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War, Revolution, and the Maintenance of Human Capital: An Analysis of Iranian Budgetary Priorities

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Introduction

As it enters its second decade, the Iranian Revolution would appear to be at an important and uncertain point – not because it is in imminent danger of collapse or overthrow, but because many issues it confronts remain unresolved and the cost of failing to resolve them is rising. The war with Iraq only exacerbated these problems.[1]

However as Clawson[2] has observed, the country has faced a set of circumstances remarkably unfavorable to its economic growth – the oil price decline (and later collapse), the Iraqi invasion, and the departure of many professionals and entrepreneurs in 1979 and 1980. Simultaneously the government's basic political decisions such as continuation of the war with Iraq, few concessions to those traditionally tied to the West,[3] a policy of thorough-going Islamization, the deterioration of the country's oil producing capabilities[4] and the uncertainties associated with the Iraqi invasion of Kuwait, have created grave complications.

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1 Fred Halliday, "The Revolution's First Decade," *Middle East Report* (January-February 1989), p. 19.

2 Patrick Clawson, "Islamic Iran's Economic Politics and Prospects," *Middle East Journal* (Summer 1988), p. 371.

3 This policy has changed somewhat in the early 1990s, with more Iranian exiles returning to the country. See Scheherazade Daneshkhu "Iranian Exileds Returning to the Economic Fold" *Financial Times* (May 3, 1990), p. 5.

Most evident are the economic problems: high inflation[5] (unofficially at around 35–40 percent in early 1991); continued mass migration to the cities despite early attempts to reverse this trend; and the underproduction and inefficient utilization of industrial capacity. During the war with Iraq, the government converted many of the country's most modern, best equipped industrial plants to munitions production. This was especially true of the factories in the Teheran region for assembling motor vehicles. The process of re-conversion will be complex and is likely to be long.[6]

Much as the regime has been able to stave off its problems, it will be increasingly difficult to ignore them, not least because of the demographic explosion in Iran: from a population of 10 million in 1990 to 28 million in 1966, to 47 million in 1986 and over 55 million in 1991.[7] By the year 2000, the country's population will likely reach 70 million.[8] In this regard, perhaps the key problem for the future is tackling unemployment. Recent estimates have placed the country's unemployed at nearly 3.8 million.[9] The war mobilization resulted in millions of men serving in the regular armed forces, thus forgoing further training during this period.

The ability of the country to deal with these problems will, in long term, be largely dependent on the ability of the country to upgrade its stock of human capital through the provision of increased amounts of education and training. Recently the government has made a major commitment toward addressing these problems through the drawing up of an ambitious five year plan that envisages a per annum growth of 8 percent in GDP (Gross Domestic Product) and lays out targets for sectoral regeneration, particularly in agriculture. Measures to lower the fertility rate, create two million jobs and increase the government's tax income as a proportion of its expenditures are all included in the plan that runs from 1989-93.[10]

5 Philip Shenon "Iran's Ailing Economy is Reeling From Quake," *New York Times* (July 23, 1990), p. c3.

6 Anthony Hyman, "Iran," in *The Middle East Review, 1990* (Saffon Walden: World of Information, 1990), p. 69.

7 *International Financial Statistics Yearbook, 1990* (Washington: International Monetary Fund, 1990), p. 420.

8 The World Bank, *World Development Report, 1990* (New York: Oxford [illegible] 1990), p. 228.

Of particular importance is the anticipated expansion of public expenditures. In recent years, as a result of growing budget deficits and the consequent effect on inflation, real public expenditures have followed a downward trend. Given the plan's policies aiming at a reduction in the budget deficit and as a correlary, the inflation rate over the next five years, real public expenditure is to increase by an average of 3.8 percent a year. Included in the plan are plans for a major expansion of the country's school system. Specifically, the plan hopes to increase the number of university students by 7.8 percent, while the number of school students will reach 16 million, requiring construction of 46,000 extra classrooms.[11]

The plan originated in 1983, but the government was then unable to push it through a hostile parliament. Starting in early 1990, the Rafsanjani government began to work in earnest on a change in economic philosophy. After years of an isolationist and war mentality, the government had a mandate to borrow from abroad, to liberalize and reconstruct the economy.

Several interesting issues arise for the future. First, how sound is the educational/human capital base upon which the plan must build? In this regard, how have educational expenditures fared during the Revolution and Gulf War? What priorities does the government appear to have set concerning education? Have the government's allocations to the educational system been biased and in what way? And if so, how did the Islamic Republic's budgetary priorities toward education differ from those of the Shah?

The purpose of the analysis below is to examine these questions. Based on the results of this analysis, several conclusions will be drawn concerning the country's stock of human capital.

Education

The first serious attempts at eradicating illiteracy in Iran occurred in the 1930s under Reza Shah. Yet, a coordinated push to improve the fundamental skills of the population was not undertaken until the 1960s when a mass campaign occurred under a Literacy Corps program as part of the then Shah's While Revolution. A great deal was achieved in a short time and by 1979 the literacy rate had improved substantially to 55 percent of males and 30 percent of

females. According to the 1986 census, 62 percent of those school-age or older were illiterate.[12]

Enrollment rates have been shown steady increases over time, especially in the primary levels. Still, these rates appear to have leveled off at the secondary level with male enrollment rates in the mid-1980s (Table 1 and 2). As a basis of comparison, Iran's enrollment rates are favorable, relative to its regional neighbors and countries with a similar level of income. On the other hand the country's illiteracy rate is considerably above other countries in its income range.

Following the Revolution, the educational system was changed so that all teaching conformed to Islamic principles as ordained by the regime. Great emphasis was given to ensuring that the young would be brought up as totally committed Muslims. In some ways, the quality of education was improved. Still, higher education presented the government with continuing problems since the universities, especially the two main foundations in Teheran, were by traditional

Table 1
Iran: Progress Towards Educational Attainment
1979–1986

	1970	1975	1977	1982	1985	1986
Education Exp. (% GDP)		3			3	
Enrollment Ratio (Primary/Total)	72	93	101	97	112	117
Enrollment Ratio (Primary/Female)	52	71	80	82	101	107
Enrollment Ratio (School Age)	27	45	42	39	46	47
Enrollment Ratio (Secondary/Female)	18	33	32	32	37	38
Science/Engineering Students	32	38	35	35	29	28
Pupil/Teacher Ratio: Primary	32	29	32	20	22	28
Pupil/Teacher Ratio: Secondary	36	27	24	15	16	21
Pupil/Teacher Ratio:		79				
Repeater Rate (Primary)	9				10	12
Illiteracy Rate (Overall)					49	
Illiteracy Rate (Female)					61	

Source: The World Bank, *Social Indicators of Development, 1989* (Baltimore: Johns Hopkins University Press, 1989), p. 147. *Notes:* Enrollment Ratios = % of school age group; Science Engineering Students = % of tertiary students; Pupil/Teacher Ratio = pupils per teacher; Pupils Reaching Grade 4 = % of cohort; Repeater Rate

Table 1
Iran: Relative Progress in Education

	Year				
	25 to 30 Years	15 to 20 Years	Most Recent	Same Income Group	Same Region
Enrollment Ratio (Primary/Total)	63	93	117	103	87
Enrollment Ratio (Primary/Female)	40	71	107	99	78
Enrollment Ratio (School Age)	18	45	47	57	47
Enrollment Ratio (Secondary/Female)	11	33	38	56	38
Science/Engineering Students	17	37	27		
Pupil/Teacher Ratio: Primary	32	29	29	27	31
Pupil/Teacher Ratio: Secondary	30	27	22		18
Pupil/Teacher Ratio:		79		77	78
Repeater Rate (Primary)	9		11	18	7
Illiteracy Rate (Overall)			49	22	50
Illiteracy Rate (Female)			61	26	57

Source: The World Bank, *Social Indicators of Development, 1989* (Baltimore: Johns Hopkins University Press, 1989), p. 147. *Notes:* Enrollment Ratios = % of school age group; Science Engineering Students = % of tertiary students; Pupil/Teacher Ratio = pupils per teacher; Pupils Reaching Grade 4 = % of cohort; Repeater Rate = percentage of total enrollment; Illiteracy Rate = % 15 years old and over.

standards politically liberal and secular. They were closed for a long period, reopening in 1983 with modified Islamic syllabi and controlled intake of "acceptable" students.[13]

Iran has been in almost total intellectual and literary isolation since the Revolution. Now, ideas, literature and new scientific advances from outside penetrate only slowly into the Iranian system because of attitudes, policies, and recently, a severe shortage of financial resources.[14] The fact that over 50 percent of the population is under 15 years of age means that the imprint of Islamic education is very powerful. This is especially evident since a growing number of the population have experienced no real schooling other than of the Islamic Revolutionary type. Simultaneously, there has been a contraction in higher education.

13 *Iran: Country Profile: 1990-1991* (London: Economist Intelligence Unit), p. 13.

In the wake of the Revolution, there was a significant outflow of people and capital from Iran, the former even more damaging to the country's future prospects than the latter. Most of those who fled the country between 1978 and 1980 were professional people, industrial capitalists, landowners and experienced administrators or technocrats. These groups represented many years and even generations of expensive and time consuming training and education. As of mid 1990, there were approximately two million Iranians living outside the country.[16] For all its faults, this stratum of society possessed the skills necessary for running what was becoming an economically sophisticated state. The mark of this loss is still instantly apparent in present day Iran.

Employment

As noted above, the employment situation in Iran has deteriorated in recent years. This is in sharp contrast to the boom period of the seventies. During this period, a serious shortage of labor existed in certain key sectors.[17] At that time, up to one million Afghan immigrants were attracted into agriculture and general labor in Iran, while many Iranian migrants to the Gulf states were induced by the prosperous conditions in Iran to return to their homes.

Collapse of the economy after 1976 brought on growing but generally modest levels of unemployment as the level of activity fell off, especially in construction and services. Young males who had often been employed in multiple shift work occupations found work less easy to come by, and new immigrants were not absorbed into the labor force on the previous scale. Much distress at this time arose from the fall in disposable income among the manual laboring groups as they faced rapidly increasing prices for their essential needs.

> *In short, the rebuilding of the economy will be gradual. But, more important, it will reverse the downward trend in per capita income that started with the revolutionary movement in 1978. According to official sources, based on the fixed prices of 1974, per capita income fell from 114,000 riyals in 1978 to 5,500 riyals in 1988.*

In the period before and after the Revolution, what appeared to be a gradual decline on the employment front became a severe deterioration.[18] The causes of the problem varied. Flight by factory owners, continuing migration of rural people to the towns, shutdown of major construction projects and displacement of people in the war zone all added to the government's difficulties. By 1986, there were some 3.8 million of the adult workforce of 13.3 million unemployed, up from 3 million in 1984. At the time of the 1986 census only 20 percent or, so, of the population was gainfully employed.

Those figures mislead in the sense that large areas of disguised unemployment exist in all sectors. Most farming activity takes place during the warm months of the year. Industry retains many workers in employment for welfare purposes. Services are an all embracing term covering people in low productivity occupations such as cigarette selling and other similar activities. Given continuing poor economic conditions and a high rate of entry into the labor market, unemployment can only get worse despite the government's dedication to full employment.

In terms of the country's school system, an average of only 4,000 of the total 23,000 graduates have been able to find jobs in recent years. Between 1977 and 1986 only one-fifth of the graduates meeting entry requirements were employed by the civil service. Some 70,000 of the country's doctors have found jobs abroad. While this is a massive brain drain, this issue is not so straightforward:

> *Ironically, while many qualified doctors must seek work abroad, Iran's industrial sector – at present operating at only about one-third of its capacity – is crying out for highly qualified recruits and potential managers to head the development plan for the next five years. The brain drain reflects not only the baby boom, but also the lack of co-ordination between industrialists and the country's higher education planners. The massive youth market remains largely untrained to do the jobs for which it was trained.*[19]

Trends in the Government's Budget

In response to falling oil revenues, after the revolution the government has generally adopted a fairly orthodox policy. The government deficit as a percentage of GDP reflects the continuing and drastic fiscal measures to reduce it to between 7 and 8 percent of GDP or just about the same levels as the year before the revolution. Exceptions were when oil income fell steeply in 1981-82 and 1986-87, when the deficit reached 10-11 percent of GDP.

The method by which the government has curtailed its deficit constitutes the most stringent development in its domestic economic policy.[20] There has been an extraordinary shrinking of government expenditures in real terms. Specifically, actual expenditures – not just the budget – fell from 2.5 trillion rials the year before the revolution (1977-78) to 1.4 trillion rials five years later in 1977-79. In terms of its share of GDP, the reduction in government expenditures over this period from 1977-78 to 1983-83 was 18 percent (from 46 percent to 28 percent). Even worse, this was during a period when real GDP fell.

This reduction seems to be among the most rapid and extensive experienced by any government since the systematic collection of such data began after World War II. No industrialized nation has ever been able to reduce expenditures in any five year period by as much as 5 percent of its GDP. The much applauded efforts of Latin American governments to cut spending in response to the debt crisis were much more modest than Iran's response to its own crisis; indeed the International Monetary Fund (IMF) has been criticized for demanding expenditure reductions that were as high as 10 percent of GDP.[21]

Over the last five years, the ratio of current and development (fixed investment) expenditures to the total suggests that between 80 and 90 percent of current government expenditures consist of salary payments to civil servants and procurement of consumer goods, and only the remaining 10 to 20 percent is for implementing various economic policies.

It is also apparent that the government's efforts to check current expenditures over the last few years have not been successful, with its ratio to the total expenditures going up to nearly 75 percent in 1366 (1987-88).

The war expenditures, in turn, fell into two categories: current and development. Development expenditures consisted of such things as the construction of air raid shelters and other non-active defenses. In recent years, total war expenditures to total government expenditures went up from 32 percent in 1986-87 to more than 34 percent in 1987-88.

Obviously, the rise in current expenditures in recent years has automatically reduced development expenditures and, as a result, investments for employment and the possibility of increasing the economic productivity potential.

With regard to specific categories, educational expenditures while declining in absolute terms, were able to stay around 20 percent of total government expenditures over the 1980-86 period. Economic expenditures fell from 24.0 percent of the budget in 1980 to 15.7 in 1986. It should be noted, however, that although falling in absolute terms, the 19.6 percent of the budget allocated to education was considerably higher than its share in the 1970s.

The 1990/91 budget[22] which covers the first financial year under the new economic planning forecasts IR 3,964.5 billion for recurrent costs, up by almost 16 percent over the 1989/90 budget. Nearly 46 percent of the budget will be allocated to welfare sectors. The development budget is designed to initiate a process of planned growth in the economy and is up by sixty percent over the financial year 1989/90. Iranian authorities anticipate a total deficit of IR 1,586 billion.

The budget takes up the theme of the plan, setting physical targets for the year of which the principal ones are: oil output rising to a sustained 3.57 million barrels per day; construction of 5,424 housing units for civil servants and workers; the laying of 1,800 km of highway; and substantial expansion of school and hospital facilities.

Presumably, the heavy emphasis in the budget on the physical plan is to demonstrate that the government is serious about improving conditions and to muster popular support for the economic development program during its initial phases. Unfortunately when measured against the real post-war needs of the country, the budget is very modest. It has limited objectives, and these are defined in material terms alone. There is no indication of

the fiscal and other reforms to the state system that will be needed to achieve a thorough going change in the country's economic fortunes. There are few signs that the government will be able to tackle the endemic problems such as high inflation, the instability of the rial and food subsidies.[23]

Clawson correctly notes, however, that Islamic Iran's expenditure reduction should be seen against the background of the oil boom. To a large extent, the Islamic Republic simply returned to the level of government that had prevailed until 1973. Reducing expenditure is always difficult, but it may be less so when the program cut is of somewhat recent origin. Also, much of the reduction was in development spending, which fell in inflation adjusted terms by 80 percent from the pre-revolutionary past. Reducing expenditures on such development projects as roads, power plants or factories is relatively simple; as on-going projects are completed, work on new projects is postponed.

Budgets Under the Islamic Republic

In fact, the budgets implemented under the Islamic Republic provide a good indication of the significant changes in priorities of the state. Such changes have been largely in the direction of more unproductive expenditures and provision of basic needs items.[24]

Initially the government favored a budget less dependent on oil and more on taxes. The public incomes were to be spent largely on such activities as agriculture, rural development, producers goods industries, electricity, and transportation. The least developed provinces, the working people, and small-scale productive operations were to receive more assistance from the state. These and similar policies were to be implemented to help realize the goals of economic self reliance, restructuring of the consumption patterns and social justice.[25]

As Amirahmadi notes, unfortunately before much could be achieved in these areas, struggles over political and social question of the Revolution began, the war erupted and oil revenues declined. These led to fiscal and monetary constraints, increased bottlenecks and forced the state to change its priorities and policies in favor of more allocation for the war and basic needs largely at the expense of development funds Amirahmadi.[26]

Costs of the War

There is no doubt that the war has profoundly distorted Iran's economy, quite apart from the incalculable human cost that includes more than a million dead and injured and between 1 and 2 million displaced persons. Because Iran has not published detailed national statistics since 1977 means that any attempt to estimate the cost of the war is extremely difficult. The difficulty arises because each estimate selects different components of cost and thus is not comparable with the others. Also, these estimates refer to different time periods.[27]

As Joffe and McLachlan[28] note, annual costings of the war show similar variations. In financing the war, Iran was constrained by lack of foreign exchange – especially after the 1986 oil price collapse. The result was to limit its expenditure on arms during the last several years of the Gulf War to $2-3 billion annually.

While the costs of the war were staggering, when seen in historical context they do not appear to have altered budgetary priorities to a significant extent. Surprisingly, defense expenditures during the first eight years of the war held at levels approximating those under the Shah. The low expenditures during the war were due to three factors: (a) the government's inability to obtain sophisticated and expensive equipment, (b) greater reliance on voluntary forces, and (c) a reluctance to impose austerity on the public.[29]

Budgetary Tradeoffs Involving Education

Before any assessment can be made of the country's ability (and willingness) to maintain or even improve its stock of human capital, some idea must be gained about the factors affecting the government's expenditure decisions. To what extent did the Gulf War affect educational expenditures? Has education been a priority of the Revolutionary government? Are other budgetary categories cut only after reductions in the educational budget?

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23 *Iran: Quarterly Review* (London: Economist Intelligence Unit, 1990, No. 2, p. 14.

24 Hooshang Amirahmadi, *Revolution and Economic Transition: The Iranian* [illegible] of New York Press, 1990), p. 163.

26 Amirahmadi, *Op. cit. cit.*, pp. 163-164.

27 George Joffe, and Keith McLachlan, *Iran and Iraq: Building on the Stalemate – Special Report No. 1164* (London: Economist Intelligence Unit, November 1988), p. 23.

28 *Op. Cit.*, pp. 23-24.

29 "Iranian Economy: Picking Up the Pieces," *Middle East Economic Digest*

When public policy demands exceed the available public resources, budgetary trade-offs often occur between and among different policy areas:[30] One policy area may gain at the expense of policy areas in the allocation of scarce resources. Budgetary trade-off patterns range on a continuum between two extremes. For example, in the case of defense expenditures and allocations to education, it may be that allocations to defense come at the expense of educational spending; that is, as defense spending increases, spending on education may actually decrease, producing a negative trade-off.

This pattern reflects a substitution effect.[31] A positive trade-off occurs if defense spending increases stimulate real increases in education spending. Of course, it is always possible that defense spending bears no relationship, negative or positive, to education spending, producing a pattern in the middle of the trade-off continuum – no tradeoff.

What literature exists,[32] suggests that the defense/education tradeoff is complex, and may be affected by several factors including: changes in regime (military/civilian – authoritarian/democratic), wars/regional conflicts, austerity measures/budget deficits and foreign exchange shortages. Some or all these factors must be included in the regression equation to obtain less biased estimates of any tradeoffs between education and other categories of government expenditures.

Based on the discussion above, it is clear several factors have had a potential affect on the share of educational expenditures in the government budget:

1. *The Revolution.* The change in regime type from monarchy to Islamic republic is likely to have shifted priorities toward education, although this factor may be somewhat different depending on whether the level of education is primary, secondary or university. This is a dummy variable with values of 0 for 1970-77 and one for 1978-86.

30 For an earlier analysis of the Iranian situation see Robert E. Looney "The Role of Military Expenditures in Pre-Revolutionary Iran's Economic Decline," *Iranian Studies* (1988), pp. 52-74.

31 Joel Venner, "Budgetary Trade-offs Between Education and Defense in Latin America: A Research Note," *Journal of Developing Areas* (October 1983), p. 78.

32 For a recent survey of the relevant literature see: Robert E. Looney and P.C. [illegible] Civilian Rule in Argentina: An Analysis

2. *The Iran-Iraq War.* This seems to be a pure guns vs. butter situation, with the government reducing its commitment to education to divert resources to the war effort. This is a dummy variable, depicted with zeros for the pre-war years and ones for the years of the war.
3. *Government Fiscal Deficit.* This factor could work in either direction, depending, in part, on the priorities of the government toward the educational sector. Larger deficits may have occurred to maintain educational programs or larger deficits to finance other expenditures may have forced the government to reduce allocations to education as part of an austerity program.
4. *Sectoral Priorities.* This factor includes the guns vs. butter analogy discussed above. Still, educational expenditures could be affected (positively or negatively) by movements in any of the other major budgetary categories. Besides education, the budgetary data presented by the International Monetary Fund for Iran International Monetary Fund, *Government Finance Statistics Yearbook*[33] include: (a) general public services, (b) defense, (c) health, (d) social security and welfare, (e) housing, (f) community services and (g) economic services.

In other summary, we might expect the share of the government budget allocated to education to be greater: (a) the smaller the deficit, (b) during peace time, (c) after the revolution and (d) in the absence of other strong budgetary priorities. Because it appears that the current government treats allocations to primary education in a somewhat different manner than its funding of secondary schools, analysis also focused on the funds allocated to each type of school. Similar tests examined the share of the budget allocated to university education. However, the proportion of the budget allocated to this activity was not only small relative to the two other types of schools, but also very irregular from year-to-year. Because of the latter problem, no strong patterns existed.

Main Findings

With regard to budget allocated to all expenditures on education: only those other budgetary allocations that were statistically

significant are reported here. Analysis consisted of a multiple regression technique for the period 1970-86.[34]

1. The fiscal deficit was by far the most important variable affecting the share of educational expenditures in total government expenditures. This variable accounted for over sixty percent of the fluctuations in the educational share of the budget. It appears that the government was willing to increase its deficit to maintain the level of instruction.
2. The major budgetary tradeoff was a positive one, and involved the association between education and the catch-all category of "other services." A positive, albeit weaker, correlation occurred with general public services.
3. As anticipated, the revolution introduced a new set of budgetary priorities, with education's share of the budget increasing in relative (but not necessarily in absolute terms) significance after the overthrow of the Shah.
4. As anticipated, the war took its toll by significantly decreasing the share of funds allocated to the country's educational efforts.

In general, therefore, education suffers from no really serious negative tradeoffs with the other major budgetary allocations, and therefore should *ceteris paribus* increase in relative importance in the post-war years. It should be noted, however, that a fairly weak but negative tradeoff with economic expenditures occurred. This variable will be examined more thoroughly below, since it may provide some insights about possible short-falls to education during the period of post-war reconstruction.

With regard to the factors affecting the share of the budget allocated to primary education:

1. As was the case with total education, the fiscal deficit was the most significant factor affecting the budgetary share allocated to primary education. This variable accounted for over one half the fluctuations in primary education's share of the budget over the 1970-86 period.
2. The revolution's emphasis on primary education is apparent in its contribution to the regression equation – increasing the explained variance by nearly forty percent, a much greater incremental increase than in the case of total education.
3. The major budgetary tradeoff was a negative one with the catch-all category "other services." Apparently the Islamic regime provides a certain type of services not available under the Shah. These services have expanded in part at the expense of primary education.
4. Interestingly enough, primary education has such a high priority with the present regime that the war does not appear to have seriously affected its relative position in the budget.
5. As noted with total education, a weak and negative tradeoff exists with economic expenditures. Since economic expenditures consist of a diverse group of activities, we examine this budgetary category in greater detail below.

For secondary education, a much different pattern emerged:

1. Apparently the government was unwilling to incur larger budgetary deficits simply to fund this type of activity – the fiscal deficit was insignificant when regressed on the share of secondary education in the budget.
2. Other social expenditures were the strongest determinant of secondary education's share of the budget, with the war reducing the share of funding for this type of activity.
3. It is also interesting that the change in budgetary priorities associated with the overthrow of the Shah may have actually resulted in a reduction in the relative importance of secondary education. This relationship is fairly weak, however, and probably does not reflect a major bias of the current regime against secondary education, *per se*.
4. Finally, the percentage of variance on the share of secondary education explained by the model is considerably lower than was the case with either total or primary education. In part, this most likely reflects a weak commitment by the government to instruction at this level.

One of the more interesting (and surprising) findings from this analysis was the role of the budget deficit in funding primary and (since it consists mostly of primary education) total education. To determine the relative importance of education in this regard, additional regressions were run with the deficit the dependent variable. Other budgetary shares were included with the Revolution term and the Iran-Iraq War dummy variables. The results of this

34 A complete and detailed set of results can be found in: Robert E. Looney, "Education versus Defense Expenditures in a Conflict State: An Analysis of Budgetary Priorities in Contemporary Iran," *Working Paper Series*, Department of National Security Affairs, Naval Postgraduate School (February 8, 1990), copies of

1. Education (either total or primary) was the only budgetary category associated with increases in the deficit. In fact, increases in the share of funds allocated to education accounted during the period under consideration for over seventy percent of the increase in the fiscal deficit.
2. The revolutionary regime appears slightly more disposed than its predecessor to run deficits, but this effect is not particularly strong.
3. Contrary to the situation in most countries, the war does not appear to have had much, if any, effect in increasing the size of the deficit.
4. Substituting the share of the budget allocated to defense for the war term also does not enable one to account for the increase in the deficit in recent years. In fact, the defense term has a positive sign, indicating that higher levels of defense expenditures are actually associated with lower deficits.

It appears, therefore, that both the Shah and the Islamic leaders gave a high enough priority to (primary) education so as to be willing to risk the inflationary impact usually associated with increased budgetary deficits. No other sector appears to have been elevated to this status by either regime.

It was noted earlier that a slight negative budgetary tradeoff was found in the aggressions of the share of economic activities in the budget upon education (both total and primary). Further analysis was undertaken to determine, through disaggregating to the various components of economic expenditures. Based on the level of detail provided by the International Monetary Fund data, these included: (a) total economic services, (b) general administration research and regulation, (c) agriculture, (d) mining manufacturing and construction, (e) electricity, gas and water, (f) roads, (g) other transportation and communication, (h) fuel and energy, and (i) other economic. Building from a three variable model containing the deficit, the Iran/Iraq War and the revolution, the various economic categories were added on a one by one basis. The results indicate that:

1. Both total economic services and those involving mining, manufacturing and construction had a negative, but weak, effect on the shares of the budget allocated to either total education or primary education.
2. The greatest impact from the economic portion of the budget was the fairly strong negative impact of fuel and energy

Conclusions

Since seizing power, the Islamic regime has been able to maintain, if not significantly increase, the country's stock of human capital. Most likely, this has come at some cost in terms of inflation, and perhaps resources that could have been allocated more effectively in the higher levels of training. With the completion of the war, the country's focus will most likely turn to increasing its investment in its younger citizens. It is unlikely that, at least at the primary level, education will face major problems in maintaining its budgetary share, despite the increasing economic costs associated with reconstruction. Increases in the absolute amounts of resources allocated to both activities should help revive the economy.

However, it is hard to see major increases in growth occurring in the longer term unless the government is willing to alter its priorities towards increased funding of secondary and university level education. There is no evidence to date that this will be the case.