectors that use them. Both the taxes and the subsidies are inefficient.

84) The restrictions on exports of price controlled goods, such as flour, are needed to prevent the government's present scheme for assisting the poor from degenerating into a device that merely dissipates government revenue. For the same reasons, exports of products that use these essential goods as inputs are also generally banned, although exports of flour and products using flour, such as manufactured bakery products, may now be approved, provided that the exporter repays the subsidies

Surrender of Foreign Exchange

85) Exporters are required to surrender their foreign exchange receipts within eight months of the time their goods are brought to Iranian customs for export clearance. The Iranian authorities may, at their discretion, demand that the exporter obtain a bank guarantee for the delivery of the full amount of the export proceeds by the specified date. In the case of established exporters deemed by the authorities to be

reliable, a formal bank guarantee is not usually required, although the obligation to deliver the foreign exchange still applies. This differential treatment of new and established firms deters competition by acting as a barrier to new entrants

86) The obligation to repatriate foreign exchange within eight months restricts the ability of exporters to extend credit to foreign buyers. In the case of products for which this type of export finance is not usually provided, the restraint is not serious. In the case of products for which such finance is part of normal commercial operations, however, the restraint may create serious inefficiencies. Among Iranian exports the main example of such a product is carpets. In some cases, such as a sale to a department store, the carpet exporter normally has a firm order from the foreign buyer at the time the goods are exported from Iran. In these cases, the surrender requirement is not a major impediment (provided, of course, that the buyer does not renege on the contract). In many cases, however, exporters ship their carpets to an agent on consignment, on the understanding that the agent will pay the Iranian supplier only when the carpets are sold. This method of selling carpets is often more profitable than outright sale at the time of export. In some cases, the Iranian supplier owns the overseas wholesale or retail outlet to which the carpets are delivered. One exporter informed the mission that he still had some unsold carpets in a foreign warehouse that had been there since he set up his business more than 30 years ago. In a long-established large or medium-size exporting firm, the failure to sell some items within eight months of their being exported need not be a major problem, because other items will be sold in less than eight months. Even so, the export surrender constraint imposes an average turnover time of no less than eight months, which may well be faster than the efficient time. Even exporters of modern manufactures complained to the mission about the interference of the regulation with efficient business practices.

87) In a small, newly established exporting firm, the eight-month rule can result in very severe problems if goods remain unsold. The exporter can apply for an extension, and short extensions may be granted, although the conditions for granting them are not transparent. If no extension is granted, or if the goods remain unsold at the end of the extension, the exporter may use its own working capital to buy foreign exchange to surrender to the Central Bank or it may ask its agent to borrow from an offshore bank, on the understanding that the exporter will bear the high resulting interest cost. Another option is for the agent to dispose of the goods as rapidly as possible, even if this means accepting very low prices. Such forced sales unnecessarily reduce the exporter's Revenue

Compulsory Export Quality Standards

88) Quality standards are set by the Institute of Standards and Industrial Research of Iran (ISIRI), which has established roughly 5,000 national standards covering exports, imports, and domestic production.¹¹ These standards are based on international standards, or lacking that, on the standards adopted by the largest producers of the relevant products, taking into account consumer tastes

89) Certification requires about five months and involves training and certification of one company employee as the person responsible for quality control, sample taking, and laboratory testing; three random ISIRI visits to the production line to check system quality (production, warehousing, packaging); and testing of products (either purchased from market or taken from the production line). Producers can manufacture and sell their products on the domestic market during this process, as long as they have clearance from the Ministry of Health. They are not, however, allowed to advertise until they receive

¹¹ ISIRI is the modern successor to the Bureau of Standards, created in 1953 to establish compulsory export standards. Then as now, the objective of compulsory standards was to prevent some low-quality Iranian exports from spoiling the reputation of all.

certification. If they want to export before being certified, each batch of products must be tested. Certification is renewed every year, and random visits and testing continue. The cost of certification is 0.08 percent of a firms' sales, with a minimum of 0.5 million rials and a ceiling of 60 million rials.

90) The government has provided a set of rules and guidelines to ensure standardization of products, and it has given ISIRI oversight power and the authority to sue violators. ISIRI also has the authority to recall products and to impose damages (based on a schedule) if a product causes the bodily harm or death of consumers.

91) Export standards are required only for goods that also require certification for production and sale within Iran. In this sense, exports are not being discriminated against relative to goods marketed domestically. For instance, six agricultural products (pistachios, raisins, dates, dried apricots, saffron, and cumin) and 389 industrial products (or product categories) currently require standard certification for production, warehousing, distribution, sales, and export. Setting mandatory standards that extend beyond the realm of the health and safety of Iranian consumers and requiring export standard certification may be unnecessary, however. The government, supported by the High Commission on Standards, opted to require mandatory certification on exports, apparently swayed by the argument that lower-quality products may harm the reputation of all Iranian exports within a product group.¹² In some circumstances, these considerations may justify the setting of certain compulsory standards, however, export certification increases the cost of production and export, however, thereby reducing the competitiveness of Iranian exporters. International experience also suggests that certification can be subject to abuse. It may also violate WTO rules, if there is discriminatory treatment of foreign producers, in contrast to domestic firms. Balancing the costs and benefits of standards can only be done on a case by case basis.

92) In addition, evidence indicates that reliance on private sector standards, based on international voluntary product and process specifications, raises quality and enhances market competitiveness of firms over time. Government direction of standard systems ensures outdated technology and poor quality products which are not competitive on world markets.¹³ While some exporters, especially those exporting food items, support obligatory standards and certification, others argue that judging quality should be left to the buyer, particularly in export markets. ISIRI agrees, arguing that compulsory standards should be limited to those affecting health and safety. With that in mind, the government is reforming the list of products for which standard certification for exports is required. In 2000 it initiated—and the Parliament passed—a major reduction in the agricultural list, trimming it from 55 products to just 6. The industrial list also needs revision, with some items eliminated and others possibly added, on the grounds of health and safety. For instance, the current list includes standard requirements for several types of footwear. ISIRI considers inclusion of these items a mistake and acknowledges that it has no method of monitoring standard adherence in this industry, given the very large number of small footwear producers.

93) Mandatory export standard requirements also raise the specter of collusion among the more established producers and traders in different product categories. Such collusion could lock out potential newcomers and innovators who might otherwise compete with them in their price and quality range or who could branch out and find a different market niche with different quality and price characteristics.

94) In summary, export standards pose issues that can only be resolved by studying each proposed standard on its merits to see whether it is likely to act as a backdoor route to the re-imposition of

¹²The High Commission on Standards is composed of 10–13 ministers as well as representatives from the private sector, the Chamber of Commerce, the Central Bank, and the judiciary. It is presided over by the President of the Republic.

¹³ For additional reference see reference material at www.worldbank.org/trade/standards.

licensing, or as a legitimate way of preserving the good reputations of other Iranian exporters. The World Bank is considering surveying firms in Iran and other countries in the region to gather information on technical barriers to trade and the impact of voluntary standards on export competitiveness. If finalized, this study would provide useful information that will help resolve some of these issues.

4.2 Duty-Free Access to Inputs by Exporters

95) Since imports must ultimately be paid for by exports, some anti-trade bias is an inevitable consequence of using import taxes to protect domestic industries and raise revenue. It is easy to see why import taxes reduce imports; to see why they also reduce exports, note that by protecting import-competing industries, taxes on imports raise the prices of domestic factors of production and imported inputs relative to the domestic prices of exported goods. This anti-trade bias can be reduced somewhat by schemes that grant exporting firms duty-free access to imported inputs. While usually better than nothing, these schemes are a poor substitute for free trade, since they do not provide exporting firms with access to domestic factors of production at the prices that would obtain under free trade. Moreover, if exporting firms do not use imported inputs, the schemes do nothing to mitigate the anti-trade bias of import taxes. In addition to providing only partial relief from the anti-trade bias of import taxes, schemes to provide exporters with duty-free access to imported inputs have often been plagued by administrative problems, including not only inevitable monitoring costs and delays but also fraud.

Three main kinds of schemes provide Iranian exporters with access to imported inputs at free-trade prices:

- *Duty drawbacks.* Under this scheme, import duties are paid when the imported inputs enter the country but are refunded by the Customs Department when the finished products into which they have been incorporated are exported.
- *Duty exemptions, or "temporary importation."* Under this scheme, imports of inputs into products that are to be exported are exempted from duty, but the importer has to provide some guarantee that the product will eventually be exported. Usually, products that have avoided duty must be stored in bonded warehouses, which the Customs Department has the right to enter in order to check that the exempt items have not been sold to domestic buyers.
- *Free-zones.* Free zones are zones in which there are no domestic customs controls on trade between foreign countries and the factories and warehouses in the zone. Domestic customs controls do apply to trade between each zone and the rest of the domestic economy. The general definition of 'zone' given here covers not only what are called 'free trade zones' in Iran, but also what Iran calls 'special economic zones'. Both types of zone provide exemptions from import duties; Iran's free-trade zones also provide exemptions from many other taxes and regulations.

96) Duty drawbacks and duty exemptions are closely related and involve similar administrative problems and costs. The Customs Department has the right to insist that the importer/exporter provide a bank guarantee that the final product will be exported (in practice, it does not usually require established manufacturers to provide such guarantees). When the final product has been exported, the importer/exporter must apply to customs to release it from the guarantee. The delays and charges involved are similar to those involved in waiting for duties to be rebated under a drawback scheme, except that the importer/exporter does not forgo interest on the amount of duty that would be payable in the absence of the scheme. Free-trade and special economic zones and duty exemption schemes are also similar, because all the firms and warehouses in each zone are effectively treated as if the zone constituted a single very large bonded warehouse.

97) The Republic of Korea, Taiwan (China), and Hong Kong (China) have used all three mechanisms in parallel, with considerable success. Users there prefer exemption schemes to drawbacks, because only exemptions save them the interest costs on the duties paid. However, exemption schemes are more open to fraud. As result, exemptions are restricted mainly to producers, whose factories provide de facto collateral against fraud, while traders must normally make do with drawbacks.

98) The disadvantage of free-trade and special economic zones relative to the other two schemes is that it is not always efficient for exporters to be located in the designated zones. The advantage of the zones comes from economies of scale in administration. In the case of both drawbacks and exemptions, administrative problems arise when the inputs are transformed in production, because it then becomes difficult to determine exactly how much of each input was actually incorporated into the finished products that are exported. Without free zones, which can eliminate these problems, substantial administrative cost is necessary to overcome these problems, since the Customs Department, perhaps in conjunction with the producer and the relevant line ministry, must establish technical input-output coefficients specifying the amounts of each imported input in each type of exported good.

99) Free-trade zones provide a way of avoiding many of the problems in administering drawbacks and exemptions that arise in the case of indirect exports (such as the use of imported raw materials in making packaging materials, some of which are then used by exporters). These problems can also be partially overcome under drawback and exemption schemes, but the administrative costs of measuring and establishing technical coefficients usually become prohibitive once more than one step is involved.

Drawbacks and Exemptions

100) *Drawbacks* Article 113 of the Third Five-Year Development Plan announced the government's intention to enhance the effectiveness of the duty drawback scheme, which was established before the 1979 revolution. The scheme works as follows: importers pay the duties (both customs duty and commercial benefit tax) applicable to their products when they are imported and use them to produce final goods. Producers are entitled to a refund of the import duties on the portion of the imported inputs that is included in those final products that are exported, either directly or indirectly by being sold to another domestic producer who uses them in the production of exports.

101) Article 25 of the Ordinance of Law on Export-Import Regulations and Article 14 of the Export-Import Regulation Act of 1993 set out the rules and explain how to calculate entitlements to refunds. Article 25 also notes that exporters who have a complaint regarding the handling and calculations of their case by the Customs Department or a ministry have recourse to an appeal committee.¹⁴ Article 14 of the Export-Import Regulation Act states that refunds are made by Customs upon presentation by the exporter of the export certificate. To apply for a refund, an applicant must provide Customs with proof of import and export (as well as a trader's license); the technical input-output coefficients, confirmed by the

¹⁴ In case of disputes regarding exemptions, drawbacks, valuations of products, mis-categorization, or other matters related to customs, two appeals committees convene at the request of exporters/importers. Disagreements regarding miscategorization of products or the amount of import taxes due must be submitted within eight months. The first committee reviews the case and makes a judgment. The second committee reviews the judgment at the request of the exporter/importer. (In practice, very few cases are taken to these review courts: according to Customs authorities, there have been only about 10 cases in the past eight years. The lack of cases may reflect that fact that disputes have almost always been decided in favor of the Customs Administration.) If necessary, the Customs Department may pursue those who do not comply in national courts.

relevant ministry; and the completed application form requesting duty drawback. Exporters have three years from the date of the import of the inputs to produce, export, and file for duty drawbacks.

102) The time taken by Customs to calculate refunds, verify applications, and then process refund payments depends on the product and the complexity of the input-output relations. Calculating the input of textiles into garment production is rather simple; calculating the use of a specific imported chemical in the production of soap is much more complicated, as there is much more transformation of the imported inputs. Once the documentation is complete, Customs authorities claim that the process can be completed in two to three days. Where documentation is incomplete—if, for instance, documents need to be gathered from different border customs offices—the process may take two to six months. One of the exporters interviewed stated that it usually took his staff two months to get refunds.

103) *Exemptions (“Temporary Importation”)* The duty exemption scheme was enacted in Article 12 of the Export-Import Regulations (September 1993) and in Article 24 of the Executive Ordinance of Law on Export-Import Regulations (April 1994). The law provides for exemptions of duty on the temporary importation of raw materials and products needed to produce, complete, prepare, or package exported products. Indirect exporters (both importers who sell inputs to producers who export and traders who buy goods from producers and export) are entitled to exemptions. Re-export of goods that contain duty-free imports must occur within one year, unless an extension for a second year is obtained. If re-export does not occur within the allotted time, a heavy fine (about three times the value of the imported inputs plus the amount of duties) is levied on the importer.

104) The importer/exporter must provide a promissory note or other valid security to Customs at the time of the initial import as a guarantee that the exempted goods will be re-exported. Importers are responsible for payment of expenses, such as warehousing and transport, incurred by Customs, but Customs does not charge any additional administrative fees.

105) In practice, the promissory note or valid security takes the form of a specific financial commitment. For raw materials, parts, and packing material, conditional on the importing firm providing proof that it is a producer, Customs may demand a dated draft equal to the value of all duties and taxes plus 50 percent of the c.i.f. value of the imported product. For all other applicants and goods, it may demand a guaranteed dated (one-year) bank note or letter equal to twice the c.i.f. value of the imported product. In practice, the amounts demanded are usually much lower: public enterprises are excused from having to provide any bank guarantees provided that the relevant ministry agrees to guarantee their obligations to Customs, and “well-reputed” private producers (usually those recognized by the Export Promotion Center and the Chamber of Commerce) may be given discounts of up to 80 percent of the full amount of these financial commitments. Applicants for exemptions must provide the following documents to Customs:

- Trader’s license (issued to all traders in Iran by the Chamber of Commerce and the Ministry of Trade and renewed annually).
- A document from the appropriate ministry outlining the technical input-output coefficients (for the industry), the amount of imported inputs, and the amount of the final product to be exported.
- An “economic code” issued by the Ministry of Finance to all traders in Iran (both domestic and those trading across borders).
- For producers who want to use the dated draft method, the permit for their production site (firm site).
- Customs documents for the retrieval of the imported products from the customs post at which they are held until duty exemptions have been approved.
- Completed application requesting duty exemption.

106) Customs officials claim that the processing of the application takes only one to two days once these documents have been provided. Once the application has been approved, the importer can retrieve the goods from the customs post at which they must be left until approval is granted.

107) Once production has taken place and the exporter wants to clear the promissory note with Customs, two cases emerge. If the applicant provides the necessary documents immediately before export, Customs can readily check that the products to be exported conform with the importer's original obligation.¹⁵ The central customs office should take only one day to authorize clearance. Next the applicant firm takes the export documents to the border customs office from which it originally retrieved the temporary imports. This office then confirms that the bank may clear the applicant's promissory note. If the applicant waits until re-export has actually taken place, Customs cannot readily verify that the importer/exporter has met its obligations. In this case, the cancellation of the promissory note takes longer.

108) *Performance of Drawbacks and Exemptions* According to people with whom the mission spoke, experience with the exemption scheme has been mixed.¹⁶ In about 15–20 percent of cases, importers with exemptions have failed to make the legally obligatory re-exports, presumably selling their exempted imports to domestic buyers. Most of these cases have involved textiles, for which import restrictions have been very severe and domestic demand is very high. To prevent this kind of fraud, the government no longer allows traders to use the exemption scheme, which is now restricted mainly to producers, whose factories serve as collateral for their obligations to re-export exempted inputs.

109) To assess barriers to exports and the effectiveness of the government's export promotion efforts, the mission spoke with several exporters. Only two of the exporters interviewed used either scheme actively. One, who had been using the duty exemption scheme for packaging products for two years, found that it worked well and reported that there had recently been a marked improvement in customs procedures, resulting in less paperwork and shorter delays. The other exporter used the duty drawback scheme. He submitted his requests in batches twice a year and estimated that it took him about two months to get his money back. He noted that he had a team working on this regularly and that the procedure had become routine. The other exporters interviewed either did not use or did not know of the schemes. One found duty drawback procedures cumbersome and bureaucratic and refused to use them. Officials estimate that roughly 5 percent of exporters use these schemes. They believe that few exporters use the schemes because import duties are low and the administrative procedures for drawbacks and exemptions are cumbersome.

110) All exporters pointed to the fact that customs procedures have become much easier and faster in the past two to three years. Customs has removed unnecessary regulations, reduced delays in processing exports, and begun to rely more heavily on self-declarations by exporters. These measures have also improved the effectiveness of the duty drawback and temporary exemption schemes.

¹⁵ Customs tests products in laboratories when they are imported. In the case of temporary imports and duty drawbacks, it tests a sample brought in by the exporter for content. For imported textiles and exported clothing, this testing is rather methodical and routine. For some other products, checks are random. Customs usually accepts the self-declaration of well-known traders.

¹⁶ We were unable to obtain quantitative data on the total amount of refunds under the drawback scheme or the amount of duty exemptions provided under the exemption scheme. Customs may wish to improve its data collection for statistical and analysis purposes.

111) The process now underway of converting nontariff barriers into their tariff equivalents will initially increase import duties and therefore presumably increase the incentives to use the drawback scheme. To the extent that the exemption scheme provides effective exemptions from import licensing requirements as well as duties, tariffication will not affect the incentives to use it. When and if tariffs are eventually lowered below the levels of existing nontariff barriers, the incentives to use both schemes will, of course, decline.

112) The implementation of the Automated System for Customs Data is progressing. Regulations are being implemented by hand in all customs offices, and some desktop computers have already been equipped with the automated system. In the next year, more than half of all customs offices are expected to be equipped with the computerized program. Within two to three years, all customs offices are expected to be computerized. The Automated System of Customs Data will greatly facilitate the administration of both the duty drawback and exemption schemes. It will reduce paperwork and delays in processing applications and transmitting documents from central and border customs offices

Free-Trade Zones

113) All three free-trade zones are located on the Persian Gulf. They thus have easy access to the Indian Ocean as well as to the regional markets of the Commonwealth of Independent States (by air, road, or rail through Iran) and the Gulf states. However, they also face stiff competition from the Gulf states in the struggle to attract investment and tourism.

114) Each of Iran's three free-trade zones is administered by an independent authority, organized as a company with autonomous legal status, whose capital belongs to the government. A board of directors—three to five people chosen by the board of ministers—administers each zone, for a renewable period of three years. The managing director of each zone is chosen by the President of the Republic from among the board of directors. The firms in the zones do not participate in administration, and the administrators interfere as little as possible in normal business operations

Box 4.1. Increasing Export and Employment through Free Trade Zones FTZs

Free trade (FTZs) are enclaves in which governments attempt to enable manufacturers of exported goods to have duty-free access to imported inputs. They are inferior to free trade both because it is not efficient for all export activities to be located in a few specified zones, and also because they do not remove import restrictions. As a result, producers in FTZs cannot buy domestic factors of production at the prices that would occur if all trade were free. Nevertheless, they can still be a useful way of expanding trade before the implementation of more thorough-going reforms.

FTZs are generally used to achieve three goals: promote export-oriented production and employment, increase foreign exchange earnings through nontraditional exports, and encourage foreign direct investment in countries in which legal, administrative, and infrastructure-related weaknesses impede investment in exportables. EPZs also provide backward linkages and allow the transfer of technology and know-how to the rest of the economy.

International experience with FTZs has been mixed. In Mauritius EPZs generated 71 percent of gross exports and employed almost 17 percent of the work force in 1994. Mexico's FTZs, known as *maquillas*, employed some 900,000 people in 1997, and the sector is among the largest generators of foreign currency. In contrast, the Senegal EPZ was hampered by excessive administrative red tape and strict labor laws. As of 1990 – 14 years after it became operational - it employed only 600 workers and exported just \$15 million worth of goods. The experience of most EPZs falls between these two extremes.

Effective FTZs combine clear private property rights and investment regulations, no restrictions on foreign exchange, tariff-free imports for export production, moderate levels of taxation, streamlined administrative procedures, and private sector management. Public provision of basic infrastructure outside the zone—telecommunications, roads, ports—can have positive spillover effects for local and national economies by facilitating economic activities, but FTZ development, including the provision of infrastructure and management, should be privately handled.

The success of an FTZ is highly dependent on a hospitable host country economic environment, including sound macroeconomic and exchange rate policies. Worldwide experience suggests that investors weigh economic and political stability, labor skill compatibility and productivity, and other similar factors carefully. Incentives, such as overly generous tax packages or legal investment assurances, may not attract the right type of investors or any investors at all. Furthermore, forgoing tax revenues may be expensive, especially if major public investments are made to develop the zone. The failed Bataan zone in the Philippines shows that heavy government investment and concessions can be costly and need not create a successful FTZ.

The Philippines' new FTZs have increased both employment and exports. In 1996 the 4 public and 43 private zones employed more than 150,000 people and exported US\$6.5 billion worth of goods. Average wages in the zones are higher than in the rest of the country, but integration and forward and backward linkages with the domestic economy have been difficult to achieve, especially in the absence of more economywide reforms. Despite increases in exports, however, these FTZs have led to high import dependency and low net exports (41 percent) and net foreign exchange earnings.

115) Four main incentives have been provided to increase the attractiveness of free-trade zones to potential investors

1. The foreign share in the equity of firms is not capped in the zones, and there are laws to protect foreign investment and guidelines for compensation in case of nationalization. Iranians can purchase or lease land in the zones; foreigners can only lease it.
2. In addition to exemptions from import taxes on raw materials, parts, and machinery for use in their factories, firms in the free-trade zones receive exemptions from direct taxes for 15 years.¹⁷
3. To foster the development of the zones as off-shore financial centers that are not subject to the repressive financial regulations that operate in the rest of Iran, the government allows the inflow and outflow of foreign currency. It may take up to a week for the zone administration to approve requests, however. This verification is supposed to ensure that no ill-gotten gains are transferred into or out of the zones. However, this clearance prerequisite may act as a deterrent to foreign investors.
4. Labor laws in the free-trade zones are more lenient and business friendly than on the mainland, where it is difficult and costly to dismiss employees. Although labor contracts in the zones allow firms much greater flexibility, procedures to address workers' complaints have been established, and the minimum wage in effect in the rest of Iran applies in the zones as well.¹⁸

¹⁷ It seems likely that many firms will simply close after 15 years and then reregister under new names in order to continue to receive full free tax status.

¹⁸ The national minimum wage is 458,013 rials per month (or US\$56.50 per month, at US\$1=8,100 rials)

116) Officially, the free-trade zones were established to provide exemptions from tariff and nontariff barriers on imported inputs used by manufacturing firms in order to increase non-oil, non-traditional exports, earn foreign exchange, and create employment opportunities in the mostly poor regions in which they are located. In practice, particularly in their early years and particularly in the case of Kish, the zones have provided partial exemptions from tariff and nontariff barriers to finished manufactures. In this sense, Iran's free-trade zones initially functioned as import-processing zones rather than export-processing zones.

117) The free-trade zones have been used to bypass barriers to imports in two ways. First, Iranian citizens are allowed to bring up to \$80 worth of goods a year from the free-trade zones into the mainland. Since there are three zones and effective coordination among them appears to be lacking, it would appear that Iranians can actually import a total of \$240 a year from the zones. The provision granting \$80 of free imports per person led to the growth of a cottage industry in which small traders hire people to travel to the free-trade zones for the sole purpose of bringing back consumer goods. This practice has been the source of longstanding criticism of the zones in Iran. Critics have correctly argued that if Iran wants to liberalize its imports of consumer goods, it should do so by liberalizing the regulations that apply to all firms, rather than by subsidizing special zones, which are costly to develop, increase the administrative workload on the Customs Department, and facilitate smuggling.

118) Second, firms in the zones partially circumvent the nontariff barriers that apply to foreign firms because they are allowed to sell some of their gross output to the mainland without obtaining import licenses. Total exports from each zone to the mainland must not exceed \$100 million a year; as long as this ceiling is not exceeded, each firm in a zone is allowed to export to the mainland an amount of its gross output equal to its value-added plus the value of inputs purchased from the mainland. A firm that exports the full amount to the mainland permitted by this rule therefore makes no net contribution to earning foreign exchange. To see why, suppose that for every \$100 of gross output, the firm buys \$60 of imported inputs from foreign countries and \$10 worth of inputs from the mainland, producing value-added of \$30. For each \$100 of gross output, it can sell \$40 to the mainland, leaving \$60 for exports to foreign countries, which is just sufficient to pay for the inputs purchased abroad.

119) These loopholes shaped the early development and performance of the zones, especially Kish. Exports from Kish to foreign countries averaged only \$1 million a year in 1998 and 1999—about 1 percent of the volume of its exports to the customs territory of Iran.

120) The free-trade zones have failed to achieve their primary goals of increasing exports and attracting foreign direct investment. Employment creation has been commensurately low. Discussions with officials in November 2000 revealed that efforts are now underway to redirect the zones toward exporting to foreign countries rather than to Iran. Kish, with its natural beauty and pristine beaches, is slated to become a destination for foreign and Iranian tourists. Other commercial activities, including nonpolluting production for export and exports of services, are to be pursued as subsidiary goals. Qeshm is to be developed as a more traditional free-trade zone, specializing in energy and heavy industries that take advantage of its abundant gas resources and its natural deep sea port. Chahbahar is to take advantage of its position as a port on the Oman Sea with easy access to the Indian Ocean and as a transit site for trade with Afghanistan and the Commonwealth of Independent States. After an extended period of policy uncertainty, the government has nominated a new management team for each zone. It has reiterated its goal to support and accelerate its efforts to implement the new zone-specific development strategy and to attract foreign direct investment—a policy pronouncement likely to encourage potential investors.

Special Economic Zones

121) The creation of the special economic zones was mandated by the First Five-Year Development Plan. Legislation relating to their activities has been approved over the years as part of general trade legislation. Seventeen special economic zones currently exist in Iran, at various stages of development, with three others in the planning stages.¹⁹

122) Very few data are available on the special economic zones, most of which are still in the early stages of development and do not yet have much production or exports. The Sirjan special economic zone (in the southeast), which was established in 1990, is one of the oldest and most developed of these zones. It contains more than 50 industrial firms that produce garments, polyurethane, color TVs, and other goods.

123) The special economic zones seem to have been set up for three main purposes, which sometimes overlap:

1. To create jobs in poor and underdeveloped regions by attracting domestic and foreign investment.
2. To take advantage of strategic locations, such as borders and trading crossroads. Twelve of the zones are located along the border. Five, including three ports on the Caspian Sea, are on the northern border, where they can trade with neighbors to the north, northwest, and northeast. Another seven zones are ports on the Persian Gulf, which have a comparative advantage in trade with neighbors to the southeast and southwest and with world markets by way of the Indian Ocean.
3. To allow localities to specialize according to their comparative advantage in specific industries. The Sang-e-Lorestan special economic zone, for instance, will focus on mining stones, while the Yazd special economic zone will build on the very strong textile tradition of the Yazd region in central Iran.

124) Special economic zone firms can perform four main functions, as the Second Development Plan (1994) notes. First, unlike imported goods on the mainland, which must clear Customs within a specified period of time, goods brought in under temporary admission can be warehoused for an unlimited time. Second, the special economic zones facilitate access to raw materials, machinery, and other manufactured goods that support production for domestic sale or export. Third, the special economic zones create value-added in manufacture. Fourth, the zones act as centers for regional and global trade, particularly with Central Asia, the Caucasus, Asia, and Europe.

125) The special economic zones are similar to the free-trade zones in that both provide exporters with duty-free access to imported inputs. Four main differences distinguish the two types of zones (table 4.3):

1. Social security and labor regulations in the special economic zones are identical to those on the mainland; less stringent regulations apply in the free-trade zones.

¹⁹ The special economic zones include Sirjan, Sarakhs, Bandar-e-Anzali, Bandar-e-Anzali (location 2), Khuzistan, Salafchegan, Khorramshahr, Jolfa, Arg-e-Jadid, Bandar Bushehr, Bushehr, Bandar Amirabad Behshahr, Bandar Shahid Raja'ee, Assaluyeh, Sang-e Lorestan, Petrochemicals, Mines and Metals. The three zones being planned are Shiraz Electric and Electronic SEZ, Yazd Textiles SEZ, and Persian Gulf ship building SEZ.

2. Exporters in the special economic zones are allowed to export their own outputs to the main customs territory of Iran under the same formula as the free-trade zones. However, firms in the free-trade zones are allowed to trade at both the retail and wholesale level, whereas those in the special economic zones can trade only at the wholesale level.
3. Firms in the special economic zones can use only the domestic banking and insurance services available to ordinary Iranian firms. In contrast, foreign banks have been allowed to set up in the free trade zones, which the government is trying to develop not only as export processing zones, but also as offshore banking centers. In the special economic zones, national laws govern company registration, intellectual property rights, and foreign investment protections. Firms in free-trade zones have their own regulations in these areas.

Table 4.3 Policies in Iran's Free-Trade and Special Economic Zones

<i>Policy</i>	<i>Free-trade zones</i>	<i>Special economic zones</i>
Import of goods from abroad	Free from all taxes and duties. Some levies and fees are collected to cover the cost of services provided.	Same
Re-export abroad of goods imported into the zones	Free from all taxes and duties	Same
Import of goods, semi-finished parts, and raw materials from mainland	If exported, subject to the export-import regulations in force on the mainland	Same
Export to the mainland of goods produced in the zones.	The amount of goods that can be exported to the mainland by each firm in a free trade zone without the need for any special import license by the mainland purchaser, is equal to the value-added by (i.e., wages, domestic inputs) by the firm in the zone. Duties apply to the amount of imported materials and parts used in the final product being exported to the mainland.	Same
Unloading, loading, transit, and transshipment of merchandise abroad	Free from all taxes and duties; only warehousing and local charges collected	Same
Registration of companies, intellectual property rights, trademark brand, patents, and so forth	Governed by special regulations	Governed by laws and regulations in force on the mainland
Utilization of land	Land is public and is sold or leased to Iranian nationals; foreign nationals can only lease land	Same
Exchange rate	Free-market exchange rates	Domestic banking exchange rates
Certificate of origin	Issued by zone authority	Same
Retail export sales to mainland	Allowed	Not allowed
Offshore banking operation by private sector	Permitted under recently approved law	Domestic banking operations by state banks only
Insurance activities by private sector	Permitted under recently approved law	Provided by state insurance companies
Foreign capital investment	Accepted and protected	Same

<i>Policy</i>	<i>Free-trade zones</i>	<i>Special economic zones</i>
Guarantees to foreign investors against nationalization and confiscation	Guaranteed by the government or the zone authority, depending on the amount	Governed by the law on attraction and protection of foreign investments
Foreign ownership	Up to 100 percent of shares	Same
Recruitment of foreign workforce	Up to 10 percent of manpower	Governed by aliens' employment regulations in force on the mainland
Entry into the zones	No previous application for entry visa is needed; visa issued at port of entry	Prior visa required. Zone Authorities facilitate securing the visa from the Ministry of Foreign Affairs.
Social security, social insurance	Mainland social security regulations currently in force; fund to be set up in the future	Governed by laws and regulations in force on the mainland
Labor law, labor conditions, industrial relations	Governed by special regulations	Governed by laws and regulations in force on the mainland

Source: Secretariat of the High Council of the Free Trade-Industrial Zones (www.iftiz.org).

4.3 Export Finance, Insurance, and Guarantees

126) This section discusses the export promotion agencies recently established or revived to assist the export promotion goals of the government.

The Export Development Bank of Iran

127) The Export Development Bank of Iran (EDBI) was set up during the First Five-Year Development Plan (1990/91–94/95) to help promote exports. Five national commercial banks, all state owned, were ordered to provide EDBI with its initial capital of \$12 million, which was lent at a zero interest rate. The Second Five-Year Development Plan (1995/96–1999/2000) helped build up the bank's capital by exempting it from remitting after-tax profits to the national treasury, as the other state-owned commercial banks are required to do.

128) Traditionally, EDBI engaged in collateral-based lending. Recently, however, it has begun developing credit-based lending. It prefers letter of credit financing and will finance 90 percent of the value of exports if a contract is based on a letter of credit (and only 60 percent of the value if a letter of credit is not used). The average loan is about \$70,000–\$75,000, with a minimum of \$20,000 and a maximum of \$5 million.

129) The processing of a loan application takes two to four weeks. In granting loans, EDBI gives preference to small and medium-size enterprises and to exporters of modern manufactures rather than traditional exports, such as carpets or pistachios. The results of this bias can be seen in table 4.4. Exporters of traditional products tend to use Iranian commercial banks (such as Bank Melli) or other financing arrangements.

Table 4.4. EDBI Loans by Industrial Sector, 1992/93 and 1998/99

<i>Sector</i>	<i>1992/93</i>		<i>1998/99</i>	
	<i>Rials (billions)</i>	<i>Percent</i>	<i>Rials (billions)</i>	<i>Percent</i>
Industrial products	8.5	41.4	333.2	49.2
Foodstuffs	3.7	18.0	15.5	15.7
Agricultural products	3.1	15.2	71.4	10.5
Minerals	0.5	2.4	16.9	2.5
Carpets and handicrafts	3.4	16.6	60.0	8.9
Textiles and clothing	1.3	6.4	89.4	13.2
Total	20.5	100.0	677.1	100.0

Source: EDBI annual report 1998–99.

130) Until about 1999 EDBI concentrated on financing short-term working capital loans for exporters, usually for periods of less than one year. Recently, it has allocated 20–30 percent of its funds to financing medium-term loans to support the creation of export capacity. Examples of investments financed include factories and machinery for production for export of herbal medicines, preserved fruits, tomato paste, and apple concentrate.

131) EDBI's capital is about \$40 million; another \$100 million has been allocated to it in the current government budget and will be transferred from the Central Bank. The additional funds will increase the direct government share in the bank dramatically, while further reducing the share of the commercial banks, which currently stands at \$8 million. EDBI's resources also include its clients' deposits.

132) EDBI charges 2.5–3.0 percent above the London Interbank Offered Rate (LIBOR) on its dollar loans. On Rial loans it charges the ceiling interest rate set by the Central Bank for lending to exporters, currently 18 percent. Until last year this rate was well below the inflation rate, thus providing exporters with credit at a negative real interest rate. Although the Central Bank's interest rate ceiling for bank loans to exporters is just below the ceiling interest rate of 19 percent for loans to manufacturing—and well below the ceiling of 25 percent for loans to commercial services, including traders—EDBI has been able to raise its capital from \$12 million to \$40 million in less than a decade. This expansion has been the result of at least four factors. First, all Iranian banks benefit from interest rate ceilings on deposits, which allow them to act like a cartel. Second, the default rate on loans made by EDBI has been only about 4 percent. Third, EDBI pays no interest on the capital initially contributed to it, and it makes no dividend payments to the government. Fourth, unlike other commercial banks, EDBI is not forced to allocate any of its portfolio to domestic housing loans at interest rates that have ranged between 8 and 15 percent over the past few years.

133) Because of its small capital base and conservative lending practices, EDBI plays a relatively modest role in the overall financing of Iranian exports. In 1998–99 only about 10 percent of Iran's total non-oil exports of about \$3 billion were channeled through EDBI.²⁰ Between 1995/96 and 1998/99, the volume of EDBI's Rial-denominated loans more than quadrupled, rising from 167 billion rials to 677 billion rials, while the volume of its dollar-denominated loans more than doubled, from a very low base of \$4 million. These data imply that the value of EDBI's outstanding loans in all currencies was about \$100 million in 1998/99, or 22 percent of Iran's annual non-oil exports.

²⁰ These figures were obtained from EDBI's 1998–99 annual report and from discussions with EDBI management.

134) Discussions with exporters revealed that some used the bank often or very often and considered its services good. Others suggested that the loan amounts were small and did not cover their export business needs. Not surprisingly, exporters hoped to see the subsidies to export finance increased, so that EDBI could adopt a less conservative approach to risk and make larger loans.

The Export Guarantee Fund of Iran

135) The law establishing the Export Guarantee Fund of Iran was passed in 1975, but the Fund remained dormant until 1994. It then spent approximately three years reorganizing and hiring staff, becoming fully operational only in 1997.

136) The Fund is an independent legal, financial, and administrative entity managed as a private joint-stock company fully owned by the government and under the supervision of the Ministry of Commerce. It is an observer of the Berne Union (the international union of official investment and credit insurers) and hopes eventually to become a full member.

137) The Fund earns about \$4 million a year from fees and interest, it has paid out claims totaling \$9 million since 1997. It does not transfer its after-tax (net) profits to the budget but retains them to build up its capital. In addition to its initial capital and retained profits, the Fund also receives a mandated annual injection of capital through the budget equal to 1 percent of the c.i.f. value of non-government imports. As a result of these various additions to capital, the Fund now has authorized capital of about \$34 million, not all of which has yet been fully paid up by the government.

138) The Fund is involved in both banking and insurance, and it also invests, on its own and in joint ventures, in various Iranian firms. In banking it provides working capital and loans for Iranian exporters, particularly small and medium-size enterprises and those involved in private manufacturing. Like other Iranian banks, it lends to exporters at the ceiling rate of 18 percent, offering exporters three types of facilities:

1. *Buyers' credit.* The Fund extends credit to foreign buyers for up to one year after delivery to them of Iranian exports, while paying the Iranian exporter at the time of delivery.
2. *Domestic underwriting.* The Fund helps Iranian exporters obtain medium- and long-term credit from Iranian banks by providing the banks with unconditional guarantees that their loans will be repaid.
3. *Suppliers' credit.* The Fund provides foreign exporters (or their banks) with guarantees or insurance of loans made to Iranian firms to finance imports into Iran of inputs needed by the firms to produce manufactured exports.

139) Several exporters suggested that they do not use the Fund because it is too conservative in its insurance policy and unwilling to cover exports to risky markets, such as the countries of the Commonwealth of Independent States. According to the Fund's managing director, the Fund will be able to extend its lending and be less conservative once it receives the full capital injection promised by the government. That lending practices will change stands to reason, as the Fund will have to be less conservative in order to make new loans at an unchanged interest rate once its capital increases.

140) In the past, the Fund has asked for collateral (property and dated checks) from its customers. Currently, 44 percent of this collateral is property and 56 percent is checks. Recently, in response to demands by congressional representatives, the Fund has agreed to ease these requirements, and it is now moving to a system in which well-known exporters (those with three years of export experience) will be asked to provide 25 percent of their loan as property. New exporters will have to provide a mix of property collateral and dated checks.

4.4 Policy Recommendations

141) This section summarizes our suggestions for removing unnecessary restrictions on exports and streamlining the administration of those that should remain.

Eliminating Exchange Controls

142) Once the foreign exchange rates are unified, the government could consider eliminating all remaining exchange controls on current account transactions. The most important of these controls are the requirements that exports must be paid for in hard currency and that these hard currency proceeds be repatriated within eight months.

Setting Export Quality Standards and Technical Regulations on Imports

143) We support the government's policy of moving toward a standard system that covers health and safety issues but steps back from attempts at full export quality control. It is important that the removal of explicit export licensing not be undermined by implicit licensing under the guise of compulsory quality standards.

144) We also support movement toward a system of technical regulations on imports that increasingly removes mandatory requirements on goods and agricultural products based on principles of open, transparent, non-discriminatory treatment. These principles are embedded in the WTO agreements. Moreover, increased reliance on systems which center on post-market surveillance and manufacturers declaration of conformity to standards for low risk products is extremely important.

Improving Duty Drawbacks and Exemptions

145) Iran's experiences with the duty drawback and exemption schemes suggest several possible policy reforms the government could adopt. First, a specialized unit could be set up within Customs to handle the administration of both schemes. This unit could:

- Process applications and make refunds, where appropriate. Speeding up the process of granting refunds so that all refunds are made in less than a month would help raise the proportion of exporters using the scheme.
- Act as a link between users and customs offices.
- Provide information to potential applicants by coordinating an information campaign with other trade promotion agencies, such as the Chamber of Commerce and the Export Promotion Center, to better inform exporters about the two schemes available to them. Manufacturers would be informed in a simple, clear manner about how the drawback and exemption process works, and how to apply for and take advantage of the programs.
- Conduct audits of firms using the schemes.

146) Second, international experience suggests that exporters should be given only three months after exports have occurred in which to claim refunds. Not setting a short and clearly defined deadline for claims needlessly increases the cost to Customs of processing and verifying claims. The three-year time limit allotted to users of the drawback scheme should be shortened to match the two years allotted to users of the exemption scheme.

147) Third, the financial requirements for the exemption scheme are currently much higher than the international norm, except in cases in which Customs excuses importers (such as state-owned enterprises) from part or all of the maximum requirements. The international norm is to require a bank guarantee for the amount of the duty only. Higher financial commitments help reduce the cost to Customs of noncompliance by producers and discourage fraud by traders who might otherwise import and sell products on the domestic market. They also increase the burden on small exporters, however, by locking up a high proportion of their working capital. To lighten this burden, we suggest that all importers should have to place bank guarantees for no more than the full amount of the duty. Reducing the amount of the bank guarantee would make the scheme more efficient and more transparent: banks would presumably charge higher fees to guarantee relatively unknown private firms than they would to guarantee large state-owned enterprises, but competition among banks would help protect private exporters from fees, which would significantly exceed the cost of capital plus the risk premium. The Customs can also increase the penalty for non-compliance as a deterrent to abuse the programs

Reducing the Distortions Caused by Export Credits, Guarantees, and Insurance

148) International experience has shown that removing barriers to exports is a much better way of taking full advantage of a country's comparative advantage than providing export subsidies, for several reasons. First, it is impossible to design subsidies that exactly offset any set of barriers. Second, subsidies and offsetting barriers are costly to administer: subsidies create opportunities for fraud, while barriers create opportunities for smuggling. Third, subsidies usually favor exports of modern manufactures over traditional exports. Fourth, there is no evidence that preferential credit and insurance schemes actually increase exports. A study of export credit programs in seven developing and three industrial countries found that in all but one country, subsidized exports accounted for less than 10 percent of total exports.²¹

149) For all these reasons, a good economic case cannot be made for preserving, let alone increasing, Iran's subsidies to export finance. Such schemes are used by almost all countries around the world to subsidize manufactured exports, however, and it appears almost inevitable that they will be retained in Iran. If the subsidies are maintained, the government could reduce the distortions they cause by ensuring that the amount and the form of the subsidies provided by the Export Guarantee Fund of Iran and the EDBI conform with the limits on export finance subsidies set forth in the WTO's Agreement on Subsidies and Countervailing measures and in the conventions of the Berne Union.²²

150) We also recommend that a study be undertaken of the options for comprehensive liberalization of the whole financial sector, subject to prudential regulations to prevent the abuse of implicit or explicit government guarantees of financial institutions. Within the framework of comprehensive financial liberalization, we believe that interest rate and quantitative controls on export finance should be abolished: all financial institutions, including commercial banks as well as the Fund and the EDBI, should be free to engage in export finance to whatever extent, and on whatever terms, they choose.

²¹ The authors of the study argue that export credit programs are used mainly as weak means of offsetting anti-export bias found elsewhere in the economy (Fitzgerald and Monson 1989).

²² For the Agreement on Subsidies and Countervailing measures, see the Web sites of the WTO (www.worldbank.org) and the International Trade Center (www.intracen.org). Information on the membership and conventions of the Berne Union is available at <http://www.berneunion.org.uk>.

Developing a New Strategy for the Free-Trade and Special Economic Zones

151) The announcement of new management teams for each free-trade zone, the government's emphasis on speeding up the new zone-specific development strategy, and its renewed efforts to attract foreign direct investment are encouraging signs. To improve the effectiveness of these zones even further, the government could also consider several additional reforms:

1. Some of the most successful zones in the world have been privately owned and managed. The government could consider privatizing its free-trade and special economic zones or hiring private-sector managers to operate them.
2. Movement of capital out of the free-trade zones currently takes up to a week. While supervision and regulation is necessary to ensure that money laundering does not occur, reducing the processing time is critical to the ability of the zones to attract foreign investment.
3. To achieve its desirable aim of transforming the zones into true export-processing zones, rather than import-processing zones, the government could accompany reductions in the economywide barriers to imports from foreign countries with the abolition of the preferential treatment of imports from the zones into the customs territory of Iran. Doing so would involve two policy reforms: the abolition of the \$80 allowance of duty-free imports from the free-trade zones for domestic shoppers and reform of the value-added rule, which currently allows limited amounts of -imports from the zones to the mainland. The government may wish to consider realigning the value-added rule applied to the zones with the general trade reform taking place on the mainland by imposing the same regulations and duties that apply to imports from foreign countries on imports from the zones.
4. There appears to be a good case for investing in electricity-generating plants and deep sea ports in both Kish and Qeshm. Detailed cost-benefit analyses could be conducted to confirm that such investments are justified.

ANNEX 4A. IRAN'S FREE-TRADE ZONES: KISH, QESHM, AND CHAHBAHAR

This annex provides details about locations, comparative advantages, facilities, activities and development strategy of Iran's three FTZs.

Kish

Kish Island is the second largest island in the Persian Gulf, with an area of 90 square kilometers and some 15,000 inhabitants. Its moderate climate and pristine beaches make it an attractive tourist destination. Daily flights connect the island with the major Iranian and regional cities.

According to the Kish Comprehensive Plan, 55 percent of Kish's revenues should eventually come from tourism, 30 percent from trade and services, and 15 percent from industry. The Kish FTZ authority has developed several tourist attractions on the island (including a large aquarium and a small amusement park in an effort to attract both Iranian and foreign tourists. As of February 2000, Kish boasted some 13 shopping centers and bazaars, 35 hotels or tourist accommodation centers, 20 banks and insurance companies, and 23 service firms, including warehouses, cold storage facilities, tour operators, and travel agencies.

Iranians travel to Kish to shop or vacation or both. The zone has been much less successful in attracting foreign tourists, largely because of the Islamic dress code and the zone's inability to compete with other regional vacation spots in terms of entertainment, services, and personal freedom. Recently, a mixed-gender beach for foreigners was permitted on Kish, but its creation is under severe criticism from conservatives in the government.

Kish serves as a conduit for the mainland's consumer products market (table 4A.1. Travelers imported more than US\$110 million worth of products to the mainland in 1998. The decrease in 1999, to US\$87 million, reflects the change in the Iranian economy, which weakened as a result of the decline in world oil prices. It also highlights the extreme dependence of the island's economy on the mainland.

By the summer of 2000, 361 production permits had been granted in the industrial sector, involving the equivalent of US\$340 million of investment. About 65 industrial firms are active (the level of their activities could not be determined); another 45–50 firms are at different stages of development.

Table 4A.1. Performance of the Kish Free-Trade Zone, 1998–99
(millions of US\$, except where otherwise indicated)

<i>Item</i>	<i>1998</i>	<i>1999</i>
Annual imports to Kish	110.7	88.5
Annual imports for consumption on Kish	15.7	10.4
Exports by travelers from Kish to the mainland Iran	110.7	86.7
Annual exports abroad (outside Iran and other zones)	0.1	1.8
Number of industrial investment issues	53	77
Capital investment approved (billions of rials)	134.3	219.0
Employment (people)	1,156.0	2,069.0

Source: Kish Free Zone Organization.

To safeguard the tourist industry, the emphasis in Kish is on nonpolluting industries, such as computers, electronics, televisions, garments, toys, shampoos, detergents, and woodworks. Despite a number of active firms, exports from the zone to destinations other than mainland Iran have been negligible, at just US\$0.1 in 1998 and US\$1.8 million in 1999. One producer confirmed that the majority of his production was directed to the mainland, with a smaller share transshipped to foreign markets through Arab intermediaries.

Few domestic or foreign investors have set up in the zone, largely because of policy uncertainty and the negative image of “the shopping mall of Iran” that Kish acquired in its early development stages.²³ Essential infrastructure, such as a deep sea port, is also lacking. Products need to be unloaded at another port and reloaded onto smaller ships to be brought to Kish, raising the cost of transportation and increasing uncertainties about disruptions in production lines and deadlines and exports.

Qeshm

Qeshm Island, the largest island in the Persian Gulf, with a population of 75,000 people, is only 15 kilometers away from mainland Iran. Like Kish, Qeshm has not fulfilled its role as an export-processing zone, providing instead an import plateau into Iran. Imports reached US\$480 million in 1998, while exports were a mere US\$0.9 million (table 4A.2). The number of Iranian tourists rose from 100,000 in 1994 to 1 million in 1997. The number of foreign visitors hit a high of 228 the same year (Ministry of Economic and Financial Affairs 1998c).

Qeshm lacks an independent and adequate electricity supply (it is connected to the mainland by pylons in the Persian Gulf). Industrially usable water is pumped out of wells and desalinized, while bottled water is used for consumption.

The Bank mission was informed that the free-trade zone authorities have plans to re-orient the Qeshm free-trade zone into a true export-oriented free-trade zone based on its natural comparative advantages. These include the deep water off the island’s coast, which make it possible to build wharves, docks, and harbors to receive oceangoing vessels, and the island’s large reserves of natural gas, which could be used for petrochemical enterprises and fuel for heavy industries. A biotechnological research center on sea life is also now operational on the island.

²³ Twelve firms have 9–100 percent foreign ownership. Eight of the investors are from Europe, two are from Southeast Asia, and two are Arab. Eleven of these firms are operational; one is under construction.

Table 4A.2. Performance of the Qeshm Special Economic Zone, 1993 and 1998
(millions of US\$, except where otherwise indicated)

<i>Category</i>	<i>1993</i>	<i>1998</i>
Annual imports	480	145
Annual exports	0	9
Annual budget (billions of rials)	24	253
Annual development budget (billions of rials)	16	219
Number of investors	60	1,403
Realized domestic capital investment (billions of rials)	Very low	10,000
Realized foreign capital investment	0	200
Factories under construction	0	300
Factories constructed	0	105
Industrial buildings constructed (square meters)	0	500,000
Commercial buildings constructed (square meters)	0	240,000
Service buildings constructed (square meters)	0	136,000
Residential buildings constructed (square meters)	0	220,000
Employment	3,000	21,000
University graduate personnel	217	317
High school-educated personnel	705	99

Source: Secretariat of the High Council of Free Trade-Industrial Zone (www.iftiz.org).

As of February 2000, some 145 firms were registered or active in Qeshm. Very few firms are dedicated to exports/imports, however. Firms span the range of industrial activities (chemical products, construction material, home appliances, food-processing and packaging, electric and electronics, mechanical industries, engines, tubing, office machine products). Industrial activities are concentrated in four industrial “townships”: Toula for light and medium enterprises, Kaveh for heavy industries, Souza for high-tech firms, and Alvand for chemical and petrochemical industries. Data on the level of firms’ activities, number of employees, investment, ratio of production to capacity were not available for 1999/2000. In 1998, however, some 77 firms were active, employing about 1,250 workers. The production mix included clothing, boats, marine products, electronics and computer assembly, and chemicals (Ministry of Economic and Financial Affairs 1998c).

As of early 2000, 44 firms—about 30 percent of all firms—in Qeshm were partially or totally owned by foreigners. (Minimum foreign ownership is 10 percent.) Nineteen of these firms are operational. Another 11 have been granted development licenses, with the remainder at different stages of development.

Chahbahar

Located in the far southeastern part of the mainland on the Oman Sea, this zone links the Central Asian states to international waters. Abundant aquatic sources make Chahbahar a suitable place for fishery and related industries.

Given its location, Chahbahar has the potential to become a transit point for warehousing, re-exporting, and distributing goods all over the region, particularly to Central Asia. Further infrastructure and utility development are necessary both within and outside the zone to attract investment and realize this potential, however. The island lacks adequate roads, water mains, and electricity, and there is no international airport in the vicinity (the closest airport is 35 kilometers away).

Chahbahar faces the same problems as Kish and Qeshm in having financed its development by becoming a conduit for imports into Iran. Compared with those zones, however, Chahbahar seems closer to fulfilling its master plan of attracting commercial entrepreneurs, with the ultimate goal of becoming a major regional transit and transshipment port for products going to Afghanistan and the Commonwealth of Independent States. As of February 2000, about 185 firms were either registered or active in the Chahbahar free-trade zone. Many of these firms are commercial export-import entities. Several are light industrial assembly plants (in which electronics, electrical parts, TVs, and bicycles are assembled); food-processing and packaging plants; and chemical processing facilities. The mission was unable to find information on the level of these firms' activity.

There does not seem to be an industrial master plan to encourage any specific group of industries. In this sense, Chahbahar seems to live up to the true definition of a free-trade zone as a zone allowing any economic activity that is not illegal.

5. QUANTIFYING THE GAINS FROM TRADE AND EXCHANGE RATE REFORM IN IRAN

152) Tariffing nontariff barriers and lowering tariffs are important steps in Iran's effort to join the WTO. The measures will also have important effects on economic development in Iran. What effect will these actions have on Iranian welfare and the incomes of the poor? How will they affect the government budget, the real exchange rate, the output and price levels of industries, and the real wage and rental rate on capital?

153) In this section, we present quantitative estimates of the impacts of these policy changes on these variables based on a multisector computable general equilibrium model of the Iranian economy. The model includes 20 household types—10 rural and 10 urban, grouped according to income—in order to assess the impact of tariffication and the reduction in tariffs on the poor and on the distribution of income. We also assess the impacts of unifying the exchange rate for imports and exports of goods and services. We evaluate two alternate mechanisms for compensating the poor for the loss of the implicit subsidy of imported agricultural commodities provided by multiple exchange rates: equal lump-sum payments to all households and subsidies to consumption of those commodities that hold the price unchanged. Finally, we draw on our work on estimating the impact of energy pricing reform in Iran to estimate the impact of combining trade and exchange rate policy reform with energy pricing reform.

5.1. Data on Tariffs, Nontariff Barriers, and Subsidies

Data on Tariffs

154) Collected tariffs in Iran are low by international standards. Customs Department data show that aggregate collected tariffs were just 0.3 percent of GDP in fiscal 1998/99. Collected tariff rates are low for two reasons. First, for the purposes of customs valuation, all imports are valued at the official exchange rate. Use of this exchange rate rather than the market rate in effect in November 2000 reduced tariff receipts by 78 percent. Second, licensing requirements rather than tariffs have been the principal means of protecting imports in Iran.

155) The data on the average collected duty and commercial benefit tax for the sectors in our model were calculated as follows. Since up-to-date applied tariff data are important, we obtained the collected tariff data at the tariff line level for fiscal 1999/2000. Iran employs the international harmonized system at the 6-digit level (although it disaggregates some tariff lines, introducing tariff lines at the 8- or possibly 10-digit level to reflect national needs). We aggregated the 5,313 tariff lines at the six-digit level with simple averages to obtain the average collected tariff for the sectors in our model. Since it is what the importer pays that affects the decision to purchase, collected tariff rates should be superior, for the purpose of measuring nominal protection, to legal tariff rates. We thus updated the data in the input-output (IO) table of our model with collected tariff rates for 1999/2000 (table 5.1).

Table 5.1. Import Protection of Sectors Included in the Model
(percentage rate of distortions)

<i>Sector</i>	<i>Import duty</i>	<i>Commercial benefit tax (pre-reform)</i>	<i>Nontariff barrier (tariff equivalent)</i>	<i>Commercial benefit tax (posttariffication)</i>	<i>Energy subsidy to consumption</i>	<i>Foreign exchange subsidy for imports</i>
Farming	0.1	0.7	9.2	10.0		63.0
Livestock	0.1	0.7	19.1	20.0		
Other agriculture	0.1	0.7	14.2	15.0		
Mining	0.5	1.1	13.7	15.0		
Crude oil						
Sugar						79.0
Other food	0.1	0.4	29.5	30.0		31.0
Paper and print	0.7	2.4	6.4	9.0		
Cement	1.1	1.0	19.6	21.0		
Brick	1.1	8.2	11.7	21.0		
Gypsum and other minerals	0.7	2.3	18.2	21.0		
Glass	1.3	6.5	21.8	30.0		
Other nonmetal products	1.1	5.3	14.8	21.0		
Textiles	0.4	2.3	69.8	74.0		
Clothing	3.1	11.1	69.1	90.0		
Weaving and leather products	0.6	3.6	67.6	74.0		
Rubber and plastic products	0.4	1.3	23.3	25.0		
Pharmaceutical products						79.0
Kerosene		0.1		0.1	92.0	
Fuel oil		0.1		0.1	94.0	
Gasoline		0.1		0.1	74.0	
Gas oil		0.1		0.1	91.0	
Liquid gas		0.1		0.1		
Other materials and chemical products	0.3	1.7	7.2	9.0		
Basic metal and steel products	0.4	3.1	16.3	20.0		
Copper and aluminum and other basic products	0.4	3.1	16.3	20.0		
Metal products	1.0	4.9	4.8	10.0		
Industrial machinery	0.6	2.1	7.7	10.0		59.0
Radio and television equipment	1.2	2.8	16.5	20.0		
Motor vehicles	1.4	2.1	32.8	36.0		
Other industrial products	0.5	2.9	16.5	20.0		
Electricity						
Water						
Natural gas						
Construction						
Trade						
Restaurants						
Hotel and motels						
Load transport						
Passenger transport						
Post and telecommunications						

<i>Sector</i>	<i>Import duty</i>	<i>Commercial benefit tax (pre-reform)</i>	<i>Nontariff barrier (tariff equivalent)</i>	<i>Commercial benefit tax (posttariffication)</i>	<i>Energy subsidy to consumption</i>	<i>Foreign exchange subsidy for imports</i>
Other transport and storage						
Other services						

Source: Authors' estimates.

Tariff Equivalence of Nontariff Barriers

156) The intergovernmental committee chaired by the Ministry of Commerce, which includes the Ministry of Industry, is responsible for recommending the tariff equivalent of nontariff barriers. International versus domestic price comparisons are made based on a database of prices that contains 70 million observations from Iranian customs declarations. The Ministry of Industry has estimated the tariff equivalence of the nontariff barriers for the 3,000 tariff lines for which it is responsible. We obtained preliminary estimates from the Ministry of Industry of the new commercial benefit tax necessary to provide tariff equivalence of the nontariff barriers. For imports that are subsidized in the initial period, we take the tariff equivalence to be zero. (Since the domestic price is less than the world price, the tariff equivalence of the nontariff barrier cannot be positive.) For imports that are not on the positive list, the tariff equivalence of the nontariff barrier should be very high, since these goods cannot be legally imported. For products on the positive list, we assume the tariff equivalence to be lower than for products that are not on the positive list.

We calculate the tariff equivalence of the nontariff barriers as follows. Let

PM = the domestic price of imports in rials

PW = the border price of imports in dollars

ER = the exchange rate (rials per dollar)

TD = the customs duty

commercial benefit tax(0) = the commercial benefit tax before tariffication

commercial benefit tax(1) = the commercial benefit tax after tariffication

nontariff barrier = the tariff equivalent of the nontariff barrier in ad valorem terms.

The tariff equivalent of the nontariff barrier in place before tariffication is then given by the following equation:

$$PM = PW * ER [1 + TD + \text{commercial benefit tax}(0)] [1 + \text{nontariff barrier}].$$

After tariffication, the nontariff barrier is removed and replaced by a higher commercial benefit tax:

$$PM = PW * ER [1 + TD + \text{commercial benefit tax}(1)]$$

Since the increase in the commercial benefit tax is supposed to leave the domestic price of imports unchanged:

$$PM = PW * ER [1 + TD + \text{commercial benefit tax}(0)] [1 + \text{nontariff barrier}] = PW * ER [1 + TD + \text{commercial benefit tax}(1)]$$

or

$$[1 + TD + \text{commercial benefit tax}(0)] [1 + \text{nontariff barrier}] = [1 + TD + \text{commercial benefit tax}(1)].$$

Rearranging, the tariff equivalent of the nontariff barrier is:

$$[1 + TD + \text{commercial benefit tax}(1)] / [1 + TD + \text{commercial benefit tax}(0)] - 1.$$

157) Since we have data on all of the right-hand-side variables, we can calculate the left-hand-side, the tariff equivalence of the nontariff barrier. The nontariff barrier rate for a sector typically represents the average tariff equivalence in a product category, since each category represents many tariff lines. These estimates are based on the Tehran Stock Exchange exchange rate, that is, they are about 20 percent of the tariff equivalence that would prevail if imports were valued at the official exchange rate. We use the Tehran Stock Exchange rate both because the government plans to adopt that rate for customs valuation and because we need rates that reflect the real costs that induce resource movement.

158) A key question in assessing the consequences of tariffication is what happens to the quota rents when the nontariff barriers are in place. We model this in two ways. In the first scenario, all rents are dissipated through rent-seeking. In the second scenario, all rents are distributed as a lump sum to the owners of the firms that obtain the licenses, with no rent dissipation.

159) Rent dissipation follows from the conventional theory of rent-seeking. The model of Barzel (1973), for example, maintains that resources are expended to obtain the licenses and that competition among license-seekers results in costs that dissipate the rents available. The classic example is queuing for a good under price control. In this case, the queue lengthens until the value of the time in the queue is just equal to the difference between the market price and the controlled price of the good. In the case of licenses for imports, there are lobbying costs, queuing costs, and inefficiencies in the cost of the delivery of final products in which the imported good is an intermediate. Given that the license to import has value, competition among license-seekers will dissipate the rents. Since the value of the license to import is the difference between the domestic price and the tariff-inclusive world price, competition for rents would not dissipate the tariff revenue. Thus the difference between the domestic and world price of quota-constrained products is part tariff and part rent, where the rent is competed away in higher costs for the rent-seekers. Elimination of the nontariff barrier through tariffication would eliminate the rent from obtaining the license to import and eliminate the wasteful expenditure of resources on rent-seeking behavior. This view of license allocation thus implies that there are real resource gains from tariffication and that welfare should increase significantly for all households. In addition, the poor are likely to gain disproportionately, since we assume that the tariff revenue of the government will be distributed to all households in equal amounts.

160) No rent dissipation would occur if recipients of the licenses to import are unable to influence the decision on who obtains the licenses (that is, if firm size or payments to or lobbying of officials is irrelevant). When a firm receives the license to import, it receives a windfall profit equal to the difference between the domestic price of the imported product and the tariff inclusive import price (that is, it receives the tariff equivalent of the quota). We assume that this value accrues to the owners of the factors of production in the firm. This value is ultimately part of household income, since the owners of the factors of production are households. Under this assumption of no rent dissipation, when tariffs are imposed and nontariff barriers eliminated, the tariff revenue of the government increases and the government distributes the tariff revenue back to households in equal lump-sum payments. Although there will be little or no efficiency or aggregate welfare gain from this process, there will be significant income distribution effects, with the poor becoming better off and the rich worse off. This effect occurs because the rents from the quotas accrue to the owners of the factors of production in the economy (of which the poor hold a small share), whereas the tariff revenue is distributed to households in equal shares.

Data on Centrally Allocated Foreign Exchange

161) In fiscal year 1999/2000 the official exchange rate was 1,750 rials per U.S. dollar and the market rate was about 8,150 rials. Dollars allocated at the official exchange rate thus cost only about 21 percent of the market rate; recipients of centrally allocated dollars thus receive a subsidy of about 79 percent of

the market value of the dollars. At the same time, producers in these sectors face an effective negative tariff of 79 percent. Unifying the exchange rate would have both resource allocation and efficiency effects.

162) Imported goods qualifying for foreign exchange at the official exchange rate fall into one of the following categories: essential food commodities, pharmaceuticals and petroleum products, investment demand for state-owned enterprises, national defense, and debt repayment (by both the central government and individual enterprises). Essential food commodities comprise wheat, rice, sugar, cooking oil, and milk powder, all of which are imported by the Government Trading Corporation. These products fall into three sectors in our model: farming, sugar, and other food products. Imports of these commodities represent 10 percent of the value of imports at the official exchange rate. Pharmaceuticals, which are imported by the Ministry of Health, account for about 1 percent of the value of imports. The Iranian National Oil Company imports petroleum products, which represents about 8 percent of the value of imports.

163) The subsidy to the sector is adjusted proportionately based on the share of the sector's imports that is subsidized. In the case of sugar and pharmaceuticals, all imports receive the subsidy, so the subsidy is 79 percent. In the farming and other food products sectors, the subsidy is reduced in proportion to the share of imports in the sector that receive the subsidy.²⁴

164) For the investment projects of state-owned enterprises, one of the largest categories of imports in our IO table is industrial machinery. We assume that 75 percent of these imports are destined for the investment demand of the state-owned enterprises at the official exchange rate. The subsidy rate is thus estimated at 59 percent (75 percent of 79 percent).

165) According to data from the Central Bank of Iran, 50 percent of imported goods in fiscal year 1999/2000 were imported at the official exchange rate. The sum of these categories represents 32 percent of the value of imports based on the data in the IO table.

166) In addition to these imports, which are for private consumption or intermediate use in industry, the central government allocates foreign exchange for national defense. We take national defense as the residual 18 percent of centrally allocated foreign exchange at the official exchange rate and assume that it represents final consumption by the central government (that is, the central government holds foreign exchange, which it uses to purchase imported goods for its own consumption in the form of national defense expenditures). As a result, the rate at which foreign exchange is accounted for national defense purposes is irrelevant for economic decisionmaking, and we ignore national defense expenditures in the analysis that follows.

5.2. The Model

167) The small open-economy model used here is designed for trade policy analysis with a large number of sectors. With the exception of the disaggregation of households, the model is a generic general equilibrium model of a single economy along the lines of de Melo and Tarr (1992); Harrison, Rutherford, and Tarr (1993); and Rutherford, Rutström, and Tarr (1994). We describe the general features of the

²⁴ We used Customs Department data to calculate the share of subsidized commodities farming and food products in imports. For customs valuation purposes, all imports are valued at the official exchange rate.

model here. The annex contains more details on the model's structure and the construction of the underlying database.

168) In our model, goods are produced using primary factors (labor and capital) and intermediate inputs. Labor and capital are perfectly mobile, which yields a unique real wage rate and rental rate on capital. Oil is a specific factor in the crude oil sector, and the government receives the returns to oil. The returns to oil are the revenues from the sale of oil after the payment of wages and rent on the capital used to produce it. Land is a factor of production specific to the production of agriculture.

169) Production exhibits constant returns to scale, and individual firms behave competitively, selecting output levels such that marginal cost equals the market price. Output in all sectors except crude oil is differentiated between goods destined for domestic and export markets. Output substitution possibilities are characterized by a constant elasticity of transformation frontier. Composite output is an aggregate of domestic output and exports. We assume that crude oil is a homogeneous product (that is, there is no distinction between Iranian crude oil and crude oil sold on the world market). The structure of production and allocation of output for the nonenergy and oil sectors is depicted in figure 5.1 (with elasticities). The production and allocation of oil is depicted in figure 5.2; the energy sectors are depicted in figure 5.3.

Figure 5.1: Production and Allocation of Output in Iran

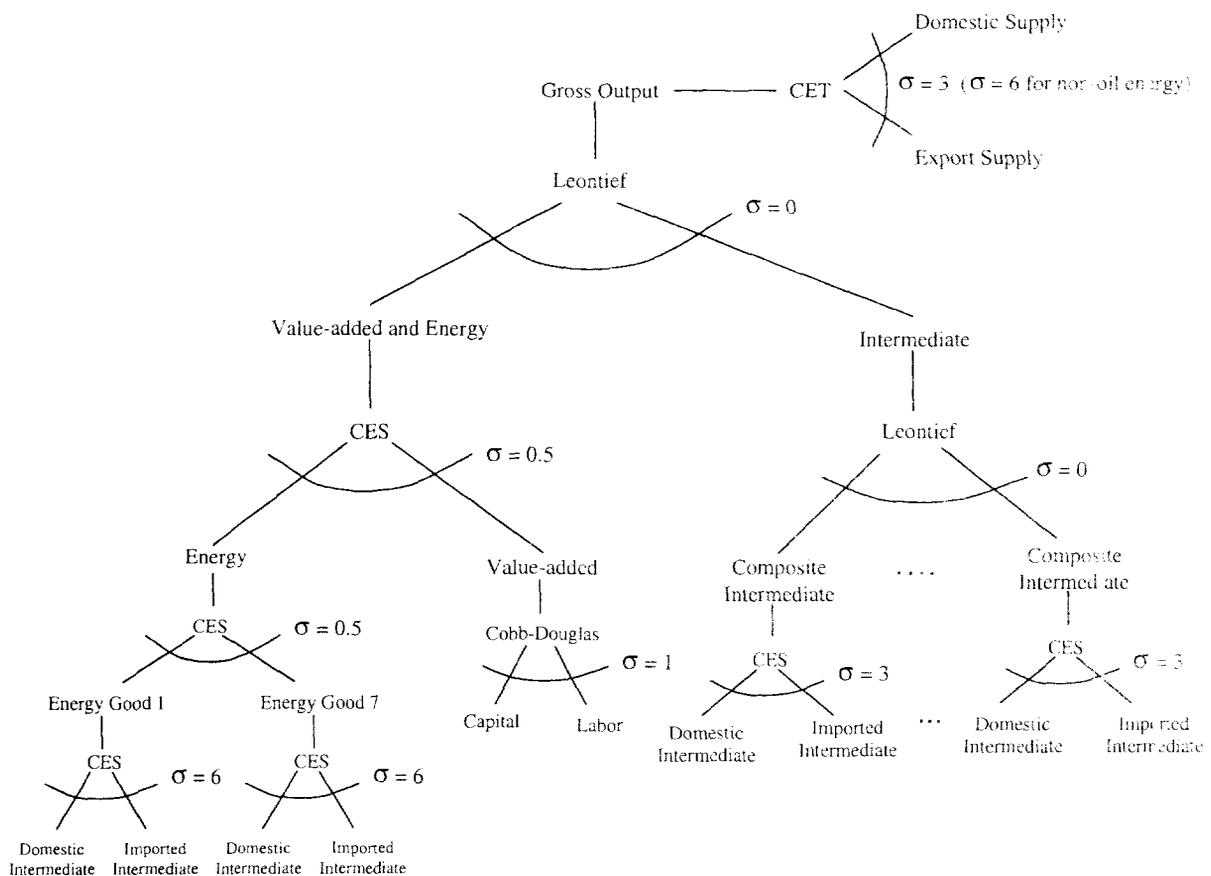
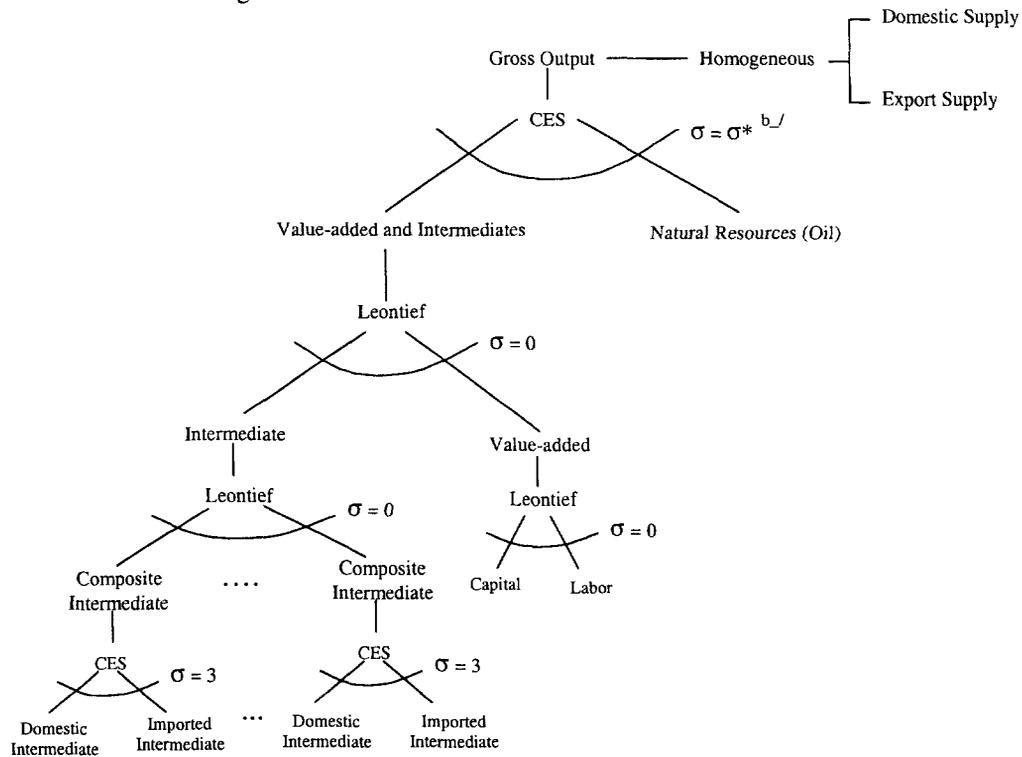


Figure 5.2: Crude Oil Production^{a./} and Allocation in Iran



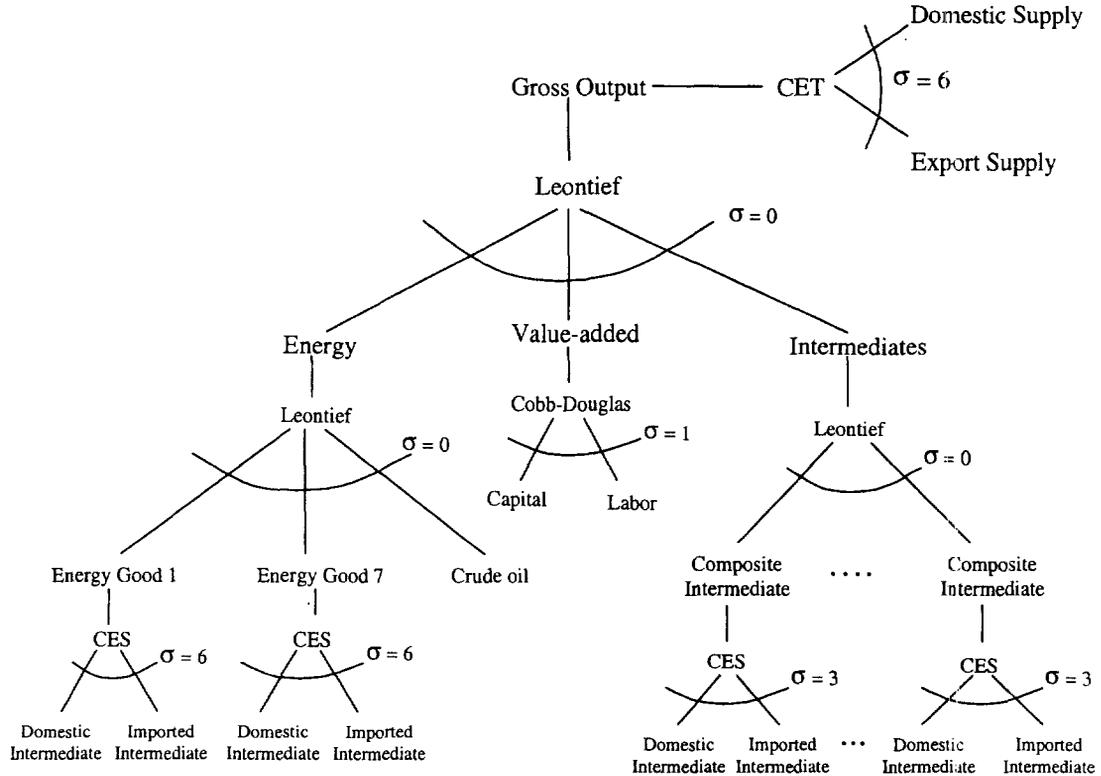
^{a./} The farming and livestock sectors share the same production structure, but their exports and domestic outputs are differentiated.

^{b./} σ^* is calibrated such that elasticity of supply equals 0.5.

170) The model includes 20 household types—10 urban and 10 rural—all grouped according to income. The 10 rural household types cover 38 percent of the Iranian population, with an equal number of households in each group (that is, each group includes 3.8 percent of the total population). Each urban household group includes 6.2 percent of Iranian households. We estimate that the two poorest urban household types and the two poorest rural household types are below the \$1 a day poverty line.

171) The shares of each consumer's expenditure on different commodities differ (table 5.2). Although we have the source of income by factor of production for households in aggregate, we lack data on the factor income source at the level of the individual household. Consequently, we assume that all households obtain their income from the different factors of production in identical proportions. The structure of demand is depicted in figure 5.4.

Figure 5.3: Energy Sectors Production and Allocation in Iran ^{a/}



^{a/} Energy sectors are gasoline, kerosene, fuel oil, liquid gas, natural gas, gas oil and electricity.

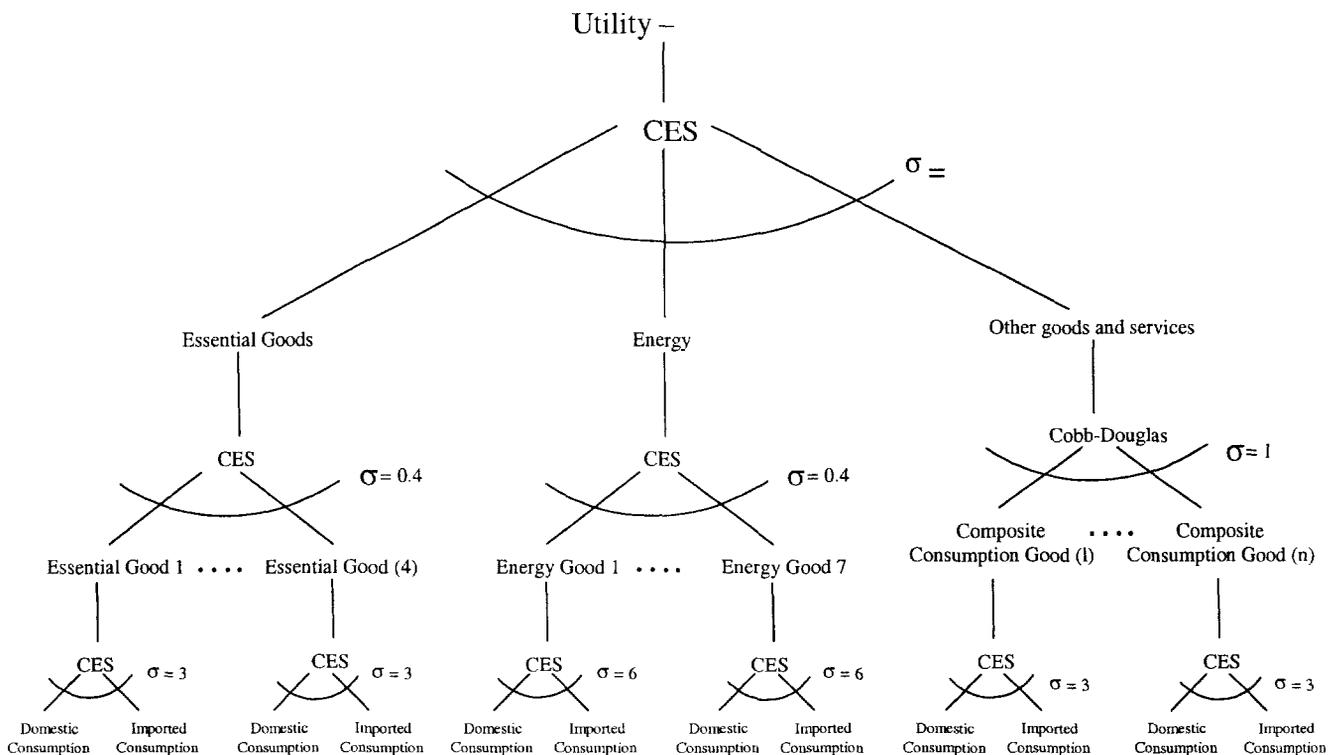
172) Government demand and investment demand are exogenous. The net return from the sale of oil on world markets (after payments to labor and capital), import tariff revenues, and exogenous lump-sum taxes finance government demand and subsidies to foreign exchange for imports and subsidies to petroleum products.²⁵

173) Reductions in subsidies reduce government expenditures. In all scenarios we hold government demand for goods unchanged (otherwise welfare analysis would be meaningless, since only consumers obtain utility and only from private goods). Consequently, when government revenues rise, they are endogenously distributed back to households so that government demand remains unchanged. Thus government demand is balanced with revenue (which is consistent with the loose requirement in Iran to balance the budget). We nevertheless calculate and present the impact of all policy changes on government revenues, since policymakers may consider alternate expenditures for these revenues, such as institution-building to assist the development of the private sector.

²⁵ The lump-sum tax replaces income and other taxes, which we do not represent in the model.

174) The decision rule we typically adopt is that lump-sum distributions of the government are distributed to households in equal shares. Suppose the government is distributing 10,000 rials. Since rural households in aggregate constitute 32 percent of all households, the government would provide 320 rials to each of the 10 rural household types and 680 rials to each of the 10 urban household types. All individual households, rural and urban, would receive the same rial amount. Since the recipients of government commodity subsidies receive subsidies in unequal shares (that is, based on their consumption of subsidized goods), this distribution rule would affect the distribution of income. In particular, it would typically favor the poorest households, which receive less than an equal share of most commodity subsidies (even subsidies targeted for the poor) because they consume less of virtually all goods. As we discuss below, this is not necessarily a recommendation for implementation of the safety net, but conveniently allows us to assess and quantify the distributional consequences of the existing subsidy regime. Private consumption equals the income from primary factors plus net transfers by the households to the government (from domestic and foreign trade).²⁶

Figure 5.4: Consumer Demand in Iran



²⁶ This means Walras' Law is satisfied.

Table 5.2 Expenditure Shares by Household Type
(percent)

<i>Household type</i>	<i>Energy</i>	<i>Transportation</i>	<i>Food</i>	<i>Other</i>
Rural 1	4	23	44	29
Rural 2	4	15	49	33
Rural 3	3	22	44	31
Rural 4	3	15	47	35
Rural 5	3	19	43	35
Rural 6	3	16	39	42
Rural 7	3	20	41	37
Rural 8	3	12	43	41
Rural 9	3	14	37	47
Rural 10	1	6	14	79
Urban 1	2	11	35	52
Urban 2	3	9	34	54
Urban 3	2	13	29	55
Urban 4	2	12	29	56
Urban 5	2	10	27	60
Urban 6	2	10	28	60
Urban 7	2	11	26	61
Urban 8	2	9	22	67
Urban 9	2	8	17	73
Urban 10	1	5	10	83

Source: Household Budget Survey (1995), authors' estimates.

175) World market import and export prices are fixed, so there are no endogenous changes in the terms of trade. In other words, import supplies and export demand are infinitely elastic at world prices. The real exchange rate in the model adjusts so that the current account balances the value of exports and imports, taking into account exogenously fixed capital inflows. The model allows for changes in these fixed world prices, such as a change in the price of crude oil on world markets

5.3. Results and Policy Implications

176) In many constant returns to scale models, the estimated welfare gains from trade liberalization are less than 1 percent of GDP (see de Melo and Tarr 1990, 1992, 1993; Harrison, Rutherford, and Tarr 1993, 1997a, 1997b; Morkre and Tarr 1980, 1995; and Tarr and Morkre 1984). The much larger gains estimated below for Iran reflect the unusually high level of distortions at the starting point of reform and suggest that the benefits from reform are potentially enormous. We note, however, that household consumption is about 37 percent of Iranian GDP. We report welfare changes at the aggregate level as a percent of household consumption. **Welfare gains as a percent of GDP would be only 37 percent of this value.**

Tariffing Nontariff Barriers

177) The impact of the tariffication of nontariff barriers depends on whether the rents from existing nontariff barriers are dissipated through rent-seeking. We perform two simulations, one in which all rents are lost to rent-seeking behavior and one in which no rents are lost. We believe the actual situation is closer to rent dissipation and employ rent dissipation as our central assumption.

178) In the first scenario, tariffication increases aggregate welfare by 3.4 percent of initial household income (column 1 in table 5.3). Although all households gain in this scenario, the impact on the poor is greatest: the poorest rural household type gains 23 percent and the poorest urban household type gains 11 percent. The favorable distribution effect on the poor reflects the fact that converting nontariff barriers to tariffs increases the government's tariff revenue by 2 percent (to 2.3 percent of GDP). At the same time, government revenues are endogenously affected by the depreciation of the real exchange rate. The depreciated exchange rate implies that the cost of government subsidies to foreign exchange and imported petroleum products increases, worsening the government's fiscal position. On the positive side, the revenues the government receives (after factor payments) from the sale of oil on world markets increase by 0.5 percent of GDP as a result of exchange rate depreciation. The net fiscal impact is a positive 1.4 percent of household income. Unless otherwise specified, we assume that the government distributes additional revenues generated by reform back to households in equal absolute amounts. Since the poor have low incomes, the distribution of these revenues represents a significant share of their income.

Table 5.3. Impact of Trade and Exchange Rate Reforms: Welfare and Macroeconomic Effects

<i>Item</i>	<i>Initial situation (level values)</i>	<i>Tariffification</i>	<i>Tariffification without rent dissipation</i>	<i>Tariffification + maximum tariff of 25 percent</i>	<i>Tariffification + uniform 15 percent tariff</i>	<i>Exchange rate Unification</i>	<i>Exchange rate unification + food subsidies</i>
	(0)	(1)	(2)	(3)	(4)	(5)	(6)
Aggregate welfare change (% of income)		3.4	-0.4	4.1	5.5	6.9	6.7
<i>Fiscal effects (change as percent of GDP)</i>							
Food subsidies	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-2.1
Foreign exchange subsidies	-6.4	-0.3	-0.1	-0.8	-0.2	6.4	6.4
Petroleum subsidies	-18.1	-0.8	-0.1	-1.7	-1.9	2.7	2.3
Import taxes	0.3	2.0	2.0	1.7	1.6	0.0	0.0
Oil rent	15.7	0.5	0.1	1.4	1.5	-3.8	-3.7
Net effect	n.a.	1.4	1.9	0.7	1.0	5.3	2.9
Average effective tariff rate	2.5	19.4	19.5	15.3	13.9	2.8	2.8
<i>Trade effects</i>							
Real exchange rate	n.a.	1.1	0.2	3.6	3.8	-13.0	-12.2
Aggregate exports	n.a.	1.0	0.1	5.6	4.9	-21.9	-22.4
<i>Factor incomes</i>							
Wage rate	n.a.	-0.1	0.1	0.2	0.4	3.0	6.8
Return to capital	n.a.	-0.4	-0.2	1.1	1.4	-4.7	-1.7
<i>Price of essential goods</i>							
Primary food items	n.a.	1.2	0.3	1.6	2.5	10.5	
Food products	n.a.	0.6	0.2	0.8	0.4	6.0	
Sugar	n.a.	0.0	0.0	0.6	7.4	37.6	
Pharmaceuticals	n.a.	-0.3	-0.1	0.8	2.3	1.0	
<i>Change in household welfare</i>							
Rural 1	n.a.	23.3	27.9	15.6	20.2	72.0	46.3
Rural 2	n.a.	15.2	16.6	10.9	14.2	44.6	30.5
Rural 3	n.a.	10.8	10.4	8.3	10.9	30.4	21.8
Rural 4	n.a.	9.8	8.9	7.9	10.4	26.6	19.7
Rural 5	n.a.	8.0	6.3	6.9	9.0	20.9	16.1
Rural 6	n.a.	6.3	3.9	6.0	7.9	15.6	12.7
Rural 7	n.a.	5.6	2.9	5.6	7.4	13.0	11.3
Rural 8	n.a.	5.2	2.4	5.7	7.5	11.7	10.7
Rural 9	n.a.	3.6	0.1	4.7	6.2	6.7	7.3
Rural 10	n.a.	1.1	-3.8	2.6	3.6	-0.4	1.9
Urban 1	n.a.	11.1	10.6	8.3	10.9	32.0	21.9
Urban 2	n.a.	7.5	5.6	6.3	8.3	19.9	14.9
Urban 3	n.a.	5.9	3.2	5.4	7.1	14.8	11.6
Urban 4	n.a.	5.0	2.0	5.0	6.7	11.9	9.9
Urban 5	n.a.	4.4	1.1	4.7	6.2	9.9	8.6
Urban 6	n.a.	3.9	0.5	4.4	5.9	8.4	7.8
Urban 7	n.a.	3.3	-0.4	4.1	5.5	6.5	6.5
Urban 8	n.a.	2.6	-1.6	3.7	4.9	4.0	4.9
Urban 9		1.8	-2.7	3.1	4.2	1.9	3.4
Urban 10		0.9	-4.1	2.4	3.5	-0.7	1.5

n.a. Not applicable.

Source: Authors' estimates.

Table 5.4. Impact of Trade and Exchange Rate Reforms on Domestic Output, Prices, and Exports by Sector
(Percentage change from initial equilibrium)

Sector	Tariffication with rent dissipation		Tariffication without rent dissipation		Tariffication + maximum 25% tariff		Tariffication + uniform 15% tariff		Exchange rate unification		Exchange rate unification + food subsidies								
	Output	Prices Exports	Output	Prices Exports	Output	Prices Exports	Output	Prices Exports	Output	Prices Exports	Output	Prices Exports							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)							
Farming	2.9	1.2	3.1	3.1	0.6	0.3	0.3	3.0	1.9	1.24	3.6	2.6	12.0	13.0	7.3	-42.7	15.8	7.9	-38.4
Livestock	3.1	1.7	2.1	0.8	0.8	0.4	0.2	2.6	2.2	11.2	1.9	2.2	11.2	4.0	5.7	-44.8	6.3	2.4	-33.8
Other agriculture	3.5	-0.2	8.2	0.7	-0.0	1.5	2.8	0.8	16.0	2.6	2.6	1.8	13.5	-3.5	3.2	-45.0	-2.9	0.7	-36.4
Mining	3.5	-0.3	8.6	0.5	-0.1	1.4	6.9	0.8	20.5	5.0	5.0	1.1	18.4	-14.4	-1.7	-43.6	-14.8	1.3	-45.1
Crude oil	0.9	1.3	-2.5	0.2	0.2	-0.2	1.9	4.9	-1.2	1.9	1.9	5.3	-2.1	-5.7	-14.4	-13.3	-6.2	-12.5	-14.8
Sugar	3.1	0.0	7.0	1.0	0.0	1.7	1.3	1.1	13.4	20.8	2.1	32.5	159.1	3.7	45.4	172.8	-0.3	84.3	
Other food	3.3	0.7	5.3	0.7	0.2	0.9	2.8	1.4	14.1	1.3	1.3	1.7	12.1	5.4	4.1	-41.5	7.8	0.5	-28.9
Paper and print	3.6	-0.1	8.2	0.5	-0.0	1.3	3.6	0.9	16.6	4.9	1.5	1.5	16.9	-6.9	-1.6	-38.7	-6.9	-0.0	-37.7
Cement	0.9	-0.1	5.4	0.1	-0.0	0.8	1.9	0.5	16.0	0.7	0.5	15.8	-4.7	-1.4	-37.7	-4.8	1.1	-38.4	
Brick	1.4	-0.2	6.2	0.0	-0.0	0.9	1.6	0.6	15.4	0.8	0.6	15.4	-2.6	-1.6	-35.9	-2.8	1.1	-37.1	
Gypsum and other minerals	1.6	-0.3	6.5	0.1	-0.1	1.0	2.5	0.7	15.9	1.3	0.8	0.8	15.4	-4.4	-2.8	-34.9	-4.7	-0.2	-35.9
Glass	2.9	-0.2	7.7	0.2	-0.1	1.0	1.9	0.8	15.2	-0.8	0.8	0.8	12.8	-2.3	-2.6	-33.8	-2.9	0.0	-35.0
Other nonmetal products	0.8	-0.2	5.4	-0.0	-0.0	0.8	1.2	0.7	14.7	1.0	0.6	0.6	15.7	-1.2	-2.6	-33.0	-1.4	-0.2	-33.7
Textiles	3.5	0.0	7.7	0.1	-0.0	0.8	-8.2	0.1	5.7	-12.3	0.3	1.3	1.3	-9.6	-1.9	-39.9	-9.8	-0.3	-39.1
Clothing	3.1	-0.1	7.6	-0.2	-0.0	0.6	-14.6	-0.5	0.3	-18.3	-0.8	-0.8	-2.5	-2.8	-1.8	-35.6	-3.9	0.7	-36.9
Weaving and leather products	6.9	-0.2	11.7	0.7	-0.0	1.5	13.8	-0.3	32.6	13.3	-0.3	33.2	33.2	-21.9	-2.0	-48.1	-21.8	-0.2	-47.4
Rubber and plastic products	4.3	-0.0	8.6	0.3	-0.0	1.1	5.5	1.3	17.3	0.7	2.5	9.2	9.2	-7.0	-4.3	-33.6	-7.5	-2.0	-34.2
Pharmaceuticals	2.0	-0.3	6.9	0.3	-0.1	1.3	1.7	0.9	14.3	5.7	1.4	18.2	18.3	18.3	-3.1	-18.5	18.0	-0.9	-19.0
Kerosene	3.4	1.3	0.0	1.0	0.2	0.0	3.4	4.8	0.0	4.0	4.0	5.1	0.0	5.3	-14.1	0.0	4.6	-12.2	0.0
Fuel oil	6.2	0.9	8.5	0.7	0.2	1.0	10.4	3.9	17.4	12.1	4.2	19.3	19.3	-16.5	-10.9	-34.3	-15.7	-8.7	-34.9
Gasoline	2.4	1.1	0.0	0.1	0.2	0.0	3.1	4.4	0.0	3.8	4.7	0.0	0.0	0.1	-12.8	0.0	0.9	-10.8	0.0
Gas oil	3.0	1.3	0.0	0.4	0.2	0.0	3.4	4.8	0.0	4.0	5.1	0.0	0.0	0.1	-14.0	0.0	0.5	-12.1	0.0
Liquid gas	4.1	0.3	0.0	1.5	0.1	0.0	3.6	2.0	0.0	4.2	2.3	0.0	0.0	9.1	-5.4	0.0	7.5	-2.8	0.0
Other materials and chemical products	8.1	0.0	12.4	1.3	-0.0	2.0	15.3	1.3	28.3	20.5	2.5	30.6	30.6	-28.7	-3.7	-49.9	-28.7	-1.7	-49.8
Basic metal and steel products	3.7	-0.1	8.2	0.5	-0.0	1.3	5.9	0.9	19.4	0.3	0.3	16.1	16.1	-12.6	-3.6	-38.9	-13.2	-1.3	-39.7
Copper, aluminum, and other basic products	4.3	-0.2	9.1	0.5	-0.0	1.4	8.5	0.6	23.3	4.8	0.7	19.8	19.8	-21.7	-1.1	-49.3	-21.4	0.5	-48.3
Metal products	1.4	-0.1	5.8	0.1	-0.0	0.9	3.5	0.8	16.9	5.4	0.3	21.8	21.8	-7.7	-3.1	-36.4	-7.8	-0.9	-36.5
Industrial machinery	0.1	0.0	4.0	-0.1	0.0	0.5	0.4	0.1	15.8	14.4	-1.1	38.0	434.4	-2.7	263.5	428.9	0.0	253.5	
Radio and TV equipment	3.7	0.3	7.0	0.4	0.1	0.9	8.5	1.5	19.9	2.1	0.1	18.8	18.8	-18.0	-5.3	-39.5	-19.5	-2.7	-41.5
Motor vehicles	3.0	-0.1	7.5	0.0	-0.0	0.8	-5.4	0.7	7.1	-14.8	0.4	-1.7	-11.6	-3.7	-37.9	-12.0	-1.2	-39.0	
Other industrial products	2.3	0.2	5.9	0.3	0.0	0.9	5.4	1.7	16.0	0.9	0.6	15.4	15.4	-13.9	-5.5	-36.1	-14.7	-2.9	-37.7
Electricity	3.2	-0.3	0.0	-0.1	-0.0	0.0	3.1	0.4	0.0	2.8	0.6	0.0	0.0	0.2	-0.7	0.0	-0.4	2.6	0.0
Water	3.5	-0.1	7.9	0.1	0.1	0.7	4.0	0.1	19.8	4.6	0.1	21.4	21.4	3.9	0.7	-36.3	3.9	3.7	-37.7
Natural gas	6.7	-0.0	11.0	1.0	-0.0	1.8	12.9	1.2	26.0	13.0	1.4	26.2	26.2	-14.7	-3.3	-40.8	-15.7	-1.0	-41.9
Construction	0.3	-0.2	0.0	-0.0	-0.0	0.0	0.3	0.7	0.0	0.0	0.3	0.6	0.0	0.1	-2.5	0.0	0.1	-0.1	0.0
Trade	2.6	-0.3	7.8	-1.7	-0.1	-0.7	2.7	0.9	15.4	2.8	1.2	15.6	15.6	-1.7	-3.0	-32.4	-1.2	-0.4	-33.1
Restaurants	3.2	0.3	6.5	-0.2	0.1	0.4	3.6	1.0	16.2	6.1	1.0	20.0	20.0	-5.6	1.9	-44.0	-2.9	-0.2	-34.7
Hotel and motels	3.8	0.1	7.6	-1.5	0.0	-0.9	8.2	0.8	21.9	17.3	0.9	33.1	33.1	-17.1	0.8	-49.3	-12.9	0.4	-42.5
Load transport	4.6	-0.3	9.7	1.0	-0.1	2.0	4.9	0.8	18.4	6.2	0.9	20.6	20.6	2.7	-3.0	-29.5	0.9	-0.5	-31.5
Passenger transport	3.6	-0.2	8.5	0.5	-0.1	1.4	3.1	0.9	16.2	5.1	1.1	18.7	18.7	1.6	-2.6	-31.0	0.4	0.0	-32.9
Post and telecommunications	2.7	-0.1	0.0	-1.2	0.0	0.0	2.5	0.3	0.0	2.9	0.4	0.0	0.0	1.5	0.4	0.0	0.8	3.5	0.0
Transport and storage	3.3	-0.2	8.0	-0.2	-0.0	0.6	3.8	0.4	18.5	3.9	0.5	19.4	19.4	-1.1	-1.0	-36.1	-0.7	1.7	-36.8
Other services	1.8	-0.2	6.5	-0.0	-0.0	0.8	1.7	0.6	15.5	2.4	0.7	17.1	17.1	2.7	-1.7	-32.2	2.0	0.6	-33.0

Source: Author's estimates.

179) An interesting and unique aspect of this scenario is that the output of all Iranian industries expands, as real resources that had been allocated to rent-seeking are freed up by tariffication. At the same time, the increase in the supply of labor and capital for production results in a 0.1 percent decline in the real wage and a 0.4 percent decline in the rental rate on capital. These declines are more than offset by the additional output available from the productive use of the newly available capital and labor and the income transfers from the government.

180) The principal impact of the tariffication of nontariff barriers without rent dissipation is the increase in government revenues, which increase by 2.0 percent of GDP (column 2 in table 5.3). Since we assume that the government distributes these gains back to households in equal Iranian rial amounts, poor households gain substantially, even though rich households lose in this scenario (see the next section for a discussion of the distribution scheme). The distributional impacts are strictly progressive, because we assume that the rents from the quotas were not dissipated but rather accrued to households in proportion to their income.

181) There is a slight negative welfare effect due to the fact that tariffication induces a small increase in the food and energy subsidies. Given the change in the distribution of income, expenditure in the economy shifts toward the budget items consumed more intensely by the poorer households. As shown in table 5.2, the poor intensively consume food, energy, and transportation (an intense direct user of energy subsidies). The increased demand for food and energy results in a slight reduction in economywide efficiency and welfare because increased consumption of these products due to subsidies reduces efficiency.

182) The impact of the different policy changes on domestic output, prices and exports at the sector level is presented in tables 5.4 and 5.6.

Unifying the Exchange Rate

183) We simulate the unification of the exchange rate (that is, the removal of subsidies through centrally allocated foreign exchange at the official exchange rate for essential commodities and for the investment demands of state-owned enterprises). Because petroleum product consumption subsidies are considered part of energy policy, we retain them, except in the energy policy scenarios.

184) Eliminating subsidized foreign exchange for the investment demand of state-owned enterprises increases efficiency with no obvious impact on the poor, since the owners of capital and labor employed in these enterprises are not likely to be poor. Since the objective of subsidizing foreign exchange for essential commodities is to assist the poor, alternate safety net programs need to be provided if the subsidies are removed. We consider two alternate programs that could be designed to address the needs of the poor.

185) First, we assess the impact of distributing the additional revenue the government obtains from eliminating subsidies back to all households in equal lump-sum payments to each household (column 5 in table 5.3). All households, rather than just poor households, are included because it may be difficult to identify at first which households are poor. As a practical matter, the design and implementation of social safety nets is difficult. Any scheme which distributes income back to households is subject to fraudulent claims. Some households may collect more than once. More seriously, intermediaries may attempt to capture distributions intended for others, possibly excluding some poor households. Over time,

excluded households should be able to obtain payments, and it may become possible to accurately identify poor households, at which time safety net payments can be targeted.²⁷ Including all households should minimize the risk that no needy household is excluded. This issue will be analyzed in more detail in a follow-up study as the World Bank and the government of Iran have agreed to a study of how to efficiently distribute the surpluses from subsidy reduction and tariffication.

186) The aggregate welfare gain from this policy is a very large 6.9 percent increase of income. The magnitude of the effect shows how inefficient a dual exchange rate regime can be when the market exchange rate is four or five times the official exchange rate and substantial amounts of foreign exchange is allocated at the official rate.

187) The gains are derived from the fact that subsidized foreign exchange means that different sectors face different prices for their imports. Moreover, even the same sector or firm faces different prices for its imports depending on how the foreign exchange is spent (investment demand versus current use of imports as intermediates). This implies that the foreign exchange is inefficiently allocated between sectors and uses. Sectors and uses that receive subsidized foreign exchange value it less highly than those who have to pay the market price for foreign exchange. Unifying the exchange rates will induce purchases so that foreign exchange is valued equally at the margin by all sectors and uses.

188) Once the subsidies are lifted, the prices of essential commodities increase significantly (38 percent for sugar, 11 percent for farm products, 6 percent for food). Despite these price increases, however, the welfare of the poorest households increases significantly. The welfare of the two poorest rural household types rises 72 and 45 percent; the welfare of the two poorest urban household types rises 32 and 20 percent. These increases occur because these households are so poor that the lump-sum distribution payments represent a substantial portion of their income. Note that all individual households gain from this policy but that the distribution scheme is monotonically progressive: the poorer the household, the larger the percentage gain. Thus even though the distribution scheme is not perfectly targeted at the poor, it is highly pro-poor.

189) Import subsidies represent an implicit tax on the farming sector, which has to compete with heavily subsidized imports. Removing subsidies to imports results in an increase in the price of farm products and removes the implicit tax on Iranian farmers. As a result, the price of domestic farm products rises 7 percent and the farming sector grows 13 percent. Similarly, domestic producers of items that competed with subsidized imports (producers of sugar, oils, pharmaceuticals, and industrial machinery) see demand for their products increase and respond with increased production in the new equilibrium. These sectors expand considerably, competing resources away from other sectors.

190) Eliminating subsidies to imports also reduces demand for foreign exchange, causing the real exchange rate to appreciate by an estimated 13 percent. Output effects by sector are also partly explained by this appreciation.

191) An alternate scheme for protecting the poor that is sometimes proposed is subsidizing consumption of essential commodities (column 6 in table 5.3). This subsidy does not discriminate based on the geographic source of the product, thereby removing the implicit tax on domestic producers of the import-competing product and eliminating the distortion in consumer choice between imports and

²⁷ This was the process adopted in Jordan, where food subsidies were initially converted to a payment to all households. Only later were payments targeted at the poor.

domestically produced goods. It should therefore be welfare superior to an import subsidy (see Bhagwati and Srinivasan 1971).

192) In fact, we observe a substantial aggregate welfare gain from this policy, equal to 6.7 percent of income. Since subsidies to consumption of essential food commodities and pharmaceuticals distort resource allocation toward production and consumption of these commodities, the aggregate welfare gain is slightly less than that generated by the policy of exchange rate unification without subsidies to consumption (6.9 percent), however.

193) By design of the experiment, there is no change in the price of any of the essential commodities. Since all subsidies to foreign exchange (not only those to essential commodities) are eliminated in this scenario, the net fiscal impact on the government is positive.²⁸ Poor households gain in this scenario but considerably less than they do if the government eliminates foreign exchange subsidies without subsidizing food consumption. The smaller gains to poor households are explained by the fact that the fiscal gains to be distributed back to households are smaller as a result of the subsidization of food consumption. The model helps us understand that a policy designed to help the poor can be counterproductive.

Lowering Tariffs and Introducing Competition

194) The government intends to introduce foreign competition in the Iranian marketplace after it has tariffed nontariff barriers. Since the government intends to adopt a gradual approach to tariff liberalization, we simulate a sequential process of lowering tariffs in two steps. In the first step, the government lowers all tariffs above 25 percent to 25 percent, leaving all other tariffs unchanged. In the second step, the government imposes a uniform tariff of 15 percent. Unless otherwise indicated, all simulations are based on a benchmark equilibrium in which rents are dissipated. The simulation combines the effect of tariffing nontariff barriers and lowering tariffs in some sectors. We infer the marginal impact of lowering tariffs as the difference between the gain from both removing nontariff barriers and lowering tariffs and the gain from tariffing nontariff barriers but leaving tariffs at their current levels.

195) The first simulation examines the case in which tariffs above 25 percent are lowered to 25 percent and nontariff barriers are tariffed (column 3 in table 5.3). Under this scenario, aggregate welfare increases relative to the initial equilibrium by 4.1 percent of real consumer income. The average effective or collected tariff, which is 2.5 percent initially, increases to 19.4 percent. When the maximum tariff is set at 25 percent, the average effective tariff falls to 15.3 percent.

196) Given tariffication of nontariff barriers, the marginal impact of lowering high tariffs to 25 percent maximum is 0.6 percent of real consumer income. By international standards, this is a large gain in welfare for a change in the average tariff rate of this magnitude. It illustrates that the largest gains from trade policy reform are derived from reducing protection to moderate levels in sectors with the very high protection.

197) After tariffication the sectors with the highest tariffs would be clothing (93 percent), textiles (74 percent), weaving and leather products (75 percent), and motor vehicles (37 percent). Reducing these tariffs, well as those on glass and other food products, to 25 percent results in a deprecation of the real

²⁸ There is, however, a net fiscal cost to the government associated with replacing an import subsidy with a consumption subsidy for a particular product.

exchange rate by 2.5 percent, which induces an increase in exports of 4.5 percent. Three of the four sectors with the highest protection contract, while all other sectors expand. When tariffication is combined with setting a maximum rate of 25 percent, the negative impact on these sectors is muted but still negative.

198) The weaving and leather products sector is interesting, because it will expand despite the lowering of nominal protection, according to our model. This seemingly anomalous result occurs because the depreciation of the real exchange rate increases exports, and the price of imported textile products, which represent 30 percent of the intermediate inputs used in this sector, declines significantly.

Setting a Uniform Tariff of 15 Percent

199) Eliminating nontariff barriers and setting a uniform tariff rate of 15 percent (except on petroleum products) results in an increase in aggregate welfare of 5.5 percent of real consumer income (column 4 in table 5.3), according to our model. The marginal impact of imposing uniform tariffs is 2.0 percent. The impact on output by sector is similar to that in the 25 percent maximum tariff scenario.

200) The combined effect of tariffying nontariff barriers and lowering tariff protection has a strong positive impact on the income of the poorest households, with the income of the poorest rural household type rising 20 percent and the income of the poorest urban household type rising 11 percent. All households gain, but the percentage increase in income declines monotonically with income, since the equal lump-sum transfers of the fiscal surplus represent a larger percentage of income for poorer households.

201) Given tariffication the marginal impact of lowering tariff protection has a revenue impact on government revenues. The adverse fiscal impact is greater under the 25 percent maximum tariff scenario (0.7 decline in revenue) than under the 15 percent uniform tariff (0.4 percent decline in revenue). The second option has less negative an effect on fiscal balances because low tariffs are raised to 15 percent, partly offsetting the revenue loss associated with lowering tariffs above 15 percent. Since the impact on the poor is primarily a function of the lump-sum transfers and the negative fiscal effect can be assumed to cause a lump-sum transfer from households to the government, the marginal impact on the poor of lowering tariff protection given prior tariffication is negative. The combined impact of tariffication plus lowering tariff barriers is positive for the poor, provided they receive their share of the fiscal surplus generated as transfers.

Adopting Integrated Pricing Reforms

202) By evaluating a combination of policy scenarios, we determine the relative importance of the various reforms and the magnitude of the combined effects (tables 5.5 and 5.6). Our results should help inform the discussion of key policy reforms.

Table 5.5. Impact of Trade, Exchange Rate, and Energy Pricing Reforms
(percentage change from initial equilibrium)

<i>Item</i>	<i>Initial situation (level values) (0)</i>	<i>Tariffication + exchange rate unification + uniform 15% tariffs (1)</i>	<i>Tariffication + exchange rate unification + zero tariffs (2)</i>	<i>Energy pricing reform (3)</i>	<i>Energy pricing reform + exchange rate unification (4)</i>	<i>Energy pricing reform + tariffication + exchange rate unification + tariff reform 15% uniform tariffs (5) Zero tariffs (6)</i>	
Aggregate welfare change (percent of income)	-	12.3	12.7	32.9	38.8	50.1	50.7
<i>Fiscal effects (percent of GDP)</i>							
Food subsidies	-	-	-	-	-	-	-
Foreign exchange subsidies	-6.4	6.4	6.4	2.1	6.4	6.4	6.4
Petroleum subsidies	-18.1	0.8	-0.3	18.1	18.1	18.1	18.1
Import taxes	0.3	1.6	-0.3	0.1	0.1	2.1	-0.3
Oil rent	15.7	-2.2	-0.6	-7.0	-9.2	-8.1	-6.6
Net effect	-	6.6	5.1	13.3	15.3	18.5	17.6
<i>Average effective tariff rate (percent)</i>	2.5	14.0	-	2.7	2.9	14.7	-
<i>Trade effects</i>							
Real exchange rate	n.a.	-8.5	-3.5	-26.1	-35.5	-31.9	-26.1
Aggregate exports	n.a.	-17.2	-8.9	30.4	16.6	25.8	35.3
<i>Factor incomes</i>							
Wage rate	n.a.	3.1	3.2	2.4	7.7	8.4	7.8
Return to capital	n.a.	-3.7	-1.3	-6.1	-7.1	-5.8	-3.7
<i>Price of essential goods</i>							
Primary food items	n.a.	13.5	13.1	8.2	19.4	24.9	23.9
Food products	n.a.	7.4	6.9	4.3	8.1	10.3	9.5
Sugar	n.a.	40.9	41.9	-0.3	36.4	41.6	42.1
Pharmaceuticals	n.a.	2.1	3.1	-4.0	-1.2	0.4	1.4
<i>Change in household welfare</i>							
Rural 1	n.a.	95.6	77.7	209.8	239.1	292.2	282.9
Rural 2	n.a.	60.8	50.5	139.0	157.2	193.3	188.7
Rural 3	n.a.	42.5	36.1	98.5	112.8	140.2	137.4
Rural 4	n.a.	38.1	32.9	90.0	102.4	128.1	126.2
Rural 5	n.a.	30.7	27.1	73.1	84.0	105.9	104.7
Rural 6	n.a.	24.0	21.9	58.7	67.8	86.3	85.8
Rural 7	n.a.	20.8	19.5	51.6	60.0	77.1	77.2
Rural 8	n.a.	19.6	18.7	49.5	56.8	73.6	74.2
Rural 9	n.a.	12.9	13.4	34.6	40.6	53.9	55.0
Rural 10	n.a.	2.8	5.2	11.9	15.6	21.6	23.2
Urban 1	n.a.	44.3	37.3	102.6	116.3	143.1	139.5
Urban 2	n.a.	28.9	25.4	70.3	79.8	99.4	97.9
Urban 3	n.a.	22.4	20.3	55.1	63.5	80.0	79.2
Urban 4	n.a.	18.9	17.7	47.5	54.9	69.8	69.6
Urban 5	n.a.	16.3	15.8	41.8	48.4	62.0	62.2
Urban 6	n.a.	14.4	14.3	37.8	43.9	56.5	56.9
Urban 7	n.a.	12.0	12.5	32.1	37.7	49.2	49.9
Urban 8	n.a.	8.8	10.0	25.1	29.9	39.6	40.7
Urban 9	n.a.	5.7	7.5	18.4	22.6	30.3	31.5
Urban 10	n.a.	2.3	5.0	10.5	13.9	19.4	21.1

n.a. Not applicable

Source: Authors' estimates

Table 5.6. Impact of Trade, Exchange Rate, and Energy Pricing Reforms on Domestic Output, Prices, and Exports by Sector
(percentage change from initial equilibrium)

Sector	Tariffication + exchange rate unification + uniform 15% tariffs		Tariffication + exchange rate unification + zero tariffs		Energy pricing reform		Energy pricing reform + exchange rate unification		Energy pricing reform + tariffication + exchange rate unification + uniform 15% tariffs		Energy pricing reform + tariffication + exchange rate unification + zero tariffs							
	Output	Prices	Exports	Output	Prices	Exports	Output	Prices	Exports	Output	Prices	Exports	Output	Prices	Exports			
Farming	17.3	10.2	-33.2	16.6	10.2	-19.3	12.0	7.3	-62.8	23.3	16.0	-77.8	29.8	21.2	-74.5	28.1	20.4	-66.8
Livestock	6.7	8.6	-36.4	5.2	8.4	-23.7	15.6	8.8	-63.2	14.5	13.4	-77.9	18.5	18.2	-74.9	16.6	17.4	-67.4
Other agriculture	-0.2	4.3	-32.9	-3.9	5.6	-24.6	3.0	-2.0	-55.0	-2.7	3.3	-75.1	2.5	5.0	-69.0	-0.8	6.0	-62.3
Mining	-9.0	-0.8	-28.9	-13.1	0.4	-20.5	-29.3	-2.7	-68.5	-37.8	-2.4	-81.1	-33.3	-1.4	-75.7	-37.1	-0.4	-71.2
Crude oil	-2.8	-8.6	-12.8	-0.7	-2.6	-7.6	-12.9	-25.7	76.2	-19.8	-34.5	61.3	-16.2	-29.5	72.3	-12.4	-23.2	82.9
Sugar	175.6	5.3	80.0	169.0	6.5	105.8	22.4	-0.7	-48.7	180.7	4.9	-31.5	210.0	7.3	-12.2	202.9	8.1	8.5
Other food	8.7	6.1	-30.5	7.0	6.3	-17.7	18.3	3.8	-56.5	16.7	8.2	-74.1	21.2	11.4	-69.3	18.9	11.3	-60.9
Paper and print	-0.6	-0.2	-23.6	-6.6	0.1	-13.8	-9.1	-3.5	-58.4	-17.6	-3.7	-74.1	-8.6	-1.8	-66.2	-13.8	-1.6	-59.0
Cement	-3.8	-1.0	-24.3	-5.6	-0.7	-10.9	-10.8	3.7	-67.1	-15.2	1.8	-77.4	-13.8	1.4	-71.1	-16.1	1.7	-63.9
Brick	-1.8	-1.1	-22.4	-3.3	-0.4	-9.5	-10.6	21.8	-79.7	-13.8	19.6	-85.8	-12.7	20.3	-82.5	-15.6	21.9	-78.9
Gypsum and other minerals	-2.9	-2.2	-20.8	-5.2	-1.1	-9.4	-10.5	3.7	-67.0	-14.2	-0.0	-75.8	-11.7	-1.0	-68.2	-14.5	0.1	-61.4
Glass	-3.1	-1.9	-21.6	-7.7	-1.1	-11.8	-5.1	-1.9	-58.7	-9.6	-2.9	-72.2	-10.3	-2.2	-66.5	-15.0	-1.4	-59.8
Other non-metal products	-0.2	-2.1	-18.9	-0.7	-1.7	-3.4	-1.2	-2.5	-56.2	-2.6	-3.9	-69.1	-1.1	-3.2	-61.8	-2.0	-2.8	-51.7
Textiles	-25.6	-1.9	-39.9	-27.5	-1.9	-29.0	-9.5	-3.0	-59.3	-16.4	-3.3	-74.0	-37.4	-3.3	-75.8	-40.4	-3.3	-70.1
Clothing	-23.7	-3.0	-36.2	-27.9	-3.0	-26.9	5.0	-2.6	-53.3	-0.7	-2.8	-69.5	-27.3	-4.3	-70.9	-31.0	-4.4	-64.2
Weaving and leather products	-20.6	-2.5	-34.7	-10.9	-2.3	-11.6	-24.5	-2.5	-66.5	-30.3	-3.3	-78.3	-36.7	-4.1	-74.9	-35.2	-3.9	-66.9
Rubber and plastic products	-6.4	-1.7	-24.9	-9.7	-2.6	-9.6	-12.2	-5.8	-56.8	-17.1	-8.7	-69.4	-16.3	-5.6	-65.2	-20.1	-6.1	-56.3
Pharmaceuticals	21.6	-2.0	-1.4	21.3	-1.0	15.3	13.8	-4.6	-46.1	30.5	-5.2	-56.8	36.3	-3.8	-46.5	35.9	-2.8	-33.1
Kerosene	9.6	-8.4	0.0	8.9	-2.5	0.0	-88.2	-24.7	0.0	-90.1	-33.3	0.0	-93.0	-28.4	0.0	-93.8	-22.3	0.0
Fuel oil	-6.9	-6.4	-19.2	-6.2	-1.6	-11.4	-86.2	-19.2	-91.7	-86.7	-25.3	-93.9	-84.8	-21.3	-92.1	-85.8	-16.4	-91.4
Gasoline	4.1	-7.7	0.0	4.7	-2.3	0.0	-32.3	-21.6	0.0	-29.2	-29.5	0.0	-26.6	-25.0	0.0	-28.1	-19.3	0.0
Gas oil	4.2	-8.4	0.0	4.0	-2.5	0.0	-85.0	-24.7	0.0	-87.4	-33.2	0.0	-90.8	-28.4	0.0	-91.9	-22.3	0.0
Liquid gas	13.7	-3.1	0.0	11.4	-0.7	0.0	19.2	-4.0	0.0	25.4	-7.0	0.0	34.1	4.8	0.0	31.6	-2.1	0.0
Other materials and chemical products	-13.1	-1.0	-31.6	-16.1	-2.1	-17.1	-63.2	9.5	-88.5	-69.7	5.9	-92.8	-62.8	9.5	-90.1	-66.5	9.5	-88.5
Basic metal and steel products	-8.9	-3.2	-23.5	-16.5	-3.8	-13.3	-38.6	-5.2	-70.4	-46.6	-7.6	-81.0	-44.4	-6.7	-76.0	-48.9	-7.0	-71.2
Copper, aluminum, and other basic products	-19.0	-0.2	-37.9	-18.9	-0.3	-24.3	-36.8	-1.0	-73.2	-45.5	-2.2	-83.6	-44.4	-0.8	-80.1	-46.2	-0.9	-75.0
Metal products	-2.1	-2.5	-19.4	-2.1	-3.5	0.8	-13.1	-4.8	-58.6	-18.5	-7.4	-71.0	-12.3	-6.3	-62.6	-13.4	-7.0	-51.2
Industrial machinery	547.2	-3.6	451.1	489.3	-5.0	536.0	15.8	-5.9	-42.9	255.4	-7.7	27.1	349.2	-8.3	104.0	315.4	-9.4	152.8
Radio and TV equipment	-14.4	-4.9	-24.1	-22.1	-6.8	-10.8	-27.9	-9.4	-60.2	-40.0	-12.2	-75.0	-36.1	-11.4	-67.8	-40.5	-12.7	-59.5
Motor vehicles	-24.0	-3.3	-36.0	-32.3	-3.6	-30.0	-30.2	-4.7	-66.8	-39.1	-7.3	-78.4	-49.0	-6.7	-78.0	-53.8	-6.9	-74.1
Other industrial products	-11.7	-4.6	-22.4	-18.8	-6.1	-9.2	-25.0	-9.2	-58.8	-35.3	-12.5	-72.8	-33.0	-11.3	-66.4	-37.4	-12.3	-58.0
Electricity	3.0	-0.3	0.0	2.3	0.7	0.0	-3.1	28.1	0.0	-1.9	27.2	0.0	2.2	29.2	0.0	1.1	31.7	0.0
Water	8.6	0.7	-18.8	8.6	0.6	-1.3	11.2	5.9	-61.5	15.6	5.6	-72.4	23.5	4.3	-61.9	23.0	4.0	-50.5
Natural gas	-6.3	-1.9	-24.2	-0.5	-0.4	-6.7	-21.8	0.9	-68.8	-22.8	-1.0	-77.6	-17.7	0.9	-71.9	-16.8	2.8	-65.3
Construction	0.4	-2.0	0.0	0.3	-1.8	0.0	0.8	0.8	0.0	0.8	-2.5	0.0	1.3	-1.7	0.0	1.2	-1.2	0.0
Trade	0.6	-2.1	-18.1	1.3	-0.5	-5.0	3.4	-3.2	-53.1	4.6	4.1	-66.6	7.9	-3.0	-58.6	7.6	-1.5	-49.0
Restaurants	1.2	3.2	-29.7	-1.3	3.9	-18.5	1.5	0.6	-59.0	-4.8	2.7	-75.3	6.7	4.7	-67.5	4.2	5.0	-59.3
Hotel and motels	-0.8	1.8	-28.2	-2.3	2.6	-16.2	-17.4	0.5	-66.6	-28.3	1.7	-80.8	-8.3	3.0	-70.6	-11.1	3.4	-63.5
Load transport	9.3	-2.3	-10.4	8.5	-1.1	3.7	7.6	5.4	-62.2	13.1	-0.3	-67.9	26.4	-2.2	-52.7	24.7	-0.8	-42.1
Passenger transport	8.2	-1.8	-12.9	4.9	-0.6	-1.2	4.0	1.8	-59.5	4.3	-1.3	-69.4	17.1	-1.8	-56.7	13.6	-0.7	-47.5
Post and telecommunications	4.4	0.6	0.0	4.4	1.0	0.0	13.1	2.8	0.0	14.0	4.8	0.0	19.3	5.4	0.0	19.2	5.6	0.0
Transport and storage	2.8	-0.7	-19.8	2.8	-0.1	-4.6	-24.5	6.3	-74.2	-23.8	5.1	-81.5	-21.3	5.2	-76.3	-22.5	6.2	-70.7
Other services	5.2	-1.3	-16.6	4.7	-0.3	-2.1	12.6	-1.8	-51.1	13.9	-1.5	-66.5	18.8	-0.7	-57.6	18.2	0.1	-46.7

Source: Authors' estimates

Reforming Petroleum Prices

203) Domestic petroleum prices in Iran are only about 10 percent of world prices. Eliminating the subsidy to domestic consumption of petroleum products potentially has strong links with trade and exchange rate reform. In particular, the elimination of subsidies to petroleum product consumption will increase the relative costs of energy intensive industries. This could change the pattern of comparative advantage, inducing Iran to export more crude oil and more of products that do not use energy intensively, and import more of the products that use energy intensively. It will also induce Iran to use energy more efficiently, reflecting the value of oil and petroleum products on world markets. Moreover, the additional exports of oil would be expected to induce a real appreciation of the Rial that in turn will adversely impact on non-traditional exports and put further pressure on import competing industries.

204) The results of Table 5.5 are consistent with theory. The elimination of the petroleum subsidies results in a strong increase in exports of crude oil of 76 percent. The additional crude oil exports earn additional foreign exchange so that the real exchange rate appreciates by 26 percent in order to restore equilibrium in the balance of trade. Aggregate exports and imports increase by 30 percent. Thus, import competing sectors contract and non-traditional exports contract by more than 50 percent, while oil exports expand. This phenomenon is sometimes referred to as “Dutch disease.”

205) This scenario results in an enormous increase in welfare of 33 percent of consumption (column 3 in table 5.5). The results are explained by the fact that oil moves to where it is valued more highly (world markets) and the economy uses petroleum products more efficiently. If the fiscal surplus from eliminating the petroleum product subsidies is transferred back to households in equal amounts, the income of the poorest urban household type doubles, while that of the poorest rural household type rises by more than 200 percent.

Combining Trade and Exchange Rate Reform

206) In these scenarios we combine the effects of tariffing nontariff barriers, unifying the exchange rate for imports and exports and lowering tariffs. We consider two tariff policies: a uniform tariff of 15 percent and zero tariffs. Under the first policy, the welfare gain is 12.3 percent of consumption; under the second policy, the gain is 12.7 percent. The poor gain enormously from these combined policies, but they benefit slightly more under the 15 percent uniform tariff, because there is less fiscal surplus to distribute to the poor if tariffs are eliminated. The impact on production is dominated by the sectors that benefit from eliminating the foreign exchange subsidies.

Combining Energy and Exchange Rate Reform

207) Combining exchange rate reform with energy reform increases the aggregate welfare gain to 39 percent of benchmark consumption (column 4 in table 5.5). Since both energy and exchange rate reform increase government revenues, there is an enormous potential increase in welfare to the poor if the fiscal surplus is distributed to households as a lump sum. The poorest urban household type gains 116 percent, and the poorest rural household group gains 239 percent. All households gain, but the percentage gains decrease with the household’s income level.

Combining Trade, Energy, and Exchange Rate Reform

208) We estimate the gains from combining all the key policy reforms based on two different policy options: a uniform 15 percent tariff (column 5 in table 5.5) and free trade (column 6 in table 5.5). Our

estimates suggest that the Iranian economy would enjoy an enormous gain of more than 50 percent of the value of consumption as a result of the combined reforms. Aggregate gains under both the zero tariff option and the uniform 15 percent tariff are estimated at more than 50 percent of consumption. The poor gain slightly more from the uniform tariff of 15 percent because the fiscal surplus is larger when tariffs are not eliminated.

ANNEX 5A. DATA AND MODEL CONSTRUCTION

To calibrate our model, we constructed a database that represents a benchmark equilibrium. We used four main data sources to construct the database: (1) an IO table for Iran for 1994–95; (2) a household expenditure survey of Iran from 1994–95; (3) policy data, including tariffs, subsidies to imports and energy products, and tariff equivalence of nontariff barriers from various Iranian ministries and agencies, including the Central Bank, the Ministry of Industry, the Ministry of Commerce, and the Customs Department; and (4) estimates of Iranian elasticities (where available). We combined the data into a social accounting matrix, which constitutes the basis for our modeling effort.

The IO table provides data on the costs of intermediate inputs and value-added (labor and capital) in 43 production sectors, and it distinguishes household demand, government demand, investment demand, export demand, and import supply by sector. Household demand is divided into two categories: urban household demand and rural household demand. To further disaggregate households, we use the household expenditure survey to decompose both rural and urban households into 10 household types, grouped according to income. That is, all Iranian households are grouped into one of 20 household types, depending on their income level and whether they live in a rural or an urban area.

Unfortunately, the IO table and the household expenditure survey are not consistent with respect to total rural and total urban household demand by sector. We therefore use share data from the household expenditure survey to decompose the data on rural and urban household demand. For each sector and for both rural and urban households, we calculate each of the 10 household types' share in total household demand by sector in the household expenditure survey and then apply those shares in the IO table. We then have a table with the 20 households' expenditures on output from the 43 production sectors.

Neither the IO table nor the household expenditure survey provides data on the income pattern by household type, leaving us with no information on the distribution of income across factors of production or on the sector from which the income comes. We therefore make the strong assumption that all households have identical income patterns.

The IO table also contains little information on the policies we want to analyze; the data that it does contain—collected import tariff revenues—do not represent current policies. We have therefore relied on Iranian ministries for our data on policy parameters for tariffs and nontariff barriers to imports, foreign exchange subsidies, and subsidies to domestic petroleum consumption.

The IO table reports the costs of imports to users, so in constructing the social accounting matrix, we incorporate the data on barriers to imports by deducting the costs of the barriers to arrive at the border costs of the imports. In the case of foreign exchange subsidies, we derive the border costs of the imports by adding the value of the foreign exchange subsidy to the user costs of imports to arrive at the border costs. The data on subsidies to domestic petroleum consumption were derived on the basis of table 5.A1, which shows the difference between the domestic and international prices of four petroleum products.

Table 5A1. Estimated Domestic and International Prices for Petroleum Products, 1999/2000

<i>Product</i>	<i>Domestic price (rials/liter)</i>	<i>International price^a (rials/liter)</i>	<i>Ratio (percent)</i>	<i>Subsidy rate (percent)</i>
Gasoline	350.0	1329.2	26.3	73.7
Kerosene	100.0	1254.3	8.0	92.0
Gas oil	100.0	1136.9	8.8	91.2
Fuel oil	50.0	880.6	5.7	94.3

^a International prices are converted to rials at the market exchange rate on the Tehran Stock Exchange of 8,150 rials per dollar.

Source: Ministry of Oil and authors' calculations.

The price of gasoline in Iran was 26 percent of the international price, and the domestic price of kerosene, gas oil, and fuel oil were less than 10 percent of the international price. Given that international prices are exogenous to the Iranian economy, these prices therefore imply an implicit subsidy of almost 75 percent on gasoline and more than 90 percent for the other three petroleum products.

Since petroleum subsidies apply to domestic consumption, they effectively apply to both imports and domestic production. In the case of imports, we add the subsidy to the user costs of imports to obtain the border costs of the petroleum imports. In the case of domestic production, we add the subsidy to the costs of production.

Our database also includes a set of elasticities. Many sources were used for the elasticities. We employed the study of Ahangarani (1999) who estimated a system of demand functions for Iran. We also employed the study by Hope and Singh (1995) for energy elasticities. These studies suggest that the price elasticities of demand for different energy goods are between -0.2 and -1 . We employed -0.4 . In a CES function with a small energy cost share this implies an elasticity of substitution of 0.4.

These studies suggest income and price elasticities of household goods of about 1 and -1 , respectively. This corresponds to a Cobb-Douglas utility function. Some essential household goods are reported to have price elasticities less than unity. We choose -0.4 for these goods.

In most economies, the capital-value share in total value-added is constant in the long run, which is consistent with a Cobb-Douglas production function for total value added.

Most studies suggest low substitutability between most intermediate inputs in different product categories, corresponding to the Leontief production function for the aggregate of intermediate goods (see, for example, de Melo and Tarr, 1992). Finally, most studies suggest energy demand elasticities in production between -0.2 and -0.7 - we chose an average value of -0.5 .

In the remaining cases, we use estimates employed in similar analyses, such as de Melo and Tarr (1992); Harrison, Rutherford, and Tarr (1993); and Rutherford, Rutström, and Tarr (1994). In particular, we choose a value of three for the elasticity of substitution between domestic and foreign varieties in demand. For energy goods, which are relatively homogeneous, we choose a value of six. Figures 5.1 and 5.2 show the nesting structure of the production functions and the utility functions along with the assumed elasticities of substitution.

ANNEX 5B: COMPENSATING THE POOR FOR THE REMOVAL OF PRICE SUBSIDIES ON THE CONSUMPTION OF ESSENTIAL GOODS

In absolute terms, the rich gain far more than the poor from subsidies that hold down the prices of essential goods, such as flour, pharmaceuticals, electricity and other fuels. These items make up a higher share of total expenditure for the poor than for the rich, but this effect is dominated by the much greater absolute expenditures of the rich, relative to the poor. According to the estimates in World Bank (1999, Tables 14A and 14B), the per capita benefits of fuel subsidies to members of the richest urban quintile were 6.7 times the per capita benefits to those in the poorest urban quintile. For the rural quintiles the corresponding ratio was 5.5.

To avoid wasteful over-consumption of subsidized goods, and to raise the share of the poor in total benefits, we recommend that price subsidies be removed and that compensation be provided in the form of equal lump sum amounts payable to all households.²⁹ Iran already has a mechanism for distributing ration coupons for edible oils, sugar and cheese. Every holder of an ID card can go to a bank (regardless of whether or not they have an account there) and collect ration coupons. The bank stamps the ID card to show that the coupons have been handed out. The ID card is a booklet that contains a recent photo of the holder and space to allow the bank to stamp it at regular intervals over a two year period. The coupons can be used to buy subsidized goods at controlled retail prices from grocery stores. The stores must match coupons collected from customers with price controlled goods delivered by government agencies, or pay the difference to the government. This system could easily be amended to distribute cash instead of coupons.

If substantial amounts of cash were distributed through the existing coupon system, it would be subject to additional stresses that do not apply when only small amounts of low quality goods are involved. There are already incentives to retain ID cards for those who have died or emigrated, and these abuses would increase as the benefits paid to card holders increased. Cards can also be lost or stolen. Because of the photos, it is hard to use someone else's card unless a bank official collaborates in the fraud, but some bank officials may do this, and if severe penalties were enforced they might be inflicted on those who had made honest mistakes.

Further study of ways to minimize the abuses that cash transfers might create would clearly be necessary. However, administrative problems are not unique to cash transfers and would confront any welfare system. Some critics of uniform cash transfers argue that it is wrong to help the rich as well as the poor, and that cash subsidies should therefore be targeted to the poor and denied to the rich. Against this, we would make three points. First, targeting subsidies is administratively costly and has the major disadvantage that it would generate high marginal rates of tax on incomes just above the poverty line defining eligibility for the full handouts. These high marginal tax rates would tend to create a poverty trap by reducing the incentives for the poor to help themselves. (A negative income tax system, however, could in principle avoid the problem of high marginal rates of taxation.) Second, as the above estimates from World Bank (1999) show, the rich benefit from the existing price subsidies, and in fact they benefit far more than the poor in absolute terms, whereas by definition everyone would benefit equally, in absolute terms, from a uniform cash payment. Third, to compensate the poor, the cash transfers need only be set equal to the amount that they gain from price subsidies, which is far less than the average gain to all citizens from these subsidies. Importantly, as Iran obtains experience with administering a cash

²⁹ Since children eat less than adults, and since the per person cost of fuel is less for large families than for small ones, there is a case for smaller payments per person in large families than in small ones.

distribution system it could be progressively targeted to the poor, including possibly the introduction of a negative income tax system.

The estimates in World Bank (1999) imply that the per capita gains from fuel subsidies were Rls 165,000 and Rls 227,000 for the poorest quintiles in rural and urban areas, respectively. In contrast, the average gains were Rls 472,000 and Rls 585,000 respectively. A flat payment of Rls 227,000 to everyone would therefore have compensated the members of the poorest urban quintile and more than compensated the members of the poorest rural quintile. This is about \$28 per person per year, at the current open market exchange rate. The actual cash handout per person that would now be needed to just compensate members of the poorest quintile for the removal of all price subsidies would be higher than \$28 per year because world fuel prices have risen since the above estimates were calculated, and because the above estimates apply only to fuel subsidies, and exclude basic foods.³⁰

Setting relatively low cash handouts that would only compensate the poor for the removal of price subsidies would have two advantages. It would minimize the incentives for the rich to go to the trouble of collecting their entitlements, and it would allow the government to reduce other taxes, relatively to what they would otherwise have been. However, if further study suggested that it would be feasible to administer a system of flat rate cash subsidies at the higher rate corresponding to the average benefits to all households from existing price subsidies, or even to the much higher per capita cost to the government of providing all existing price subsidies, it would be possible to reduce poverty substantially, rather than merely compensate the poor for the removal of the existing price subsidies. The important point is the flat rate cash subsidies needed merely to compensate the poor for the removal of price subsidies are sufficiently low that we doubt that they would result in excessive abuses of the ID card system.

For the above reasons, we are confident in recommending that all price subsidies be removed and replaced by flat rate cash transfers. In addition, we think that further study may well confirm the administrative feasibility of setting cash subsidies at a rate that would be high enough to substantially alleviate poverty, rather than merely compensate the poor for the removal of price subsidies.

³⁰ Compensation for the removal of price subsidies for pharmaceuticals should be provided through the health insurance system, because the compensation needed by individuals with certain major illnesses would be far in excess of the compensation needed on average.

6. SEQUENCING REFORMS

209) The Third Five Year Development Plan incorporates an ambitious program of reforms and in this report we have suggested still further reforms. To avoid discouraging potential private investors by creating unnecessary uncertainty, the government will need to commit itself to a credible and detailed timetable for these reforms. An essential element of any credible plan is that the government must anticipate the possible effects of reforms on unemployment and the poorest groups in society and implement policies to offset potentially adverse effects. The proposed reforms of the exchange rate system and of fuel subsidies will produce large fiscal gains to the government budget, which will be reinforced by proposed reforms to direct and indirect taxation. They should therefore provide the government with ample revenue to finance policies needed to offset possible adverse effects on unemployment and the poor.

210) Since the methods currently used to alleviate poverty are not well targeted, it should be possible to design more effective methods at a modest budgetary cost. Moreover, since the reforms will remove barriers to non-oil exports—industries that are intensive users of unskilled and semi-skilled labor—the aggregate effect of the reforms may well be to boost demand for these types of labor. However, the whole purpose of reforming trade policy and reducing input subsidies is to change relative prices and cause resources to move from activities in which their marginal social productivity is relatively low to activities in which it is higher. This will inevitably lead to job creation and expansion in some sectors and to job losses and the closure of firms in others.

211) The sectors likely to be adversely affected by the reform program are those that have relatively high barriers to imports and those that are intensive users of subsidized oil products. The industries that receive the greatest protection from imports are those that produce finished manufactures, particularly garments and vehicles. Following reform, therefore, the transport sector may shrink, but it will inevitably survive. The most important users of oil products are the transport, petrochemicals, and steel, cement, and brick-making industries. Given Iran's abundant fuel supplies, even without subsidies or protection from imports, these industries will almost certainly be viable, provided that they are efficiently operated. There is no reason why Iran should not be internationally competitive in all these industries following reform. However, to make Iranian firms competitive at international prices in these sectors as well as in vehicle production, it may be necessary to privatize them and allow the new owners to restructure them.

212) The government will need to ensure that the regulatory and legal environment becomes more conducive to private enterprise. This will be important both for ensuring the viability of privatized enterprises and for ensuring that entrepreneurs who wish to set up wholly new private enterprises are able to do so. In turn, the successful development of a vigorous private sector is very important for ensuring the long-term viability of the reforms. The reforms that are needed to achieve this objective are not merely the trade sector reforms dealt with in this report, though these are essential, but also:

- the removal of barriers to trade and investment in services,
- the introduction of competition policy to minimize barriers to all potential new firms,
- the modernization of the systems of direct and indirect taxation.

213) One of the most important aspects of the liberalization of trade and investment in services will be financial deregulation, but other service sectors will also need to be deregulated if Iranian businesses are to be able to compete on equal terms with foreign competitors after the opening up of trade in goods.

Reforming the regulatory environment so that policies are in place that encourage the entry of new firms will be urgently needed both to ensure that new private entrants to markets that were formerly dominated by state enterprises are able to compete on equal terms. It has been shown that free entry is the most effective competition policy³¹ to stop new private owners of formerly state owned monopolies from capturing all the benefits of privatization in the form of monopoly profits. Finally, an efficient tax system is an essential feature of an environment that is conducive to private enterprise.

214) The three policy areas listed above are largely outside the scope of this report. Although the tax system was mentioned in section 2.3, that section focused only on current differences in the tax treatment of domestic and traded goods. Similarly, although financial reforms were mentioned in section 4.3 that section focused only on trade finance. There is therefore a need for other broader studies to explore in detail the reforms that are needed in the areas of trade and investment in services, competition policy and taxation. Several studies of tax reform have already been undertaken, however there is a need for further studies of the scope for competition policy and the liberalization of trade and investment in services.

215) The timetable suggested in table 6.1—which incorporates and extends the plans of several government ministers who support economic reform—proposes unifying the exchange rates and converting nontariff barriers into their tariff equivalents by March 2002. The conversion of nontariff barriers to tariffs will require an increase in the commercial benefit tax on the most heavily protected items. However, merely to keep effective import tax rates unchanged in real terms when exchange rates are unified will require very large reductions in the legal rates. These reductions will be needed because import duties are calculated by multiplying the legal duty rates by the value of imports at the official exchange rate. If the official exchange rate (at which imports are valued for the calculation of import duties) is raised from 1,750 to about 8,175 rials per dollar (that is, by a factor of 4.67) all legal import tax rates would have to be divided by 4.67 merely to leave the amount of tax payable in rials unchanged.

216) If the Ministry of Industry's estimates of the tariff equivalents of existing nontariff barriers are accurate, the total import taxes on the items under the responsibility of the Ministry of Industry would be 37 percent and the maximum import tax rate would be 100 percent. The unweighted economywide average total import tax for all items would be about 30 percent.

217) To improve the efficiency of resource allocation and encourage growth and poverty reduction (as well as gain entry into the WTO), it will be necessary to reduce the average level of import taxes after tariffication, narrow the dispersion between these taxes, and reduce fuel subsidies. Under the proposals summarized in table 6.1, fuel subsidies would be gradually eliminated over a four-year period beginning in March 2001. The average levels of import taxes would be progressively reduced between March 2002 and March 2005, by which time there would be a uniform import tax of 15 percent.

218) Deciding which import taxes will be reduced when is likely to involve a great deal of lobbying and uncertainty. To minimize these problems and simplify the process as much as possible, the government could announce that beginning in March 2003 (when import taxes would be below the tariff equivalents of existing nontariff barriers), only a few import tax bands will exist. Setting a small number of tariff bands would have no particular economic benefit or cost. Setting a date after which there could be no further lobbying for tariff reductions could have a political benefit, however.

219) To see the advantages of reducing the number of bands, to say, four, suppose that only 10 percent of items are placed in the highest band and that the remaining items are equally distributed among the

³¹ See Hoekman, Kee and Olarreaga (2001).

other three bands. Setting import tax bands for March 2003 at 3 percent, 20 percent, 40 percent, and 60 percent would satisfy the condition that the average import tax be 25 percent and the maximum 60 percent.³² Setting bands for March 2004 at 10 percent, 18 percent, 25 percent, and 40 percent would satisfy the condition that the average import tax be 20 percent, with a maximum of 40 percent.³³ All import taxes would be unified at 15 percent by March 2005.

220) There is nothing especially important about the particular choice of bands suggested above—many others might be just as good. The advantage of picking any one of the many possible sensible choices is that it would reduce the scope for lobbying to the question of which band any particular item would be placed in. The economics ministries would make a preliminary assignment of items to the four bands; lobbying groups could get particular items assigned to higher bands only by having other items assigned to lower ones. Once the bands had been chosen, the future path of all tariffs would be determined. After all tariffs had been unified, there would be a strong case for passing an act of Parliament to replace the commercial benefit tax and customs duty with a single tariff.

³² $0.3 \times 3\% + 0.3 \times 20\% + 0.3 \times 40\% + 0.1 \times 60\% = 24.9\%$.

³³ $0.3 \times 10\% + 0.3 \times 18\% + 0.3 \times 25\% + 0.1 \times 40\% = 19.9\%$.

APPENDIX: TRADE DATA FOR IRAN

Table A1. Iranian Exports by Major Partner, 1989-99

Partner	1989	1995	1997	1999
	Export Value in \$ million			
World	11609.0	18360.0	18381.0	19726.0
United Arab Emirates	0.0	285.3	285.6	598.7
Germany	657.8	391.0	391.5	423.0
Turkey	891.8	90.1	90.2	183.4
Italy	1420.3	275.2	275.5	181.4
India	150.2	95.0	95.1	128.6
Turkmenistan	..	146.0	146.2	122.3
Azerbaijan	..	193.5	193.7	119.2
Iraq	..	..	..	98.5
Taiwan, China	..	66.5	66.6	97.2
Canada	112.5	54.8	54.9	95.6
China	63.8	62.1	62.1	77.3
Russia	..	45.5	45.5	62.0
Korea	..	94.8	94.9	60.9
Netherlands	1302.8	66.6	66.6	59.6
Japan	2102.6	104.2	104.3	57.1
Top 15 partners	6701.8	1970.5	1972.7	2364.8
Rest of the World	4907.2	16389.5	16408.3	17361.2
	As % of Total Exports			
World	100.0	100.0	100.0	100.0
United Arab Emirates	0.0	1.6	1.6	3.0
Germany	5.7	2.1	2.1	2.1
Turkey	7.7	0.5	0.5	0.9
Italy	12.2	1.5	1.5	0.9
India	1.3	0.5	0.5	0.7
Turkmenistan	..	0.8	0.8	0.6
Azerbaijan	..	1.1	1.1	0.6
Iraq	..	..	..	0.5
Taiwan, China	..	0.4	0.4	0.5
Canada	1.0	0.3	0.3	0.5
China	0.5	0.3	0.3	0.4
Russia	..	0.2	0.2	0.3
Korea	..	0.5	0.5	0.3
Netherlands	11.2	0.4	0.4	0.3
Japan	18.1	0.6	0.6	0.3
Top 15 partners	57.7	10.7	10.7	12.0
Rest of the World	42.3	89.3	89.3	88.0

Source: UN COMTRADE Statistics.

Table A2. Iranian Imports by Major Partner, 1989-99

Partner	1989	1995	1997	1999
	Import Value in \$ million			
World	10697.0	13882.0	14180.7	12621.8
Germany	2043.7	1814.9	1853.9	1382.2
Italy	714.4	778.3	795.1	901.5
United Arab Emirates	..	550.3	562.1	768.6
South Africa	..	121.6	124.2	721.1
France	251.8	661.0	675.2	685.4
Brazil	361.4	287.4	293.6	681.3
China	162.5	386.2	394.6	613.2
Japan	1467.6	863.1	881.7	590.2
Russia	..	689.5	704.3	531.5
Canada	180.9	603.5	616.4	530.9
United Kingdom	701.5	667.1	681.4	439.1
Spain	143.6	257.5	263.0	341.3
Switzerland	310.5	520.2	531.4	336.0
Austria	193.5	259.0	264.6	303.8
Australia	337.8	510.7	521.7	298.4
Top 15 partners	6869.3	8970.1	9163.2	9124.5
Rest of the World	3827.7	4911.9	5017.6	3497.3
	As % of Total Imports			
World	100.0	100.0	100.0	100.0
Germany	19.1	13.1	13.1	11.0
Italy	6.7	5.6	5.6	7.1
United Arab Emirates	..	4.0	4.0	6.1
South Africa	..	0.9	0.9	5.7
France	2.4	4.8	4.8	5.4
Brazil	3.4	2.1	2.1	5.4
China	1.5	2.8	2.8	4.9
Japan	13.7	6.2	6.2	4.7
Russia	..	5.0	5.0	4.2
Canada	1.7	4.3	4.3	4.2
United Kingdom	6.6	4.8	4.8	3.5
Spain	1.3	1.9	1.9	2.7
Switzerland	2.9	3.7	3.7	2.7
Austria	1.8	1.9	1.9	2.4
Australia	3.2	3.7	3.7	2.4
Top 15 partners	64.2	64.6	64.6	72.3
Rest of the World	35.8	35.4	35.4	27.7

Source: UN COMTRADE Statistics.

Table A3. Iranian Export Structure and Major Products, 1989-99

Product (SITC Rev. 2)	Export Value in \$ million				As % of all exports (%)			
	1989	1995	1997	1999	1989	1995	1997	1999
All goods (0 to 9)	11609.0	18360.0	18381.0	19726.0	100.0	100.0	100.0	100.0
Food and live animals (0)	320.0	637.9	638.7	808.0	2.8	3.5	3.5	4.1
Beverages and tobacco (1)	0.1	7.4	7.4	7.8	0.0	0.0	0.0	0.0
Crude materials, excl. fuels (2)	297.8	240.5	240.7	186.2	2.6	1.3	1.3	0.9
Fuels (3)	10246.1	15712.3	15730.3	16842.5	88.3	85.6	85.6	85.4
Animal and vegetable oil (4)	0.0	12.9	12.9	5.1	0.0	0.1	0.1	0.0
Chemical products (5)	6.0	348.3	348.7	244.0	0.1	1.9	1.9	1.2
Basic manufacturing (6)	649.1	1112.2	1113.5	1254.2	5.6	6.1	6.1	6.4
Machinery and transport equipment (7)	65.5	53.4	53.5	87.8	0.6	0.3	0.3	0.4
Misc. manufacturing goods (8)	17.4	200.7	200.9	193.0	0.1	1.1	1.1	1.0
Goods not classified by kind (9)	7.2	34.4	34.5	97.4	0.1	0.2	0.2	0.5
Agriculture (0+1+2+4-27-28)	617.8	836.2	837.2	945.6	5.3	4.6	4.6	4.8
Manufacturing (5+6+7+8-68)	737.9	1667.0	1668.9	1665.6	6.4	9.1	9.1	8.4
All non-oil products (0 to 9 -3)	1362.9	2647.7	2650.7	2883.5	11.7	14.4	14.4	14.6
Memo Items: Non-oil Major products								
cereal preparation etc. (048)	0.0	110.1	110.3	70.6	0.0	0.6	0.6	0.4
Fruits fresh and dried (057, ex nuts)	106.1	81.2	81.3	149.2	0.9	0.4	0.4	0.8
Nuts fresh and dried (0577)	143.4	207.6	207.9	333.0	1.2	1.1	1.1	1.7
Spices (075)	13.9	23.4	23.5	47.8	0.1	0.1	0.1	0.2
Hides and skins, excl. furs (211)	116.0	87.3	87.4	46.2	1.0	0.5	0.5	0.2
Organic chemicals (51)	2.1	143.7	143.8	98.6	0.0	0.8	0.8	0.5
carpets (659)	605.1	694.1	694.9	733.3	5.2	3.8	3.8	3.7
Iron and steel in primary forms (672)	0.0	145.6	145.7	161.4	0.0	0.8	0.8	0.8
Copper (682)	28.9	41.1	41.2	84.3	0.2	0.2	0.2	0.4
Clothing and accessories (84)	0.6	55.6	55.6	66.5	0.0	0.3	0.3	0.3
Above top 10 export products	1016.1	1589.8	1591.6	1790.9	8.8	8.7	8.7	9.1

Source: UN COMTRADE Statistics.

Table A4. Iranian Import Structure and Major Products, 1989-99

Product (SITC Rev. 2)	Import Value in \$ million				As % of all imports (%)				
	1989	1995	1997	1999	1989	1995	1997	1999	
All goods (0 to 9)	10697.0	13882.0	14180.7	12621.8	100.0	100.0	100.0	100.0	
Food and live animals (0)	2254.8	2453.7	2506.5	1952.2	21.1	17.7	17.7	15.5	
Beverages and tobacco (1)	48.3	7.7	7.9	5.7	0.5	0.1	0.1	0.0	
Crude materials, excl. fuels (2)	292.5	617.2	630.4	639.5	2.7	4.4	4.4	5.1	
Fuels (3)	399.0	259.1	264.7	214.4	3.7	1.9	1.9	1.7	
Animal and vegetable oil (4)	267.0	436.2	445.6	523.8	2.5	3.1	3.1	4.1	
Chemical products (5)	1636.9	1819.4	1858.5	1871.3	15.3	13.1	13.1	14.8	
Basic manufacturing (6)	1883.1	2671.8	2729.3	2219.1	17.6	19.2	19.2	17.6	
Machinery and transport equipment (7)	3406.2	4933.5	5039.7	4835.0	31.8	35.5	35.5	38.3	
Misc. manufacturing goods (8)	403.5	409.0	417.8	330.3	3.8	2.9	2.9	2.6	
Goods not classified by kind (9)	105.8	274.4	280.3	30.6	1.0	2.0	2.0	0.2	
Agriculture (0+1+2+4-27-28)	2862.5	3227.0	3296.5	2930.9	26.8	23.2	23.2	23.2	
Manufacturing (5+6+7+8-68)	7329.7	9680.0	9888.3	9154.4	68.5	69.7	69.7	72.5	
All non-oil products (0 to 9 -3)	10298.0	13622.9	13916.0	12407.3	96.3	98.1	98.1	98.3	
Memo Items:									
Wheat unmilled (041)	557.9	1084.4	1107.8	801.3	5.2	7.8	7.8	6.3	
Rice (042)	338.8	240.4	245.6	325.9	3.2	1.7	1.7	2.6	
Sugar and honey (061)	194.5	396.8	405.3	280.8	1.8	2.9	2.9	2.2	
Fixed vegetable oils (423)	234.1	389.8	398.2	486.4	2.2	2.8	2.8	3.9	
Medicinal prarm products (541)	296.4	384.8	393.0	392.5	2.8	2.8	2.8	3.1	
Iron and steel in forms or shape (672-679)	673.2	1225.6	1252.0	1138.3	6.3	8.8	8.8	9.0	
Steam engine (712)	90.3	206.4	210.9	424.1	0.8	1.5	1.5	3.4	
Machinery tools for industries (728)	100.3	174.8	178.6	281.6	0.9	1.3	1.3	2.2	
Metal working machinery (737)	38.8	98.5	100.6	508.0	0.4	0.7	0.7	4.0	
Motor vehicle parts and accessories (784)	318.6	701.2	716.3	596.7	3.0	5.1	5.1	4.7	
Above top 10 import products	2842.8	4902.8	5008.3	5235.5	26.6	35.3	35.3	41.5	

Source: UN COMTRADE Statistics.

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Annex: Computer Code for the Model

```

$title Simple Static Constant Returns to Scale Model

$libinclude cgi input elimesub No "Eliminate energy subsidies?" Yes
$libinclude cgi input exogoil No "Exogenous crude oil exports?" Yes
$libinclude cgi input fxsubs No "Remove foreign exchange subsidies?" Yes
$libinclude cgi input fsub No "Subsidize domestic food consumption?" Yes
$libinclude cgi input nubs No "Tariff reform?" Tariff Uniform 25 Free 15
$libinclude cgi input ntbrent VA "NTB rent" Gain

*=====
* Read the data:

* Set the aggregation level:

$set dataset full

* Read the set definition:

$include %dataset%.set

alias (g,i,j);

* Declare model parameters in data file:

parameter iod Input-output demand
           vad Value added
           fin Final demand
           imp Import
           itx Net taxes on import
           uhe Urban households expenditures
           rhe Rural households expenditures;

* Read the data set:

$include %dataset%.dat

*=====
* Declare additional sets and model parameters:

set fd Final demands - symbols /
    uhc Urban household consumption
    rhc Rural household consumption
    gov Government consumption
    inv Gross fixed capital accumulation
    stc Change in stocks
    exp Export ;;

set
* Households:
    hh All households /r01*r10,u01*u10/,
    rh(hh) Rural households /r01*r10/,
    rh6(hh) Rural households (6 richest) /r05*r10/,
    uh(hh) Urban households /u01*u10/,
    uh6(hh) Urban households (6 richest) /u05*u10/,
    high(i) High demand price elasticity

* Energy:
    nr(i) Sectors with natural resources /frm,lvs,ext/
    cru(i) Crude oil /ext/
    tsp(i) Transportation /ltr,ptr/
    ene(i) Energy products /
           KER Kerosene
           FOI Fuel oil
           GNE Gasoline
           GIL Gas oil
           LQG Liquid gas
           ELE Electricity
           NGS Natural gas /
    pet(i) Subsidized energy products /
           KER Kerosene
           FOI Fuel oil
           GNE Gasoline
           GIL Gas oil /
    op(i) Crude oil and refined oil products
    oth(i) Non-oil sectors

* Foreign exchange:
    oe(i) Imports at the official exchange rate /frm,sgf,foo,pha,mac/
    ess(i) Essential food items /frm,sgf,foo,pha/;

oth(i) = yes;

```

```

oth(nr)          = no;
oth(ene)         = no;
op(cru)          = yes;
op(ene)          = yes;
high(i)          = yes;
high(ene)        = no;
high(ess)        = no;

display op,oth,high;

scalar
va               Flag for NTB rent equal to value-added costs
exo              Flag for exogenous crude oil exports;

$if %ntbrent%    == "VA"          va = 1;
$if %ntbrent%    == "Gain"       va = 0;

$if %exogoil%   == "Yes"         exo = 1;
$if %exogoil%   == "No"         exo = 0;

parameter
c0(hh)           Consumption demand
cd0(i, hh)       Consumption demand by good
g0               Total government demand
gd0(i)           Government demand
i0               Total investment demand
id0(i)           Investment demand net of taxes
e0(i)            Total export demand
ed0(i)           Export demand net of taxes
ii(i, j)         Intermediate demand net of taxes
ld0(i)           Labor payments
kd0(i)           Capital payments
sff              Elas of sub between spec capital and other factors
phi              Specific factor value share
d0(i)            Supply to domestic markets
ty(i)            Production taxes
m0(i)            Imports gross of tariffs
pm0(i)           Reference price of imports
pd0(i)           Reference price of domestic goods
q0(i)            Imports net of tariffs
tm(i)            Import tariffs
pi(i)            Reference price of
a0(i)            Armington supply
ls0              Labor supply
ks0              Capital supply
ns0              Endowment of natural resources
gs0              Government capital endowment
bopdef           Balance of payment deficit
govdef           Government deficit
incsh(hh)        Household income share
nohh(hh)         Number of households (share in total number of households)
nohh6(hh)        Number of households excluding the 4 poorest rural and urban

gamma            Energy subsidies
alpha            Exchange rate subsidy
fsub             Flag for endogenous food subsidies
arm              Armington elasticities
eta              Elasticity of supply
;

eta("ext")      = 0.5;
eta("lvs")      = 3;
eta("frm")      = 3;
gamma(i)        = 0;
fsub(i)         = 0;
arm(i)          = 3;
arm(pet)        = 6;
nohh(rh)        = 0.38/(0.5*card(hh));
nohh(uh)        = 0.62/(0.5*card(hh));
nohh6(rh6)      = 0.38/(0.5*(card(uh6)+card(rh6)));
nohh6(uh6)      = 0.62/(0.5*(card(uh6)+card(rh6)));

*=====
*           Calibrate the model parameters:

*           Final demands:

*           Urban households
c0(uh)          = sum(i, uhe(i, uh));
cd0(i, uh)      = uhe(i, uh);

*           Rural households
c0(rh)          = sum(i, rhe(i, rh));
cd0(i, rh)      = rhe(i, rh);

*           Expenditure and income share of each urban income group in total income
incsh(hh)       = c0(hh)/(sum(i, fin(i, "uhc")+fin(i, "rhc")));

```

```

display incsh;

g0          = sum(i,fin(i,"gov"));
gd0(i)      = fin(i,"gov");

id0(i)      = fin(i,"inv")+fin(i,"stc");

e0(i)       = fin(i,"exp");
ed0(i)      = fin(i,"exp");

*          Intermediate demands and value added:

ii(i,j)     = iod(i,j);

*.vad("cap",i) = vad("cap",i)+vad("ntx",i);

ld0(i)      = vad("lab",i);
kd0(i)      = vad("cap",i);

*          Domestic supply and production taxes:

d0(i)       = sum(j,ii(j,i))+ld0(i)+kd0(i)
             + vad("ntx",i) - ed0(i);

ty(i)       = vad("ntx",i)/(d0(i)+ed0(i));

*          Imports and Armington supply:

m0(i)       = imp(i);
tm(i)$m0(i) = itx(i)/m0(i);
pm0(i)      = 1+tm(i);
pd0(i)      = 1;
a0(i)       = m0(i)*pm0(i)+d0(i);
q0(i)       = m0(i);

*=====
*
*          Incorporate NTBs and tariffs:
*=====

scalar
  kvs Capital value share
  ntbc Costs of NTBs;

parameter
  ntb0 Benchmark NTB rates;

table trd(*,*) Import trade distortions

          TM      CBT0      TD      NTB      TD+CBT1      CBT1
FRM      0.8      0.7      0.1      9.2      10.1      10
LVS      0.8      0.7      0.1      19.1     20.1      20
OAG      0.8      0.7      0.1      14.2     15.1      15
MNG      1.6      1.1      0.5      13.7     15.5      15
EXT      0        0        0        0.0      0.0       0
SGR      0        0        0        0.0      0.0       0
FOO      0.5      0.4      0.1      29.5     30.1      30
PPP      3.1      2.4      0.7      6.4      9.7       9
CMT      2.1      1        1.1      19.6     22.1      21
BRK      9.3      8.2      1.1      11.7     22.1      21
GCM      3        2.3      0.7      18.2     21.7      21
GLS      7.8      6.5      1.3      21.8     31.3      30
NMP      6.4      5.3      1.1      14.8     22.1      21
TXT      2.7      2.3      0.4      69.8     74.4      74
CLC      14.2     11.1     3.1      69.1     93.1      90
LEA      4.2      3.6      0.6      67.6     74.6      74
PLC      1.7      1.3      0.4      23.3     25.4      25
PHA      0        0        0        0.0      0.0       0
KER      0.1      0.1      0        0.0      0.1       0.1
FOI      0.1      0.1      0        0.0      0.1       0.1
GNE      0.1      0.1      0        0.0      0.1       0.1
GIL      0.1      0.1      0        0.0      0.1       0.1
LQG      0.1      0.1      0        0.0      0.1       0.1
OCP      2        1.7      0.3      7.2      9.3       9
MET      3.5      3.1      0.4      16.3     20.4      20
CAL      3.5      3.1      0.4      16.3     20.4      20
MPS      5.9      4.9      1        4.8      11.0      10
MAC      2.7      2.1      0.6      7.7      10.6      10
RTV      4        2.8      1.2      16.5     21.2      20
MEQ      3.5      2.1      1.4      32.8     37.4      36
OIP      3.4      2.9      0.5      16.5     20.5      20;

tm(i)      = trd(i,"tm")/100;
ntb0(i)    = trd(i,"ntb")/100;
pm0(i)     = (1+tm(i))*(1+ntb0(i));

```

```

m0(i) = (a0(i)-d0(i))/pm0(i);
q0(i) = m0(i);

ntbc = sum(i, m0(i)*(1+tm(i))*ntb0(i));

*      Capital value share:
kvs = sum(i, kd0(i))/sum(i, kd0(i)+ld0(i));

*=====
*
*      Incorporate energy subsidies:
*=====

parameter
ratio      Ratio of domestic to international prices
excor      Correction of exchange rates;

excor      = 4172/8150;

ratio("gne") = excor*0.514;
ratio("ker") = excor*0.156;
ratio("gil") = excor*0.172;
ratio("foi") = excor*0.111;

gamma(pet) = ratio(pet)-1;

display gamma;

*      Eliminate small import taxes on oil products:
m0(pet) = m0(pet)+itx(pet);
q0(pet) = m0(pet);
tm(pet) = 0;
pm0(pet) = 1+gamma(pet);
pd0(pet) = 1+gamma(pet);

*      Domestic production:
parameter delta Change in domestic production;

delta(pet) = (a0(pet)-m0(pet)*(1+gamma(pet)))/(1+gamma(pet))-d0(pet);

d0(pet) = d0(pet)+delta(pet);
ii("ext",pet) = ii("ext",pet)+delta(pet);
kd0("ext") = kd0("ext")+sum(pet,delta(pet));
d0("ext") = d0("ext")+sum(pet,delta(pet));
a0("ext") = a0("ext")+sum(pet,delta(pet));
ty(i) = vad("ntx",i)/(d0(i)+ed0(i));

*=====
*
*      Incorporate dual pricing of foreign exchange:
*=====

parameter fxsh Share of imports imported at the official exchange rate;

fxsh("frm") = 0.8;
fxsh("sgr") = 1;
fxsh("foo") = 0.4;
fxsh("pha") = 1;
fxsh("mac") = 0.75;

*      Ratio of market exchange rate to official exchange rate :

alpha(oe) = ((1-fxsh(oe))*8.2+fxsh(oe)*1.75)/8.2-1;
q0(oe) = q0(oe)/(1+alpha(oe));

display alpha;

*=====
*
*      Elasticity of substitution in sectors with specific capital:
*=====

phi(nr) = 0.5*kd0(nr)/(ed0(nr)+d0(nr));
sff(nr) = phi(nr)*eta(nr)/(1-phi(nr));

*=====
*
*      Closure rules:
*=====

*      Capital and labor supply:

```

```

gs0          = 0.5*kd0("ext");
ns0(nr)     = 0.5*kd0(nr);
ls0         = sum(i,ld0(i))+(1-kvs)*ntbc$va;
ks0         = sum(i,kd0(i))-gs0-sum(nr,ns0(nr))+kvs*ntbc$va;

*          Benchmark deficits:

bopdef      = sum(i, q0(i)-e0(i));
govdef      = ns0("ext")
            + gs0
            + sum(i, d0(i)*ty(i)
                + ed0(i)*ty(i)
                + q0(i)*alpha(i)
                + m0(i)*tm(i)
                + m0(i)*gamma(i)
                + d0(i)*gamma(i)
            )
            - g0;

*=====
*
*          Statistics:
*=====

parameter
  aggr          Aggregate statistics
  govstat       Government incomes and expenditures
  fxs           Imports with foreign exchange subsidies
  vastat        Value-added statistics,
  ecs           Energy cost shares,
  tsh           Trade shares
  hhexp         Household expenditure shares,
  inc           Income shares,
  policy        Summary of policy instruments;

aggr("inc")    = sum(hh,c0(hh));
aggr("gdp")    = sum(i,kd0(i)+ld0(i));
aggr("ty")     = sum(i,(d0(i)+ed0(i))*ty(i));
aggr("ty%")    = 100*aggr("ty")/aggr("gdp");
aggr("ensub")  = sum(i,-(m0(i)+d0(i))*gamma(i));
aggr("ensub%")= 100*aggr("ensub")/aggr("gdp");
aggr("tm")     = sum(i,m0(i)*tm(i));
aggr("tm%")    = 100*aggr("tm")/aggr("gdp");
aggr("fx")     = sum(i,-q0(i)*alpha(i));
aggr("fx%")    = 100*aggr("fx")/aggr("gdp");
aggr("ntb")    = sum(i,m0(i)*(1+tm(i))*ntb0(i));
aggr("ntb%")   = 100*aggr("ntb")/aggr("gdp");
aggr("kvs")    = 100*sum(i,kd0(i))/aggr("gdp");
aggr("imps")   = 100*sum(i,m0(i))/aggr("gdp");
aggr("oilrent")= 100*d0("ext")/aggr("gdp");

govstat("ensub") = sum(i,(m0(i)+d0(i))*gamma(i));
govstat("tm")    = sum(i,m0(i)*tm(i));
govstat("fx")    = sum(i,q0(i)*alpha(i));
govstat("oilrent")= ns0("ext");

fxsh(pet)$m0(pet) = 1;
fxs(i,"fxsh")    = 100*fxsh(i);
fxs(i,"impsh")   = 100*fxsh(i)*m0(i)/sum(j,m0(j));
fxs("total","impsh") = 100*sum(i,fxsh(i)*m0(i))/sum(i,m0(i));

vastat(i,"k%")  = 100*kd0(i)/sum(j,kd0(j));
vastat(i,"l%")  = 100*ld0(i)/sum(j,ld0(j));
vastat(i,"va%") = 100*(ld0(i)+kd0(i))/sum(j,ld0(j)+kd0(j));
vastat(i,"kvs") = 100*kd0(i)/(ld0(i)+kd0(i));

ecs(i) = 100*sum(ene,ii(ene,i))/(ed0(i)+d0(i));

tsh(i,"imp")    = 100*m0(i)/sum(j,m0(j));
tsh(i,"impsub")= 100*q0(i)/sum(j,q0(j));
tsh(i,"exp")    = 100*ed0(i)/sum(j,ed0(j));

inc("lab")     = 100*ls0/sum(hh,c0(hh));
inc("cap")     = 100*ks0/sum(hh,c0(hh));
inc("bop")     = 100*bopdef/sum(hh,c0(hh));
inc("gov")     = 100*govdef/sum(hh,c0(hh));
inc("inv")     = 100*sum(i,-ld0(i))/sum(hh,c0(hh));

option aggr:1:0:1,ecs:1:0:1,fxs:1;
display aggr,vastat,ecs,tsh,fxs;

*          Tables for paper:

policy(i,"CBT0") = trd(i,"CBT0");
policy(i,"TD")   = trd(i,"TD");

```

```

policy(i, "NTB")           = trd(i, "NTB");
policy(i, "CBT1")          = trd(i, "CBT1");
policy(i, "FX_Sub")        = round(-100*alpha(i), 0);
policy(i, "EN_Sub")        = round(-100*gamma(i), 0);

hhexp(hh, "Food")          = round(100*sum(ess, cd0(ess, hh)) / sum(i, cd0(i, hh)), 2);
hhexp(hh, "Energy")        = round(100*sum(ene, cd0(ene, hh)) / sum(i, cd0(i, hh)), 2);
hhexp(hh, "Transp")        = round(100*sum(tsp, cd0(tsp, hh)) / sum(i, cd0(i, hh)), 2);
hhexp(hh, "Other")         = round(100-hhexp(hh, "Energy")-hhexp(hh, "Transp")-
hhexp(hh, "Food"), 2);

option policy:1, hhexp:0;
display policy, hhexp;

*.$libininclude ssexport policy policy.wk1 alldat
*.$libininclude ssdump hhexp hhexp.wk1

display govdef, ns0, gs0;

*=====
*
*       Declare the model:
*
*=====

$ontext

$model:static

$sectors:
co(hh)           ! Private consumption by income groups
go               ! Public sector demand
y(i)             ! Sectoral production
a(i)             ! Armington supply
m(i)$m0(i)       ! Imports
ex(i)$not cru(i) ! Exports
cex$(not exo)    ! Crude oil exports

$commodities:
pc(hh)           ! Consumption price urban consumers
pg               ! Public goods price
pl               ! Wage rate
rk               ! Return to capital
rn(nr)           ! Rent to natural resources
pa(i)           ! Armington price
pm(i)$m0(i)      ! Import price
pd(i)$not cru(i) ! Domestic market price
py(i)           ! Costs of domestic production
pfx             ! Foreign exchange

$consumer:
ra(hh)           ! Households
govt             ! Government
dummy           ! Dummy agent collecting NTB rents

$auxiliary:
ls               ! Lump-sum tax multiplier
my(i)$fsub(i)   ! Food subsidies
chi(i)$gamma(i) ! Energy subsidy multiplier
beta(i)$alpha(i) ! Subsidy to selected imports

$prod:ex(i)$not cru(i) t:arm(i)
o:pfx           q:ed0(i)
o:pd(i)         q:d0(i)
i:py(i)         q:(d0(i)+ed0(i))

$prod:cex$(not exo)
o:pfx           q:(sum(cru, ed0(cru)))
i:py(cru)       q:ed0(cru)

*       Other production:
$prod:y(i)$oth(i) s:0 vae:0.5 va:(vae):1
o:py(i)         q:(d0(i)+ed0(i)) a:govt t:ty(i)
i:pa(j)         q:ii(j,i) vae:$ene(j)
i:pl            q:ld0(i) va:
i:rk            q:kd0(i) va:

*       Oil refining:
$prod:y(i)$ene(i) s:0 va:1
o:py(i)         q:(d0(i)+ed0(i)) a:govt t:ty(i)
i:pa(j)         q:ii(j,i) va:
i:pl            q:ld0(i) va:
i:rk            q:kd0(i) va:

*       Primary production:
$prod:y(nr) s:sff(nr) sa:0
o:py(nr)        q:(ed0(nr)+d0(nr)) a:govt t:ty(nr)

```

```

i:pa(j)          q:ii(j,nr)      sa:
i:pl            q:ld0(nr)      sa:
i:rk            q:(0.5*kd0(nr)) sa:
i:rn(nr)        q:(0.5*kd0(nr))

$prod:a(i) s:arm(i)
o:pa(i)          q:a0(i)          a:govt n:my(i)$fsub(i) m:(-1)$fsub(i)
i:pm(i)          q:m0(i) p:pm0(i) a:govt n:chi(i)$gamma(i) m:gamma(i)$gamma(i)
+ t:tm(i) a:dummy t:((1+tm(i))*ntb0(i))
i:pd(i)$not cru(i) q:d0(i) p:pd0(i) a:govt n:chi(i)$gamma(i) m:gamma(i)$gamma(i)
i:py(i)$cru(i)    q:d0(i)

$constraint:chi(i)$gamma(i)
pa(i) =g= sum(hh,incsh(hh)*pc(hh));

$demand:dummy s:0
d:pl$va          q:(1-kvs)
d:rk$va          q:kvs
d:pc(hh)$not va  q:incsh(hh)

$constraint:my(i)$fsub(i)
sum(hh,incsh(hh)*pc(hh)) =g= pa(i);

$prod:m(i)$m0(i) s:0
o:pm(i)          q:m0(i)
i:pfx           q:q0(i) a:govt n:beta(i)$alpha(i) m:alpha(i)$alpha(i)

$constraint:beta(i)$alpha(i)
sum(hh,incsh(hh)*pc(hh)) =g= pm(i);

$report:
v:dsup(i)        i:pd(i) prod:a(i)
v:msup(i)        i:pm(i) prod:a(i)
v:xsup(i)        o:pfx   prod:ex(i)
v:ldem(i)        i:pl    prod:y(i)

$prod:co(hh) s:0.4 a:1
o:pc(hh)       q:c0(hh)
i:pa(i)        q:cd0(i, hh) a:$high(i)

$prod:go s:0
o:pg           q:g0
i:pa(i)        q:gd0(i)

*====
*      Government agent:

$demand:govt
d:pg          q:g0
e:rk          q:gs0
e:rn("ext")  q:ns0("ext")
e:pl          q:{-govdef}
e:pfx        q:{-1}          r:ls

*      Exogenous exports of crude oil:
e:py(cru)$exo q:{-ed0(cru)}
e:pfx$exo     q:{sum(cru,ed0(cru))}

*====
*      Households:

$demand:ra(hh)
d:pc(hh)      q:c0(hh)
e:pl          q:(ls0*incsh(hh))
e:rk          q:(ks0*incsh(hh))
e:rn(nr)$not cru(nr) q:(ns0(nr)*incsh(hh))
e:pfx        q:(bopdef*incsh(hh))
e:pl         q:(govdef*incsh(hh))
e:pfx        q:nchh(hh)          r:ls
e:pa(i)      q:{(-id0(i))*incsh(hh)}

$constraint:ls
go =e= 1;

$offtext
$sysinclude mpsgeset static

*====
*
*      Replicate the benchmark:
*
*====

ls.l          = 0;
ls.lo         = -inf;
ls.up         = +inf;

```

```

my.l(i)      = 0;
chi.l(i)    = 1;
beta.l(i)   = 1;
static.iterlim = 0;
$include static.gen
solve static using mcp;
static.iterlim = 10000;

```

* Report parameters:

```

scalar cpi      Consumer price index,
        gdp      Gross domestic product;

```

```

gdp          = sum(i,kd0(i)+ld0(i));

```

```

parameter
Welfare      Aggregate welfare change (% of household consumption)
WelfGDP      Aggregate welfare change (% of GDP)
Welfhh       Welfare change by household
Welfnet      Welfare change net of lump-sum transfer
OilProd      Production of crude
OilExp       Crude oil exports
OilRef       Oil refining activity
EinCost      Costs of domestic energy intensive production (% change)
P_transp    Price of transportation services
Subsidy      Average petroleum subsidies (%)
EnePrice     Energy price index (% change)
OilPrice     Oil price index (% change)
CruPrice     Domestic price of crude oil (% change)
Exhrate      Real exchange rate (% change)
RealWage     Real wage (% change)
ReturnK      Real return to capital
OilRent      Real return to oil
OilSub       Oil subsidies (% of GDP)
FoodSub      Food subsidies
FxSub       Foreign exchange subsidies (% of GDP)
TmRev       Tariff revenue (% of GDP)
OilRent      Oil rent (% of GDP)
Fiscal       Net fiscal effect (% of GDP)
AvTar       Average tariff rate
Exports      Aggregate exports
FodPrice     Price of primary food
FopPrice     Price of processed food products
SugPrice     Price of sugar
MedPrice     Price of medicine
Activ       Output by sector (% change)
DomCost      Costs of domestic production
export      Exports (% change)
explev      Exports (levels)
emplev      Employment (levels)
RP          Rate of protection
AIJ         Cost share of intermediate inputs in total costs
ERP         Effective rate of protection
;

```

```

*-----
*
* Scenario definitions and report writing: ENERGY POLICY ANALYSIS
*
*-----

```

```

* Foreign exchange subsidies:
Sif %fxsubs% == "Yes"      alpha(i)      = 0;
* Food subsidies:
Sif %fsub%   == "Yes"      fsub(ess)    = 1;

* Replace NTBs with tariffs:
Sif %ntbs%   == "Tariff"   ntb0(i)      = 0;
Sif %ntbs%   == "Tariff"   tm(i)$ (not pet(i)) = trd(i,"TD+CBT1")/100;
* Remove NTBs and impose a uniform tariff:
Sif %ntbs%   == "Uniform"  ntb0(i)      = 0;
Sif %ntbs%   == "Uniform"  tm(i)$ (not pet(i)) = 0.15;
* Replace NTBs with tariffs but no rates beyond 25%
Sif %ntbs%   == "25"      ntb0(i)      = 0;
Sif %ntbs%   == "25"      tm(i)$ (not pet(i)) = min(0.25,trd(i,"TD+CBT1")/100);
* Eliminate all trade distortions:
Sif %ntbs%   == "Free"     ntb0(i)      = 0;
Sif %ntbs%   == "Free"     tm(i)        = 0;
Sif %ntbs%   == "Free"     alpha(i)     = 0;
* Eliminate all trade distortions, except a uniform 15% tariff:
Sif %ntbs%   == "15"      ntb0(i)      = 0;
Sif %ntbs%   == "15"      tm(i)$ (not pet(i)) = 0.15;
Sif %ntbs%   == "15"      alpha(i)     = 0;

Sif %elimesub% == "Yes"    gamma(i)    = 0;

```

```

$include static.gen
solve static using mcp;

cpi = sum(hh, incsh(hh)*pc.l(hh));
Welfare = 100*(sum(hh, co.l(hh)*c0(hh))/sum(hh, c0(hh))-1);
WelfGDP = 100*(sum(hh, (co.l(hh)-1)*c0(hh))/gdp);
Welfhh(hh) = round(100*(co.l(hh)-1), 1);
Welfnet(hh) = round(100*(co.l(hh)*c0(hh)-pfx.l/pc.l(hh)*nohh(hh)*ls.l)/c0(hh)-1, 1);
Exhrate = 100*(pfx.l/sum(i, pd.l(i)*dsup.l(i)/sum(j, dsup.l(j)))-1);
RealWage = 100*(pl.l/cpi-1);
ReturnK = 100*(rk.l/cpi-1);
FxSub = 100*(sum(oe, pfx.l*m.l(oe)*q0(oe)*beta.l(oe)*alpha(oe))/cpi-govstat("fx")/gdp;
OilSub = 100*(sum(pet, (pm.l(pet)*msup.l(pet)+pd.l(pet)*dsup.l(pet))*chi.l(pet)*gamma(pet))/cpi-govstat("ensub")/gdp;
FoodSub = 100*sum(ess, -a.l(ess)*pa.l(ess)*a0(ess)*my.l(ess))/cpi*gdp;
TmRev = 100*(sum(i, pm.l(i)*msup.l(i)*tm(i))/cpi-govstat("tm")/gdp;
OilRent = 100*(rn.l("ext")*ns0("ext")/cpi-govstat("oilrent")/gdp;
Fiscal = 100*(sum(oe, pfx.l*m.l(oe)*q0(oe)*beta.l(oe)*alpha(oe))/cpi-govstat("fx")+sum(pet, (pm.l(pet)*msup.l(pet)+pd.l(pet)*dsup.l(pet))*chi.l(pet)*gamma(pet))/cpi-govstat("ensub")+sum(i, pm.l(i)*msup.l(i)*tm(i))/cpi-govstat("tm")+sum(ess, -a.l(ess)*pa.l(ess)*a0(ess)*my.l(ess))/cpi+rn.l("ext")*ns0("ext")/cpi-govstat("oilrent")/gdp;
AvTar = 100*sum(i, pm.l(i)*msup.l(i)*tm(i))/sum(i, pm.l(i)*msup.l(i));
Exports = 100*((sum(i, xsup.l(i))+sum(cru, ed0(cru))*(1$exo+cex.l$(not exo)))/sum(i, ed0(i))-1);
FodPrice = 100*(pa.l("frm")/cpi-1);
FopPrice = 100*(pa.l("foo")/cpi-1);
SugPrice = 100*(pa.l("sgr")/cpi-1);
MedPrice = 100*(pa.l("pha")/cpi-1);
Activ(i) = 100*(y.l(i)-1);
DomCost(i) = 100*(py.l(i)/cpi-1);
export(i)$ed0(i) = 100*(xsup.l(i)/ed0(i)-1);
export(i)$cru(i) = 100*((1$exo+cex.l$(not exo))-1);
explev(i)$ed0(i) = xsup.l(i)*1000000;
explev(i)$cru(i) = (1$exo+cex.l$(not exo))*sum(cru, ed0(cru))*1000000;
emplev(i) = ldem.l(i)*1000000;
RP(i) = tm(i)+((1+tm(i))*ntb0(i));
display rp, tm;
AIJ(i, j) = ii(i, j)/(d0(j)+ed0(j));
ERP(i) = 100*(rp(i)-sum(j, aij(j, i)*rp(j)))/(1-sum(j, aij(j, i)));

* Install benchmark values for the government budget:

$if %cgicase% == "NoChange" FxSub = 100*govstat("fx")/gdp;
$if %cgicase% == "NoChange" OilSub = 100*govstat("ensub")/gdp;
$if %cgicase% == "NoChange" FoodSub = 0;
$if %cgicase% == "NoChange" TmRev = 100*govstat("tm")/gdp;
$if %cgicase% == "NoChange" OilRent = 100*govstat("oilrent")/gdp;

$setglobal cgisol_nd 2

$libinclude cgi output FxSub
$libinclude cgi output OilSub
$libinclude cgi output FoodSub
$libinclude cgi output TmRev
$libinclude cgi output OilRent
$libinclude cgi output Fiscal
$libinclude cgi output RealWage
$libinclude cgi output ReturnK
$libinclude cgi output Exhrate
$libinclude cgi output Exports
$libinclude cgi output AvTar
$libinclude cgi output FodPrice
$libinclude cgi output FopPrice
$libinclude cgi output SugPrice
$libinclude cgi output MedPrice
$libinclude cgi output Welfare
$libinclude cgi output Welfhh hh
$libinclude cgi output welfnet hh
$libinclude cgi output Activ i

file dump /%cgicase%.sol/; put dump;

parameter result;
result("FxSub ", "%cgicase%") = FxSub ;
result("OilSub ", "%cgicase%") = OilSub ;
result("FoodSub ", "%cgicase%") = FoodSub ;
result("TmRev ", "%cgicase%") = TmRev ;

```

```

result("OilRent ", "%cgicase%") = OilRent ;
result("Fiscal ", "%cgicase%") = Fiscal ;
result("RealWage", "%cgicase%") = RealWage;
result("ReturnK ", "%cgicase%") = ReturnK ;
result("Exhtrate ", "%cgicase%") = Exhtrate ;
result("AvTar ", "%cgicase%") = AvTar ;
result("Exports ", "%cgicase%") = Exports ;
result("FodPrice", "%cgicase%") = FodPrice;
result("FopPrice", "%cgicase%") = FopPrice;
result("SugPrice", "%cgicase%") = SugPrice;
result("MedPrice", "%cgicase%") = MedPrice;
result("Welfare ", "%cgicase%") = Welfare ;
result("WelfGDP ", "%cgicase%") = WelfGDP ;

set      nhh      /rn01*rn10,un01*un10/,
         nhhmap(hh, nhh) /

r01.rn01,r02.rn02,r03.rn03,r04.rn04,r05.rn05,r06.rn06,r07.rn07,r08.rn08,r09.rn09,r10.r
n10

u01.un01,u02.un02,u03.un03,u04.un04,u05.un05,u06.un06,u07.un07,u08.un08,u09.un09,u10.u
n10 /;

set      alti     /
         FRMp, LVSp, OAGp, MNGp, EXTp, SGRp, FOPp, PPPp, CMTp, BRKp, GCMp, GLSp,
         NMPp, TXTp, CLOp, LEAp, PLCp, PHAp, KERp, FOIp, GNEp, GILp, LQp, OCPp,
         METp, CALp, MPSp, MACp, RTVp, MEQp, OIPp, ELEp, WATp, NGSp, CONp, TRDp,
         RNTp, HOTp, LTRp, PTRp, COMp, OTTp, OSVp/
         altimap(i, alti) /
         FRM. FRMp, LVS. LVSp, OAG. OAGp, MNG. MNGp, EXT. EXTp, SGR. SGRp, FOO. FOPp,
         PPP. PPPp, CMT. CMTp, BRK. BRKp, GCM. GCMp, GLS. GLSp, NMP. NMPp, TXT. TXTp,
         CLO. CLOp, LEA. LEAp, PLC. PLCp, PHA. PHAp, KER. KERp, FOI. FOIp, GNE. GNEp,
         GIL. GILp, LQG. LQp, OCP. OCPp, MET. METp, CAL. CALp, MPS. MPSp, MAC. MACp,
         RTV. RTVp, MEQ. MEQp, OIP. OIPp, ELE. ELEp, WAT. WATp, NGS. NGSp, CON. CONp,
         TRD. TRDp, RNT. RNTp, HOT. HOTp, LTR. LTRp, PTR. PTRp, COM. COMp, OTT. OTTp,
         OSV. OSVp/;

set      altj     /
         FRMe, LVSe, OAGe, MNGe, EXTe, SGRe, FOOe, PPPe, CMTe, BRKe, GCMe, GLSe,
         NMPe, TXTe, CLOe, LEAe, PLCe, PHAe, KERE, FOIE, GNEe, GILe, LQGe, OCPe,
         METe, CALe, MPSe, MACe, RTVe, MEQe, OIPE, ELEe, WATe, NGSe, CONe, TRDe,
         RNTe, HOTE, LTRe, PTRe, COMe, OTTe, OSVe/
         altjmap(j, altj) /
         FRM. FRMe, LVS. LVSe, OAG. OAGe, MNG. MNGe, EXT. EXTe, SGR. SGRe, FOO. FOOe,
         PPP. PPPe, CMT. CMTe, BRK. BRKe, GCM. GCMe, GLS. GLSe, NMP. NMPe, TXT. TXTe,
         CLO. CLOe, LEA. LEAe, PLC. PLCe, PHA. PHAe, KER. KERE, FOI. FOIE, GNE. GNEe,
         GIL. GILe, LQG. LQGe, OCP. OCPe, MET. METe, CAL. CALe, MPS. MPSe, MAC. MACe,
         RTV. RTVe, MEQ. MEQe, OIP. OIPE, ELE. ELEe, WAT. WATe, NGS. NGSe, CON. CONe,
         TRD. TRDe, RNT. RNTe, HOT. HOTE, LTR. LTRe, PTR. PTRe, COM. COMe, OTT. OTTe,
         OSV. OSVe/;

set      altx     /
         FRMx, LVsx, OAGx, MNGx, EXTx, SGRx, FOOx, PPPx, CMTx, BRKx, GCMx, GLSx,
         NMPx, TXTx, CLOx, LEAx, PLCx, PHAx, KERx, FOIx, GNEx, GILx, LQGx, OCPx,
         METx, CALx, MPsx, MACx, RTVx, MEQx, OIPx, ELEx, WATx, NGSx, CONx, TRDx,
         RNTx, HOTx, LTRx, PTRx, COMx, OTTx, OSVx/
         altxmap(i, altx) /
         FRM. FRMx, LVS. LVsx, OAG. OAGx, MNG. MNGx, EXT. EXTx, SGR. SGRx, FOO. FOOx,
         PPP. PPPx, CMT. CMTx, BRK. BRKx, GCM. GCMx, GLS. GLSx, NMP. NMPx, TXT. TXTx,
         CLO. CLOx, LEA. LEAx, PLC. PLCx, PHA. PHAx, KER. KERx, FOI. FOIx, GNE. GNEx,
         GIL. GILx, LQG. LQGx, OCP. OCPx, MET. METx, CAL. CALx, MPS. MPsx, MAC. MACx,
         RTV. RTVx, MEQ. MEQx, OIP. OIPx, ELE. ELEx, WAT. WATx, NGS. NGSx, CON. CONx,
         TRD. TRDx, RNT. RNTx, HOT. HOTx, LTR. LTRx, PTR. PTRx, COM. COMx, OTT. OTTx,
         OSV. OSVx/;

set      altw     /
         FRMw, LVSw, OAGw, MNGw, EXTw, SGRw, FOOw, PPPw, CMTw, BRKw, GCMw, GLSw,
         NMPw, TXTw, CLOW, LEAw, PLCw, PHAw, KERw, FOIw, GNEw, GILw, LQGW, OCPw,
         METw, CALw, MPsw, MACw, RTVw, MEQw, OIPw, ELEw, WATw, NGSw, CONw, TRDw,
         RNTw, HOTw, LTRw, PTRw, COMw, OTTw, OSVw/
         altwmap(i, altw) /
         FRM. FRMw, LVS. LVSw, OAG. OAGw, MNG. MNGw, EXT. EXTw, SGR. SGRw, FOO. FOOw,
         PPP. PPPw, CMT. CMTw, BRK. BRKw, GCM. GCMw, GLS. GLSw, NMP. NMPw, TXT. TXTw,
         CLO. CLOW, LEA. LEAw, PLC. PLCw, PHA. PHAw, KER. KERw, FOI. FOIw, GNE. GNEw,
         GIL. GILw, LQG. LQGW, OCP. OCPw, MET. METw, CAL. CALw, MPS. MPsw, MAC. MACw,
         RTV. RTVw, MEQ. MEQw, OIP. OIPw, ELE. ELEw, WAT. WATw, NGS. NGSw, CON. CONw,
         TRD. TRDw, RNT. RNTw, HOT. HOTw, LTR. LTRw, PTR. PTRw, COM. COMw, OTT. OTTw,
         OSV. OSVw/;

set      altl     /
         FRMl, LVSl, OAGl, MNGl, EXTl, SGRl, FOOl, PPPl, CMTl, BRKl, GCMl, GLSl,
         NMPl, TXTl, CLOl, LEAl, PLCl, PHAl, KERl, FOIl, GNEl, GILl, LQGl, OCPl,
         METl, CALl, MPsl, MACl, RTVl, MEQl, OIPl, ELEl, WATl, NGSl, CONl, TRDl,
         RNTl, HOTl, LTRl, PTRl, COMl, OTTl, OSVl/
         altlmap(i, altl) /
         FRM. FRMl, LVS. LVSl, OAG. OAGl, MNG. MNGl, EXT. EXTl, SGR. SGRl, FOO. FOOl,
         PPP. PPPl, CMT. CMTl, BRK. BRKl, GCM. GCMl, GLS. GLSl, NMP. NMPl, TXT. TXTl,

```

CLO.CLO1,LEA.LEA1,PLC.PLCL,PHA.PHAL,KER.KER1,FOI.FOI1,GNE.GNE1,
GIL.GIL1,LQG.LQG1,OCF.OCF1,MET.MET1,CAL.CAL1,MPS.MPS1,MAC.MAC1,
RTV.RTV1,MEQ.MEQ1,OIP.OIP1,ELE.ELE1,WAT.WAT1,NGS.NGS1,CON.CON1,
TRD.TRD1,RNT.RNT1,HOT.HOT1,LTR.LTR1,PTR.PTR1,COM.COM1,OTT.OTT1,
OSV.OSV1/;

```
result(hh, "%cgicase%") = welfhh(hh);  
*.result(nhh, "%cgicase%") = sum(nhhmap(hh, nhh), welfnet(hh));  
result(i, "%cgicase%") = activ(i);  
result(alti, "%cgicase%") = sum(altimap(i, alti), domcost(i));  
result(altj, "%cgicase%") = sum(altjmap(j, altj), exp(j));  
result(altx, "%cgicase%") = sum(altxmap(i, altx), export(i));  
result(altl, "%cgicase%") = sum(altlmap(j, altl), emplev(j));  
result(altw, "%cgicase%") = sum(altwmap(i, altw), explev(i));
```

```
$libinclude gams2txt result
```