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The Inflationary Process in Prerevolutionary Iran

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In retrospect, the development of inflation in Iran, especially after 1973, together with the government's inability to stabilize the price level were undoubtedly major economic causes of the 1979 revolution.

Inflation poses a grave threat to any political system. It does so because it succeeds in touching the lives of the ordinary citizens—not some, but all—to an extent that government development expenditures can rarely achieve. Whether it is hyperinflation or gradual increases in prices over time, the damage done to the individual and society is evident. By creating an atmosphere of insecurity and futility, by permitting wholesale economic injustice, and by giving rise to abject poverty, inflation makes for irrationality in politics that deeply affects the nature and effectiveness of subsequent stabilization measures.[1]

As Green notes:

> In 1977 a variety of events throughout Iran helped to galvanize and radicalize opposition to the Shah. It is here that Iran's crisis of participation gradually became transformed into a far more critical crisis of the system as a whole. Recognizing the economic problems caused by the Fifth Five Year Plan as well as the accompanying social discord, the Shah removed Amir Abbas Hoveyda as Prime Minister and replaced him with Jamshid Amuzegar. . . . The choice of Amuzegar was not a wise one. Basically a technocrat, Amuzegar was ill-suited to improving the regime's relations with or image among the masses. Reportedly, one of his first moves was to eliminate government subsidies for the national religious sector. Having little time for niceties or patience with politics, he was far happier working on often abstruse development issues, surrounded by his fellow technocrats and unaware of events in the wider social context. The state of the economy compelled him to mount an attack on growing inflation. Thus, Amuzegar was in the position of having to begin his tenure by announcing restrictions on credit. These restrictions led to a recession; a cutback on building and development programs; and an increase in unemployment, which affected large numbers of recent migrants to the cities. Urban unrest, always a problem for the regime, grew worse.[2]

The nature of Iranian inflation and the course of inflation-related variables therefore merit considerable attention. In the analysis below, particular emphasis is given to inflation in the 1970s, with an attempt made to identify the type and source of the inflation experienced.

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While it is impossible to argue that inflation per se was a major factor in causing the Iranian revolution, my analysis indicates that the Iranian government's mistaken perception of the nature of the post-1973 inflation resulted in the inability of its stabilization programs to stop the post-1973 rise in prices. At the same time the harshness of the government's anti-inflationary measures, together with their ineffectual results, sowed the seeds of distrust and resentment in wide segments of the population, creating an atmosphere easily played upon by the regime's enemies.

Inflationary Pressures—Overview

The Iranian economy enjoyed a prolonged period of price stability through the 1960s. Beginning in 1972, however, growing inflationary pressures developed and were present throughout the rest of the 1970s. During the Fourth Five-Year Plan (1968-1972), the annual rates of increase in the average level of consumer prices were low, ranging from 1 to 6 percent. The corresponding rates of inflation for the Fifth Plan (1973-1977) were, on the other hand, all in excess of 10 percent, amounting to as much as 27 percent in 1977.

A comparison of the rate of increase in the money supply (see table 1) and that of the major inflation indexes suggests that in the post-1973 period, the Iranian economy had advanced beyond its absorptive capacity in the sense of finding the complementary factors of production (such as human skills, natural resources, and infrastructure) to be put to work alongside the rapid increase in financial resources. Apparently, injections of oil revenues beyond a certain level—that level being the annual absorptive capacity—only led to higher inflationary pressures, with little or no corresponding increase in output resulting from this expenditure.

The evidence for Iran during the post-1972 period suggests a tendency of trying to do too much in too short a time.[3] The problem was aggravated by the jump in international inflation rates during 1973-1974. Yet it would be a mistake to suggest that the observed rates of domestic inflation were due to purely international factors. On the contrary, most studies on the subject indicate that, in general, international price increases contributed no more than 25 percent to domestic inflation in developing countries, leaving a substantial portion to be accounted for by domestic factors.

Most domestic sources of inflationary pressures built up in the mid-1970s can be traced to the decision to revise the Fifth Five-Year Plan following the oil price increases. At that time, total investment projected for the duration of the plan was doubled and vast amounts allocated to social welfare and subsidy programs. Within the framework of the Fifth Plan, the government's expenditures for 1974 were triple those in 1973. From the total government budget for 1974 (R1,254 billion), only 28 percent went into fixed capital formation, whereas 58 percent was spent on current expenditures.

This unprecedented expansion in government expenditures created a corresponding expansion of liquidity. The result was a rapid increase in effective demand. One net impact of the government's fiscal actions was the creation of an economic environment whereby producers were encouraged to make the utmost use of their means of production. Another consequence was that traders responded quickly to increase imports to balance supply with demand. As a result, the demand for means of production and for primary and intermediate goods increased, while simultaneously the available

TABLE 1
IRAN: GROWTH OF MONETARY AGGREGATES: MEASURES OF INFLATION
(Average Annual Rate)

	M1	M2	M3	M4	CPI	WPI	GDPDF
1960	11.50	.....	.....	.....	10.04	3.15	3.04
1961	-16.73	.....	.....	.....	3.17	1.28	2.14
1962	22.72	24.94	.....	.....	0.72	1.27	-0.26
1963	12.96	16.22	.....	.....	0.17	0.18	0.79
1964	10.98	13.81	.....	.....	4.11	4.64	1.83
1965	12.87	13.01	13.30	13.09	2.06	3.33	-2.31
1966	10.07	12.48	13.83	11.19	-0.34	-1.18	-0.52
1967	14.92	16.07	16.48	16.35	1.52	0.17	-0.79
1968	7.86	13.43	12.09	14.89	0.67	0.66	0.53
1969	6.07	15.07	14.76	17.94	3.64	2.61	0.52
1970	12.78	15.23	16.36	19.06	1.59	2.84	0.52
1971	17.17	19.36	19.82	18.33	4.24	5.79	7.27
1972	27.71	26.07	26.89	21.28	6.49	5.46	6.78
1973	22.93	23.25	24.93	25.35	9.76	10.11	31.79
1974	27.09	29.97	36.11	37.27	14.30	14.47	55.67
1975	16.76	25.79	21.59	25.09	12.74	7.40	10.38
1976	44.25	44.88	42.53	42.34	11.29	8.26	16.90
1977	-23.01	-26.09	-25.77	-25.70	27.31	14.65	19.50

SOURCE: Computed from Bank Markazi Iran, *Annual Report*, 1970, 1975, 1977; International Monetary Fund, *International Financial Statistics Yearbook*, 1980.
NOTE: M1, M2, M3, and M4 = various measures of the money supply; CPI = Consumer price index; WPI = Wholesale price index; and GDPDF = Gross domestic product deflator.

infrastructural facilities were used at maximum capacity. Due, however, to the general shortage of skilled workers and infrastructure capacity in certain key areas, the supply of domestically produced goods could not increase at the same rate as the demand. Therefore, inflationary pressures mounted, while at the same time the feedback of the oil price increases—an acceleration in world inflation—resulted in increased import prices.

Initially, the greatest inflationary pressures were concentrated in the construction and housing sectors. Both the rapid growth in incomes and the increasing migration from rural to urban areas played an important role in creating shortages not only of available living quarters but also of construction materials (a condition that was already evident prior to the Fifth Development Plan). The result was a sharp escalation in the price of land, construction materials, and wages of construction workers. In turn, the acceleration of inflation in the construction and housing sectors spilled over to other sectors, finally increasing inflationary pressures in all other activities of the economy.

As bottlenecks began to develop, the time lag in converting financial capital into productive capital lengthened, further impeding the adjustment of supply to demand, with increased shortages of materials and skilled labor. Many projects, both public and private, were not completed despite the fact that in many cases the budgets for these projects were actually spent. At the same time, a considerable volume of goods ordered from abroad did not arrive on time. As a result of these factors, aggregate supply was never able to catch up with aggregate demand during the Fifth Plan, the adjustment between demand and supply taking place instead through price increases.

The overspending of financial resources not only represented a loss in real resources with intertemporal implications, but also set in motion a series of inflationary pressures that were difficult to halt without eventually resorting to fairly drastic restrictive measures. The amount of real resources lost—real in the sense that they represented an equivalent in exported barrels of oil—were resources that could have been used in the future to expand the country's productive capacity at such a time when the relationship between the economy's annual financial inflow and annual absorptive capacity would permit it. When used in the present, as was the case, these resources were simply dissipated in the form of higher prices.

Theories of Inflation

While few would argue in principle with the broad interpretation of Iranian inflation outlined above, its high level of generality makes it of somewhat limited use in evaluating the effectiveness of the government's anti-inflation programs.

The increase in the rate of inflation in the first half of the 1970s, together with the government's seeming inability to stabilize the price level, indicates the need for a deeper understanding of the country's inflationary process. Something of a debate concerning the precise cause of the rapidly accelerating price level transpired during this period. For convenience, two extreme views of the country's inflationary process can be distinguished: the monetarist interpretation and the structuralist explanation.

The Monetarist Position. The monetarist view on inflation in Iran can be gleaned from the various statements made over the years in the Bank Markazi Iran *Annual Reports*. Nearly every year after 1970, the bank made

some statement to the effect that inflation in the country was a problem of excess monetary demand. Typical of the bank's approach was the implicit application of Fisher's version of the quantity theory of money; for example, in 1975 the bank noted that

> during recent years, due to the very speedy growth of income the total demand increased at a higher rate than total supply of goods and services. This situation not only resulted in creating new difficulties for the economy, but also increased inflationary pressures. During recent years, especially in 1973, due to the expansionary financial activities of the Government and the speedy growth of credits extended by the private sector, the money supply and consequently the effective demand increased at a much higher rate than could be accommodated by domestic production.[4]

We find in their reports, therefore, that the bank accepted a model that usually implicitly but sometimes explicitly linked inflation with monetary factors. Furthermore, a careful reading of the bank's reports leads one to conclude that its senior economists tended to view the economy as one where aggregate demand was determined by factors associated with Fisher's version of the quantity theory of money.[5] Specifically, in recommending policies designed to assure monetary stability, the bank implicitly assumed that the economy's prices and wages were, for the most part, flexible. Stabilization measures suggested by the bank at one time or another included restrictive monetary policies, restrictions on government expenditures (mainly government consumption expenditures), reduction of imports controls, and lower wage and salary adjustments (presumably limited to less than the previous year's inflation rate).

Nowhere in the bank's analysis of the country's inflation is there any evidence that its officials felt that the underlying structure of the economy prevented high and steady rates of economic growth with price stability, provided the proper monetary and fiscal policies were implemented.

The Structuralist Position. Structuralism was associated from the beginning with the more leftist Iranian writers together with a number of the leading technocrats in the plan organization.[6] As developed in Iran, structuralism was concerned largely with the examination of potential and actual conflicts between growth, stabilization, and equity.

Structuralist emphasis was always on disequilibrium and the notion that the country's inflation was inevitable once the government attempted rapid growth in the presence of structural bottlenecks or constraints. Their chief assumption was therefore that certain fundamental facets of the economic, institutional, and sociopolitical organization of the country in one way or another acted to inhibit economic expansion.

The structuralist analysis was concerned largely with the identification and examination of alleged structural constraints.[7] While not always spelled out, these could be taken to include the inelastic supply of foodstuffs, the infrastructure bottleneck, and the savings constraint.

In the structuralist view, inflation could not be stopped if these structural limitations were not eliminated. The cumulative inflationary pressures were distortions generated by the inflationary process itself, distortions which were in turn an increasing function of the rate of inflation. The important cumulative factors were distortions of the price system, mainly caused by the price-control policies associated with inflation; and misallocation of resources, especially investment funds.

One version of structuralist thought contended that inflation was inevitable, given the country's phase of transition from an outward-oriented,

export-based economy to an inward-oriented, domestic market-based economy.[8] Such a transition, it was argued, required massive changes in the socioeconomic structure of the country that the price mechanisms, operating within very imperfect market structures and with limited resource mobility, were unable to achieve; i.e., given the imperfection of the system, the result of attempting major structural change was simply shortages and the disequilibrium on many fronts.

For example, urbanization and rising incomes led to a rapidly rising demand for foodstuffs that could not be met by the agricultural sector. The supply response of the agricultural sector was low because of the structural constraints within that sector—the domination either by small firms operating at a near subsistence level and barely integrated into the larger market economy or larger foreign-dominated business that had not been able to adapt to the Iranian conditions for one reason or another.

The basic position of the structuralists was, therefore, that agricultural production failures could not be attributed to market demand and/or price conditions, but instead had to be the direct result of factors inherent in the institutional and economic organization of the agrarian sector itself.

Quantitative Assessment of Inflationary Mechanisms

The structuralist approach is largely of interest because it provides a useful framework for developing an integrated view of the country's inflationary process. Realistically, however, because it relies on such concepts as relative inelasticity (how inelastic does something have to be before it is relatively inelastic?), the theory is not directly amenable to empirical testing. Several indirect tests are possible, however, and are undertaken below.

It should be noted, however, that any analysis of Iranian inflation will suffer from the limited availability of data, and the existing data's limitations. There is no consistent time series for wages, nor is there an import price series. Further the GDP deflator is so weighted by oil that it is of little value in analyzing the possible determinants of domestic price increases.

There is a cost of living index and a wholesale price index, but both of these measures are subject to serious defects; for instance, the cost of living index is based on a limited sample of goods and services purchased in the major urban areas and is, therefore, unrepresentative of the consumption patterns of the majority of the rural population, while the wholesale price index is heavily weighted with imports.

Given the data, I will examine two cost factors—world prices and wages—and two structuralist elements—the presence of bottlenecks and the effects of deviations from the trend in real nonoil GDP on prices.

Movements in World Prices

Given its size, it is safe to assume that Iran's purchases and sales of nonoil goods in the world market had no effect on the prices of these goods; i.e., for all practical purposes, the prices of the country's nonoil exports and imports were determined by global demand and supply conditions. For purposes of analysis, therefore, the U.S. dollar export and import prices in rials were dependent on the officially determined rial/dollar rate.

There are two channels by which rising import prices might induce domestic inflation: the direct effect due to rising prices in world markets, and

an indirect effect transmitted through the higher cost of domestic production of finished products that stems from increases in the prices of imported raw materials. In terms of the second channel, the degree to which Iranian producers had little or no way of substituting for imported materials meant that there were few real possibilities (at least in modern industries) of switching from expensive imported goods to cheaper domestic sources of supply.

The data on external sources of inflation for this period are somewhat limited. Nevertheless, several patterns seem fairly clear. Expenditure on merchandise imports averaged from 12 to 15 percent of aggregate expenditure on GDP between 1970 and 1974; the proportion rose to nearly 20 percent in 1975. Nearly the same proportion was maintained in 1976. The great increase in imports in 1975 was undoubtedly a significant factor in dampening the inflationary pressures caused by excess demand. On the other hand, it is likely that the increase in import prices beginning in 1972 had an inflationary impact through the cost structure of firms.

Import-induced cost-push pressures are a real possibility since, prior to 1975 and 1976, intermediate goods accounted for more than 60 percent of total imports. By far the greatest proportion of intermediate imports were for manufacturing. Another 20 to 30 percent of imports were capital goods. The remaining 12 or 13 percent (rising to about 17 percent in 1975 and 1976) were consumer goods. Clearly, a great potential existed for increases in import prices to have significantly affected the domestic price structure and level. Of course, increased prices of consumer-goods imports acted directly on the consumer price level (depending upon the relative importance of imported food and other consumption items in total consumption).

During this period, a number of important food items, such as cereals, sugar, and meat, all experienced exceptionally large domestic price increases resulting in dramatic growth in their importation. Sugar imports, for example, rose from a small proportion of the total supply in the early 1970s to nearly one-third by 1975. Imports of cereals varied considerably from crop to crop and from year to year, depending on the harvest. Rice and wheat imports, for example, averaged about one-third of total supply each, while imports of barley and maize accounted for about one-eighth and four-fifths, respectively, of total supplies. Clearly (except for meat), the size of these import shares indicates that increased world prices would have had a significant effect upon domestic prices. By 1974 or 1975, meat imports had grown to the point where increases in the world price were also likely to have a significant impact on domestic prices.

Consumers were, as noted before, buffered somewhat from world price increases for cereals, meat, dairy products, sugar, and fruit through an extensive government subsidy program. Government subsidies for these products rose to $1,000 million annually from 1974 to 1976, thus aiding significantly in reducing the rate of consumer price increases for these products to levels considerably below those in international markets. The subsidy program makes any general assessment of world price increases on Iranian prices extremely difficult. It is possible to arrive at several tentative conclusions, however, through examining the trend in wholesale prices for imported goods and those for domestic goods. For example, it appears that import prices had their greatest impact on the domestic price level in 1972 and 1973, the years in which import prices clearly led the rise in general wholesale prices. The introduction of the subsidy programs in 1974 and the

decline in international prices of food and raw materials in 1975 make further conclusions quite difficult.

Also, given available data, it is very difficult to make any clear distinction between external and internal sources of inflationary pressure for intermediate inputs into manufacturing and construction. There is clearly a relationship, however, between the import price of building materials, the rise in domestic wholesale prices, and the increase in the cost of housing and housing rentals. A similar pattern between import and domestic prices can be observed for textiles. For all these items, it is apparent that both domestic and foreign sources of price increases contributed to the rise in Iranian wholesale and consumer prices. The domestic component of inflationary pressures corresponded generally in its timing to the expansion of consumer incomes, and for building materials to the rapid expansion of expenditures in the construction sector.

In general, one can conclude that because Iran's terms of trade improved dramatically, especially relative to many developing countries, and because of the rapid rise in domestic prices after the oil price increases, it was only logical for the authorities to have increased imports as a means of reducing inflationary pressures.

In fact, recent empirical work on a large sample of countries suggests that there may be a possible relationship between the degree of national integration into the world economic system and inflation; for example, in general the more open countries have experienced less price inflation.[9] Presumably openness serves as a kind of safety valve; domestic inflationary pressure spills over into the balance of payments in the open economy, thus necessitating less price inflation.

One way of assessing the effect of openness on domestic inflation is to test various formulations of a price equation, with measures reflecting the degree of contact with the world economy included as independent variables. Logical candidates in this regard are the country's import-income ratio, the rate of change in Iran's import-income rate, the country's terms of trade (ratio of import prices to export prices), the rate of growth of the Iranian money supply, and the rate of growth of Iran's real nonoil GDP.

Iyoha, the originator of this test, used imports/GDP as an independent variable.[10] He hypothesized that a negative correlation between these two variables could be interpreted as evidence in support of the hypothesis that in an open economy, domestic inflationary pressures spill over into the balance of payments, thus resulting in less domestic inflation than would otherwise have been the case.

It has been argued that this mechanism is not a very accurate depiction of the mechanisms at work in most developing countries where foreign-exchange shortages pose a severe limit to the possibility of absorbing potential inflationary pressures through increasing import surplus.[11] The typical developing country may therefore not really have a choice between its rate of domestic inflation and its magnitude of balance of payments deficit; for instance, the rate of inflation may in part be determined by the foreign-exchange constraint. Iran's oil revenues and borrowing capacity, however, would seem to rule out this problem for most of the period under consideration.

Since there is no real consensus in the literature as to the best way of measuring "openness," I tried several formulations. All use the symbol Z and

are ratios to some measure of domestic production. Hence:

(1) Z = nominal imports (from the national income accounts) divided by real nonoil income (or ZN/NOXNP)

(2) ZZ = ZN/DOMEST, where DOMEST = nominal agriculture + manufacturing value added

(3) ZAG = agricultural imports/NOXN

(4) ACON = consumer imports/NOXN

Terms with an "L" at the end indicate the value lagged one year (see tables 2 and 3).

Other independent variables included in the analysis were the deviation of real nonoil GDP from its historical trend DTNOXPL, the rate of change in the export price index of industrialized countries (WINF), the growth of M2 money (GM2), the growth in real nonoil GDP (GNOXNP), and the terms of trade (TTC).

A number of different combinations were tried, with the best results occurring when the various measures of openness were regressed simultaneously with some measure of excess demand—such as DTNOXP or GM1, GM2—and the rate of import price increases (WINF). Regressions on the consumer price increase gave consistently better but quite similar results to those of the wholesale price index. Hence, only the results obtained from the regressions with the rate of change in consumer prices are presented (see tables 2 and 3).

In all cases, the value of Z (and L) is significant and has the expected negative sign. Caution should be observed in attributing great significance to the results, however. In several cases the *t*-statistic for the Z measure is only slightly significant at the 95 percent level. Also, it should be noted that when only Z (equation 1, table 2) was regressed on inflation (INFC), its sign was positive. The change in signs may simply be a problem related to correlation between the independent variables.

A plausible explanation of the positive relationship between Z and the rate of inflation is that a substantial portion of imports during this period were required for industrialization; for example, they did not represent a spillover effect "proper" from the domestic inflation. This type of import may have increased over time independent of changes in domestic prices. When world prices (WINF) together with a capacity constraint (DTNOXND) were added to the regressions to take part of this effect into account, the Z term always became strongly negative. A possible explanation for this result is that, on the margin, additional imports did in fact represent spillover imports to an extent great enough to overcome the positive effect of the price-inelastic imports.

Wage Increases

A second potential source of cost pressures during this period came from wage increases reflective of manpower shortages. Manpower shortages emerged as one of the most critical long-term problems confronting the government's development aspirations. In fact, in 1976 the Ministry of Labor estimated the country's manpower shortage for that year at roughly 600,000. Previous estimates made in 1975 projected shortages of 3,740 engineers, 1,820 doctors, 6,500 skilled technicians, and 84,000 skilled and

TABLE 2

IRAN: TEST OF OPENNESS AND INFLATION

Equation	Dependent Variable	Independent Variables									Intercept	r^2	F
		Z	GM1L	ZL	GM2	GNOXNPL	DTNOXPL	WINFL2	WINF	TTC			
(1)	INFC	21.28 (6.05)										0.769	36.60
(2)	INFC	10.22 (2.96)	0.44 (4.19)									.916	54.61
(3)	INFC	22.41 (2.06)		−2.51 (−0.21)							−2.00 (−1.05)	.753	16.78
(4)	INFC	20.30 (7.79)			−0.16 (−3.00)						0.79 (0.47)	.864	34.82
(5)	INFC	12.90 (2.93)				0.89 (2.23)					−7.96 (−2.58)	.829	26.82
(6)	INFC			−21.70 (−4.28)			0.07 (8.98)				9.38 (6.71)	.959	128.39
(7)	INFG			−32.58 (−5.06)			0.08 (10.62)	0.35 (2.28)			11.11 (7.87)	.973	119.92
(8)	INFC	−10.14 (−2.17)					0.05 (6.60)		0.35 (3.95)		5.12 (3.58)	.957	75.92
									0.42 (2.27)	−0.009 (−5.09)		0.787	18.55

NOTE: Z = nominal imports/real nonoil GDP; GM1L = the growth of M1 money lagged one year; ZL = Z lagged one year; GM2 = the growth in M2 money; GNOXNPL = the growth in real nonoil GDP lagged one year; DTNOXPL = deviation from the logarithmic trend of real nonoil GDP (1959-1977) lagged one year; WINF2 = import price inflation lagged two years; WINF = import price inflation; TTC = world price index divided by GDP deflator.

TABLE 3
OPENNESS AND INFLATION IN IRAN

Equation	Dependent Variable	Independent Variables: DTNOXPL	WINF	GM2L	Z	WINFL2	ZL	INFCL	ZX	ZZ	ZAGL	Intercept	r^2	F
(1)	INFC	0.036	0.31									1.90		
		(11.88)	(3.38)									(2.42)	0.949	94.00
(2)	INFC	0.023	0.23	0.31								−2.61		
		(2.32)	(2.16)	(1.48)								(−0.83)	.959	70.94
(3)	INFC	0.050	0.36		−8.59							4.37		
		(6.25)	(4.11)		(−1.79)							(2.81)	.963	77.51
(4)	INFC	0.078				0.35	−33.32					11.36		
		(10.06)				(2.21)	(−4.84)					(7.27)	.973	109.15
(5)	INFC	0.047	0.42					−0.52				3.09		
		(10.73)	(5.27)					(−2.88)				(4.25)	.974	111.11
(6)	INFC	0.072					−22.2					9.57		
		(8.47)					(−4.02)					(6.08)	.959	116.29
(7)	INFC	0.044	0.38						−15.49			5.29		
		(8.69)	(4.10)						(−1.76)			(2.57)	.962	76.88
(8)	INFC	0.045	0.37							−5.39		4.93		
		(7.00)	(4.20)							(−1.87)		(2.79)	.964	79.43
(9)	INFC	0.062	0.22				−17.11					6.98		
		(10.39)	(3.86)				(−4.50)					(5.73)	.985	190.25
(10)	INFC	0.042									−64.34	8.07		
		(12.43)									(−2.80)	(4.70)	.940	77.65
(11)	INFC	0.039	0.22								−35.59	4.85		
		(11.73)	(2.10)								(−1.48)	(2.21)	0.959	70.81

NOTE: See text for identification of symbols.

semiskilled workers. At this time the ministry suggested that up to 700,000 foreign workers might have to be recruited if the Fifth Plan targets were to be met.[12]

Instead, it appears a much more selective foreign-labor program was adopted. Foreign workers were concentrated in several areas with, for example, a substantial number of foreign technicians (mainly Americans) recruited to keep the country's armed forces operational. Doctors from India were actively sought because of their willingness to work for lower wages than their Iranian counterparts and in parts of the country where Iranians would not practice because of the climate or the lack of amenities. As with Saudi Arabia, a substantial number of South Koreans, Pakistanis, and other Asians were recruited for construction work. While a larger number of foreigners were recruited by the government, there seems to have been much less willingness than in Saudi Arabia's case to resort to the mass importation of foreign workers as a means of overcoming labor shortages. All in all, however, at the peak of labor immigration, only around 35,000 foreign workers were in the country. This was forecast to increase to 55,000 by the late 1970s. Also present in 1975-1976 were 15,000-20,000 temporary foreign consultants.[13]

For industry, one of the more obvious effects of labor shortages was the fast increase in wages as companies competed for the more highly skilled workers. Official figures list average wage increases of around 35 percent for 1977. For that year, construction wage increases were officially placed at 48 percent. Nevertheless, numerous accounts in the business-financial press support the argument that increases in the 60-70 percent range were quite common.[14]

The rapid expansion of the Iranian economy during this period was accompanied by generally expanding employment in manufacturing and construction (although the slackening of activity in 1975 brought relatively minor decreases in employment in manufacturing and mining and in construction activities). The overall rate of expansion in employment exceeded 3 percent per year (again except for 1975), and increased levels of investment and expanding output levels resulted in significant increases in real output per worker.[15]

It is easy to see how the combination of rapid increases in employment, increasing real output per head, labor shortages, and (especially from 1973) rapid rates of inflation would be conducive to increases in wages and earnings, certainly in nominal terms and possibly in real terms as well. Given the relatively free market system for most sectors of the Iranian economy at this time, one would predict that the most rapid increases in wages and earnings would occur in the sectors and industries in which employment was expanding most rapidly. Similarly, jobs requiring relatively higher levels of skill, given the relative shortage of trained manpower, should also have induced wage increases. Various accounts suggest that these were indeed the patterns predominating in the country's labor markets, where numerous accounts exist attesting to the hindrance to growth posed by shortages of skilled labor.[16]

Although the data for selected (large-scale) manufacturing industries are generally compatible with the overall sectoral figures (see table 4), it would appear that employment in the former group expanded rather more rapidly than the latter. Moreover, employment for the selected industries (which accounted for about 7 percent of total employment in manufacturing and

TABLE 4

IRAN: EMPLOYMENT, EARNINGS, AND LABOR COST IN MANUFACTURING AND CONSTRUCTION
(1970 = 100.0)

	1350 (1971)	1351 (1972)	1352 (1973)	1353 (1974)	1354 (1975)	1355 (1976)	1356 (1977)	1357 (1978)
Manufacturing and mining								
Value added (constant prices)	116.8	138.7	162.1	191.7	224.2			
Employment	105.2	111.1	118.8	127.6	125.3			
Value added per employee (1 ÷ 3)	111.1	124.0	136.5	150.2	179.0			
Selected manufacturing industries								
Production	117.3	140.0	165.9	196.3	228.1	261.9	291.9	245.9
Employment	104.5	112.3	122.0	131.2	139.3	144.8	147.6	149.7
Labor productivity	112.1	124.7	136.0	149.6	163.8	180.9	197.8	147.7
Labor cost	98.6	102.2	110.4	124.2	152.4	177.1	221.4	274.6
Industrial raw materials Wholesale price index	117.3	128.6	148.5	164.2	158.9	202.9		
Average annual earnings	110.6	127.5	150.1	185.8	249.6	320.6		
Cost of living index	104.9	111.5	123.9	143.1	157.3	183.4		
Real earnings index	105.4	114.3	121.1	128.9	158.7	174.8		
Construction								
Value added at constant prices	107.0	117.2	130.4	174.7	239.6			
Employment	108.3	118.3	128.3	153.2	147.2			
Value added per employee	98.8	99.1	101.6	114.1	162.8			
Wage index	102.6	120.6	146.7	189.0	278.1	387.7	520.9	613.1
Labor cost	103.8	121.7	144.4	165.6	170.8			
Construction materials Wholesale price index	98.6	105.5	128.4	164.9	173.4	198.8	249.4	257.3
Real wage index	97.8	108.2	118.4	132.1	176.8	211.4		
Skill differential	1.026	1.025	1.110	1.065	1.022	1.071		

SOURCE: Plan and Budget Organization, *Economic Trends of Iran* (Tehran: Bank Markazi Iran, March 1977); Bank Markazi Iran, *Annual Report*, 1972, 1975, 1978.

mining) did not decline in 1975. These patterns suggest that wages and earnings in the selected manufacturing industries were likely to be higher and to have increased more rapidly than those in smaller scale enterprises and the informal or craft establishments.

In general, the expansion of wages and earnings in construction and (selected) manufacturing industries exceeded the increase in the consumer price index throughout this period, resulting in subsequent increases in the real wage or earnings indexes. This was especially the case in 1975 when the rate of inflation slackened appreciably. These patterns are easy to explain given the supply-demand conditions in the country's labor markets.

A more difficult pattern to account for is the apparent coincidence during 1975 in both manufacturing and construction sectors of high rates of increase in nominal wages and earnings, which occurred simultaneously with the reduction in the level of employment in both sectors (though not the selected manufacturing industries) and the decline in the rate of inflation in consumer prices. This pattern could be caused through a mechanism of delayed wage adjustments under increased government pressure; for instance, the Ministry of Labor began compelling firms to pay between two and three months' bonus at the end of each year, irrespective of productivity increases.[17] Greater insight into the functioning of labor markets is required to explain the apparent decline in the skill differential in successive years, while construction employment first expanded (in 1974) at an unprecedented rate and then declined (in 1975).[18]

Despite these unexplained patterns, it is fairly safe to conclude tentatively that wage-cost push pressures did not dominate the inflationary process at this time (despite the increasing labor-cost indexes). It is sure that wage increases contributed to the general rise in production costs. Other costs were rising equally or more rapidly, however. In the context of this period, it is apparent that considerable reserves of unskilled labor existed both in the agricultural sector and in the urban work force at the beginning of the period.[19] It is hard to see, therefore, how increased labor costs could have been anything but one aspect of the heavy demands that oil-financed expenditures placed on all productive resources. There is little evidence to support the singling out of labor as a significant contributor to cost-push forces, not least because of the absence of strong labor unions.

In sum, while a case could perhaps be made for the existence of a wage-cost push mechanism in the manufacturing and construction sectors, it is difficult to see how, as an empirical matter, this effect could have dominated the inflationary process in these sectors, let alone the economy as a whole.

Infrastructural Bottlenecks

As noted, a source of structural inflation was created by the lack of excess capacity and the generally low levels of efficiency present in most of the country's basic infrastructure at the beginning of the boom period.[20]

As a result, the acceleration of output that occurred in both the oil and nonoil sectors created an immediate shortage of available capacity, particularly in the areas of ports, domestic transportation, and electrical power.

The country's obsolete port facilities and slow customs-clearance procedures, both resulting in low productivity, were the most publicized bottlenecks, with inadequacies in port facilities and the transportation system also major impediments to increased imports. As an illustration of the

magnitude of port congestion, the recorded rate of utilization of nominal cargo-handling capacity increased from 132 percent in 1973 to 185 percent in 1974. In that year, Iran was forced to pay over one billion dollars in demurrage charges (amounting to more than 15 percent of the value of merchandise imports).[21]

Similarly, electricity-generating capacity fell far short of the new requirements placed on it. By the end of 1974, power failures had become common in large cities and industrial areas. Consequently, many companies failed to achieve anticipated levels of production. Moreover, implementation of the development plan for electrical power fell far behind schedule with less than two-thirds of the Fifth Plan targets met. By way of comparison with other countries of a comparable level of per capita GNP, Iran's 1975 per capita electrical production ranked as one of the world's lowest (at 460 kilowatts per annum versus a median value of 1,140 kilowatts per annum).[22]

Largely because of shortages linked to the underdevelopment of the nation's infrastructure, Iranian industry was working at about 60 percent of capacity in May 1977 (61 percent for textiles, 46 percent in bricks, 96 percent in cement, 90 percent in sugar, 51 percent in automobiles, and 32 percent for tractors). Blackouts, inadequate transport facilities, and shortages of building materials (particularly cement) all contributed to this situation.[23]

Deviations from the Trend as a Measure of Inflationary Pressure

One measure of the general level of bottlenecks, strains, and ultimately structural inflationary forces is the degree of the deviation of production from its long-run trend. This approach assumes that short-run deviations of output from its long-term trend are an adequate measure of inflationary pressure, and that the monetary authorities either cannot or do not neutralize the impact of changes in holdings of foreign exchange on the money supply.[24]

As later analysis will show, the second assumption is open to some question. For now, however, several formulations of the general type (INF + D + WINF = EXP) are estimated. Here INF is a measure of domestic inflation (usually consumer goods); D is a measure of the deviation of real production from its long-run trend; WINF is the rate of increase in world prices; and EXP is a measure of price-induced expectations.

In direct contrast to a quantity-of-money-type price equation (which takes Y as given in the short run), this formulation incorporates a growing body of literature contending that (at least in the short run) the level of real output in developing countries is subject to the influence of domestic policy measures (such as money-supply changes).[25] Whereas in a quantity-of-money equation at a given level of income money-supply changes are the measure of excess demand, the above formulation implies that shifts in money supply will affect prices only if they cause output to rise above its long-term trend.

Obviously the major empirical issue surrounding this approach is the ability of D to serve as an effective measure of excess demand. If D does not properly account for this factor, and because the various determinants of inflation tend to some degree to rise together, an undue share of the variation of the prices of home goods may be attributed to import prices and the lagged price changes used in the expectations variable.

With these caveats in mind, I ran a number of regressions of the above

general form. As with the test of the openness inflation theory, regressions on the rate of increase in the consumer price index gave somewhat better (but again similar) results compared with the wholesale price index.

Again, because the literature is not precise as to the best aggregate income measure to use in deviations from the trend analysis, several different income series were tested. Two time periods were also used for computing the trend: 1959-1977 and 1959-1972. Logarithmic forms were estimated along with the regular formulation. Measures of D were: real nonoil GDP, logarithmic form (DDLNOXNP); real domestic absorption (DTDNANP); real nonoil GDP (DTNOXNP); and real gross domestic product (DTGDPNP). Lagged values end with an L.

As might be expected, deviations from the 1959-1972 trend (extrapolated to 1977) gave better results than those from the 1959-1977 trend. By itself the best measure of the deviation from the trend was real nonoil GDP (DTNOXNP), with its current period value accounting for over 81 percent of the fluctuation in the consumer price index, and its lagged value accounting for nearly 85 percent of the fluctuation (see table 5).

Using the lagged value of deviations from the trend (1959-1972), real nonoil GDP gave excellent results, with r^2 values all above 0.90 percent, and one form with openness and world inflation (see equation 12, table 6) accounting for nearly 98 percent of the fluctuation in the rate of consumer price inflation (INFC). As noted in the discussion of openness and inflation, all measures of openness were quite significant when regressed with DTNOXPL, and hence for comparison purposes only two of these are given here (see equations 5, 10, and 11, table 6). Again, the rate of world inflation (WINF) is significant when regressed with DTNOXPL as is the growth in M2 and M1 measures of money (see especially GM1L and GM2L, equations 6 and 7, table 6). While these results seem quite satisfactory, several conceptual difficulties detract somewhat from their acceptance as an accurate depiction of the inflationary process in Iran during this period. In general, at least three characteristics of the Iranian economy might limit the effectiveness of DTNOXPL as a measure of excess demand: the high proportion of agricultural products in both nonoil production and consumption, a fairly high rate of inflation, and an uneven growth of productive capacity.

Implicit in the use of DTNOXPL as a measure of excess demand in the inflation equations is the notion that when the growth of output rose above its long-run trend the country's domestic productive capacity was being strained and that prices had to rise if output was to be increased any further. Clearly, this assumption is predicated on the existence of an upward-sloping supply curve of output, whereby rising prices stimulate further production. This situation is undoubtedly better suited for conditions present in the more advanced economies where gross domestic product has a much higher proportion of industrial products. In general, there should be more scope for expanding the output of manufacturing and services in the short run than would be the case for agricultural products, particularly as in Iran where most products were subject to a crop cycle or weather conditions. Even though import-substitution industrialization was proceeding rapidly, Iran's nonoil GDP was still heavily concentrated on agricultural products in the early 1970s. Given the rapid expansion in the consumption of food during this period, agriculture's output was probably more subject to fluctuations in domestic supply than in domestic demand. Conceivably, short-run

TABLE 5

IRAN: DEVIATIONS FROM TREND AS A MEASURE OF INFLATIONARY PRESSURES

(Consumer Price Inflation)

Dependent Variable	Coefficient	Intercept	r^2	F
DTLNOXNP	0.03 (6.90)	6.07 (6.42)	0.798	47.63
DTDANP	0.02 (6.62)	3.19 (2.82)	.785	43.83
DTNOXNP	0.03 (7.22)	3.19 (3.03)	.813	52.07
DTNOXNPL	0.04 (8.23)	7.40 (9.15)	.849	67.82
DTGDPNP	0.02 (5.44)	−0.85 (−0.46)	.712	29.62
DTGDPNPL	0.02 (7.89)	−0.59 (−0.46)	.838	62.24
DTDANPL •	0.02 (6.75)	3.91 (3.67)	0.792	45.62

NOTE: See text for identification of symbols.

TABLE 6
IRAN: DEVIATIONS FROM THE TREND AND CONSUMER PRICE INFLATION
(1959-1977)

	Dependent	Independent Variables													
Equation	Variable	DTNOXPL	CM2	WINF	GM2L	INFCL	Z	GM2C2	GM1L	TTCL	WINFL2	ZL	Intercept	r^2	F
(1)	INFC	0.038	−0.05										4.76		
		(9.37)	(−1.09)										(4.01)	0.901	50.10
(2)	INFC	0.036		0.31									1.90		
		(11.88)		(3.38)									(2.42)	.950	94.06
(3)	INFC	0.033	−0.08	0.33									3.71		
		(12.40)	(−2.71)	(4.21)									(4.71)	.964	90.22
(4)	INFC	0.048		0.41		−0.57							3.54		
		(10.29)		(4.83)		(−3.00)							(5.04)	.968	99.18
(5)	INFC	0.052		0.35			−10.14						5.12		
		(6.60)		(3.95)			(−2.17)						(3.58)	.958	75.92
(6)	INFC	0.015		0.17	0.42			0.10					−5.59		
		(1.27)		(1.59)	(1.93)			(0.67)					(−1.19)	.956	49.21
(7)	INFC	0.024							0.32				−0.51		
		(4.50)							(3.32)				(−0.36)	.945	95.03
(8)	INFC	0.039											3.62		
		(9.53)											(4.34)	.892	90.86
(9)	INFC	0.047								0.0036			−13.19		
		(8.61)								(1.91)			(−1.48)	.918	61.31
(10)	INFC			0.60			−10.14						3.44		
				(1.88)			(−2.16)						(1.20)	.237	3.41
(11)	INFC	0.077									0.35	−32.58	11.11		
		(10.62)									(2.27)	(−5.06)	(7.87)	.973	119.92
(12)	INFC	0.022		0.023	0.31								0.02		
		(2.32)		(2.16)	(1.48)								(2.32)	0.959	70.94

NOTE: See text for identification of symbols.

deviations of agricultural production above its trend could result in lower rather than higher prices and vice versa, thus distorting the measure of excess demand that the overall deviation from the trend figure was attempting to capture.

A second limitation on the usefulness of DTNOXPL as a measure of excess demand is its implicit assumption that production grows at a fairly constant rate. While investment fluctuates from year to year in most advanced countries, Iran's investment in both construction and machinery seems to have been especially volatile by any standards. Whether these fluctuations in capacity are high enough to invalidate the DTNOXPL measure of excess demand is difficult to assess. They do, however, cast serious doubts on the procedure.

Finally, applicability of DTNOXPL as an accurate measure of demand pressure in Iran is also questionable because of the country's high rates of inflation and money-supply growth, particularly in the 1970s. Within a limited range, changes in short-run demand pressure could have resulted partially in higher industrial output and partially in price increases. Nevertheless, a point may have been realized in the early 1970s beyond which an increase in demand resulted in higher prices only. The high rates of money-supply growth combined with a high proportion of output in agriculture may have been sufficient to have significantly reduced the economy's short-run supply elasticity.

Conclusion

Taken in their entirety, the empirical results presented above cast doubt on the role of pure cost-push factors as a significant contributing factor to the Iranian inflation of the 1970s. Admittedly, these may have been present in certain industries and at certain times, but their overall impact seems to have been minimal.

Ultimately, the issue comes down to the fact that the tests outlined above using proxies for structural factors, while statistically satisfactory, suffer from conceptual difficulties. Specifically, many of the underlying assumptions critical for the validity of the deviation from the trend measure may not have been present in Iran during the time examined. The real issue is whether or not, despite the limitations of these theories, the quantity-of-money approach (or a version of it), given the availability of direct data for its testing, might not better reflect the relative inflationary impact of external versus domestic factors.

Monetary elements also warrant more attention simply because, in tests with structural factors (see equation 6, table 6), the growth in money supply was statistically significant while the structural proxy (DTNOXPL) was not. This fact is important because in responding to inflation the government appears to have implicitly accepted the argument that its underlying causes were cost related and not of monetary origins.

In terms of designing an anti-inflationary policy, it is useful to distinguish between one-shot events that lead to a once-and-for-all rise in the price level and those processes that are cumulative in the sense of leading to continuing and perhaps accelerating rates of inflation. The different types of inflation must be validated by monetary expansion, but the costs and possible success of particular anti-inflationary monetary and fiscal policies will be different in each case. For example, since the inflation in Iran appears to have

resulted primarily from excess demand, it could have been reduced more easily with the traditional tools of monetary and fiscal policy than if it had originated from cost-related factors. The cost of reducing the demand component of inflation must be measured in terms of the resulting level of temporary unemployment and diminished rate of growth in real nonoil GP.

Apparently the government felt this particular rise in prices after 1973 was a once-and-for-all cost related phenomenon. If this were the case, one might easily argue, as did many in the government, that oil-financed government expenditures would not continue increasing at a rate sufficient to generate chronic inflationary pressures. Given the potential costs of stabilization policy early after 1973, it is easy to understand the government's rationale against adopting an all out restrictive monetary-fiscal anti-inflationary policy.

Again in retrospect, the government's interpretation of the manner in which the economy functioned was incorrect. While it is true that the oil-price increase could be looked upon as a once-and-for-all event, it does not follow that the economy was incapable over time of generating sufficient demand pressure to prevent a process of automatic stabilization from occurring.

Because inflationary forces did not self-terminate, and because in the government's perception cost factors were responsible for the continued rate of price increase, a 1975 antiprofiteering campaign was undertaken, during which more than 250,000 businesses were briefly closed, over 8,000 shopkeepers were jailed, and another 23,000 shopkeepers and merchants were sentenced to deportation (later rescinded) to remote areas of the country.

By 1977, declining oil revenues forced the government to cut back drastically on expenditures and credit while inflation was still out of control. The result was mass alienation. The construction industry, a major source of employment for unskilled rural labor, underwent a severe contraction. Rural migrants as a whole suffered the greatest decline in living standards because of inflation, food shortages, and the need to use a large portion of their income for rents. The bazaar merchants, dependent on state credits to finance many of their activities and thereby affected by inflation, came to feel their economic role in society increasingly threatened by the regime's development strategy, a strategy that was perceived by them as openly hostile and designed to reduce their upward social mobility. Small industrialists joined by the merchants expressed their opposition to price controls; antiprofiteering campaigns and a plethora of government decrees placed limits on their incomes and stifled any possibilities they might have for socioeconomic advancement.

Again to quote Green:

> The rapid desertion of the Shah by members of the elite attests to the shallow commitment engendered by his emphasis on economic gain at the expense of political rights. This harks back to the Shah's response to the Siahkal incident—pay raises for government employees and an increased minimum wage. Just as the source of political stability was perceived to be economic growth the palliative sought by the regime for oppositional activity was economic as well. Certainly as I have argued above, economic issues such as inflation and the decline in the quality of life in Iran were important stimuli to revolution, but their significance lay in their linkage to a perceived absence by Iranians of justice and social participation.[26]

NOTES

[1]Brian Griffiths, *Inflation: The Price of Prosperity* (New York: Holmes and Meier, 1976), p. 3.

[2]Jerrold Green, *Revolution in Iran: The Policies of Countermobilization* (New York: Praeger, 1982), p. 60.

[3]Firous Vakil, "Iran's Basic Macroeconomic Problems: A Twenty-Year Horizon," *Economic Development and Cultural Change* 25 (July 1977): 722.

[4]Bank Markazi Iran, *Annual Report, 1975* (Tehran: Bank Markazi, 1975), p. 69.

[5]For a discussion of the Fisher theory as relevant for developing countries, see Milton Friedman, "Monetary Policy for a Developing Society," *Bulletin* 9 (Bank Markazi, Tehran) (March-April 1971): 1-11.

[6]A partial list (including non-Iranians) together with their writings include: Nikki Keddie, "The Iranian Village before and after Land Reform," *Journal of Contemporary History* 34 (July 1968); idem, "The Midas Touch: Black Gold, Economics, and Politics in Iran Today," *Iranian Studies* 10 (August 1977): 243-66; Homa Katouzian. *The Political Economy of Modern Iran, 1926-1979* (London: Macmillan, 1981); idem, "Land Reform in Iran: A Case Study in the Political Economy of Social Engineering," *Journal of Peasant Studies* 1 (January 1974): 220-39; and idem, "Oil Versus Agriculture: A Case Study of Dual Resource Depletion in Iran," *Journal of Peasant Studies* 5 (April 1978): 46-58; and A. Ashraft, "Historical Obstacles to the Development of a Bourgeoisie in Iran," *Iranian Studies* 12 (Spring-Summer 1979): 37-45.

[7]This framework has been developed in much more detail in the context of Latin America. See Dudley Seers, "A Theory of Inflation and Growth Based on Latin American Experience," *Oxford Economic Papers* 34 (June 1962): 173-94; and Robert F. Mikesell, "Inflation in Latin America," in C. Nisbet, ed., *Latin America: Problems in Economic Development* (New York: Free Press, 1969), pp. 121-49.

[8]See the references to Katouzian above.

[9]Milton Iyoha, "Inflation and Openness in Less Developed Economies: A Cross Country Analysis," *Economic Development and Cultural Change* 22 (October 1973): 31-38. See, however, criticisms of this study in M. A. Akhtar, "An Empirical Note on Inflation and Openness in Less Developed Economies," *The Philippine Economic Journal* 15 (1976): 636-49; and C. H. Kirkpatrick and F. I. Nixon, "The Origins of Inflation in Less Developed Countries: A Selective Review," in Michael Parkin and George Zis, eds., *Inflation in Open Economies* (Manchester, England: Manchester University Press, 1976), pp. 158-59.

[10]Iyoha, "Inflation and Openness," p. 33.

[11]Kirkpatrick and Nixon, "Origins of Inflation," p. 158.

[12]Ministry of Labor figures from Nicholas Cumming-Bruce, "Budget: Battling the Legacy of Overspending and Infrastructural Jams," *Middle East Economic Digest, Special Survey on Iran* 21 (February 1977): 5.

[13]Ibid.

[14]Robert Graham, "Time for Tighter Belts," *Financial Times* (London), 25 July 1977, p. 11.

[15]Development Planning Division, ESCAP Secretariat, "The Iranian Economy: Oil and Development in the First Half of the 1970s," *Economic Bulletin for Asia and the Pacific* 29 (December 1978): 42.

[16]Ibid.

[17]Robert Graham, "State as a Barrier to Investment," *Financial Times* (London), 25 July 1977, p. 12.

[18]Several possible explanations for the movements in skill differential are given in International Labor Office, *Employment and Income Policies for Iran* (Geneva: ILO, 1973), p. 25-26.

[19]Ibid., pp. 21-36.

[20]Nicholas Cumming-Bruce, "Ports and Transport," *Middle East Economic Digest, Special Survey on Iran* 21 (February 1977): 21-24.

[21]Edwin Luck, "Port Congestion," *Financial Times* (London), 28 July 1975, p. 26.

[22]Development Planning Division, ESCAP Secretariat, "The Iranian Economy," p. 44.

[23]Robert Graham, "Power Shortage Plays Havoc with Industry," *Financial Times* (London), 25 July 1977, p. 15.

[24]Ichiro Otani, "Inflation in an Open Economy: A Case Study of the Philippines," *International Monetary Fund,* Staff Papers 22 (November 1975): 750-74.

[25]See E. J. Sheehey, "On the Measurement of Imported Inflation in Developing Countries," *Weltwirtschaftliches Archiv* 115, no. 1 (1979): 68-79 for a critique of this method.

[26]Green, *Revolution in Iran,* p. 71.