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Reducing Dependence Through Investment In Human Capital: An Assessment Of Oman's Development Strategy

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Abstract—The purpose of this paper is to assess Oman's post-1970 efforts at developing its human capital. In addition, estimates are made of the factors most likely to interfere with the country's progress in this area. The main findings of the study are that while impressive gains in education have been made, this progress may be threatened by the government's excessive military expenditure plans. While defense expenditures do not appear to compete with education for budgetary allocations, there is the possibility that the military's competition for non-financial resources might slow down job creation in such sectors as manufacturing to the extent that the demand for education by Omani nationals is reduced.

INTRODUCTION

Oman was historically the most diversified and developed economy on the Arab side of the Gulf, with a broadly based agricultural sector and a thriving fishing industry. However, the Sultanate stagnated until Said Bin Teymour was deposed by the present ruler, Qaboos, in 1970. Since then, the country's oil revenues have been used to finance development and a modern infrastructure has been created with roads, ports, and airports up to standards elsewhere in the Gulf.

The growth and diversification of the Omani economy are based on private sector development, but the scope of government planning has necessarily become more far-reaching. The government development strategy is coordinated by the Development Council. The philosophy and strategy for development are expressed in the First and Second Year Development Plans. These plans comprise the means for directing government oil revenues into productive investment in the best overall interest of the Sultanate. Birks and Sinclair [1] note that the position of investment in human resource development within this general development strategy has been of growing importance.

At the same time, Wilson [8] found that social expenditure has risen enormously with the construction of hospitals, schools and, finally, a university. The bills for maintaining health and educational service continue to rise, and the government may face problems here in the long term given its limited oil resources.

The purpose of this paper is to assess Oman's post-1970 efforts at developing its human capital. What gains have been made to date? What particular problems has the country encountered in its attempts to increase the skills of its labor force? Will these problems exist in the future, and, if so, to what extent?

HUMAN RESOURCE DEVELOPMENT AND POLICY

Both Development Plans have focused upon the diversification of the economy through:

(1) development of new sources of national income to complement and ultimately replace oil revenues;
(2) increased investment in revenue-earning investments;
(3) development of infrastructure and national manpower resources; and
(4) improvement of the civil service.

In addition, the Second Five Year Plan noted that it was important to:

(1) preserve the sound and stable financial position of the economy; and
(2) accelerate the rate of economic development and take into consideration the size of the (national) labor force.

The utilization of imported non-Omanis to facilitate economic development in the short term is a temporary measure. The rapid rate and large scale of infrastructure provision meant that augmentation of the national workforce was essential in the short term. As indigenous human resource development proceeds, however, Omanis are expected to take a growing role and make an increasing contribution to development. A considerably reduced reliance on non-Omanis is planned for the late 1980s and early 1990s.

In terms of the current foreign workforce, it is interesting to note that Asians, in particular Indians and Pakistanis, account for a very high proportion of non-national workers. Their share rose from 88% in 1980 to over 93% in the mid-1980s. The proportion of non-national Arabs is much lower in the private sector than in the civil service, where they comprised 53% (7000) of all expatriates in 1980.

In the private sector, Arabs accounted for only 2% (2300) of those holding work permits in 1980. While the share of Arabs holding labor cards fell even further (to only 1%) over the period 1980–1984, their share of civil service positions remained relatively stable. Egyptians represented an increasing proportion of non-national Arabs. Their share increased from 60 to 78% over the period 1980–1984. In fact, Egyptians accounted for much (57%) of the total increase in non-national employment in the civil service.

Although Indians and Pakistanis still dominate the Omani labor market, there has been a growing presence of Bangladeshi, Sri Lankan, Thai, and Filipino workers. South Koreans first appeared in significant numbers in 1980, reaching a peak in 1981 and subsequently declining.

In 1985, Oman's labor force was estimated at around 440,000, only 31% of whom were Omanis. Of the more than 314,000 immigrants working in Oman, almost 90% were from the Indian subcontinent. Most of the migrants work in the modern private sectors. As of 1980, around 62% of active Omani nationals worked in the rural and traditional sectors. Most Omanis not engaged in agriculture work for the government. By 1985, nearly a quarter of the total national work force (including almost all active women) was employed in the public sector. This was more than the number in agriculture, which had shrunk to about 15% of the country's work force.

As a consequence of the oil price collapse in 1986, there has been a large reduction in government and oil company contracts and a consequent exodus from Oman of many Asian workers and Western businessmen. However, since the official immigration figures are thought by the Economist Intelligence Unit [2] to be understated, perhaps by as much as 100,000, the exodus may not be revealed immediately in the statistics. More recently (1987), the government stated that 50,000 foreign laborers had left the country in 1986, and that another 50,000 would leave in 1987.

The planned replacement of the remaining non-Omani workers by nationals represents a particular responsibility of the education and training system (ETS) of the Sultanate. The philosophy of the ETS is that only through a careful process of improvement of the indigenous human capital can non-Omanis employed in the Sultanate be replaced by Omani national workers, while maintaining rapid economic progress.

Thus, the stress within the ETS is to:

(1) produce as many qualified and educated Omanis as possible;
(2) enable each Omani to develop personally to his or her full potential; and
(3) produce Omanis with qualifications and skills of most use in key positions within the workforce.

In the short term, insufficient Omanis will graduate from the ETS to replace all the non-Omanis in employment in the Sultanate's economy. In this regard, the non-Omanis are to be selectively replaced by Omanis, without slowing the progress of economic growth.

PROGRESS IN HUMAN CAPITAL FORMATION

The fiscal resources of the government have allowed it to invest considerable amounts in the country's educational system. As documented by the Omani Directorate General of National Statistics [7], both the rates of investment and the results of those expenditures have been impressive:

(1) In 1970, school enrollment in the Sultanate totalled less than 1000. By 1983/1984 the number of boys and girls enrolled in primary, intermediate and secondary education had reached 164,316.
(2) About 2040 students were enrolled at universities abroad in 1983/1984, and over 2500 in agricultural, commercial and special schools.
(3) The success in improving primary education was great even by Gulf Cooperation Council (GCC) standards. In 1978/1979, there were 78,000 students at the elementary level; by 1983/1984 the number had increased by 73% to more than 134,600. This represents an increase of some 15% per annum.
(4) Commensurate with the rising numbers of pupils, the increase in the number of teachers engaged at primary level was also spectacular: in 1979/1980 there were about 2335 primary school teachers in the Sultanate. This had risen to more than 5010 by 1983/1984, an increase of more than 100%.
(5) The increase in teachers represents a major undertaking since most of these people have to be recruited and brought from overseas. In 1984/1985, 78% of teachers were non-Omani; most were Egyptian. Efforts to increase the numbers of Omanis in the teaching staff are underway. Apart from the replacement of foreign teachers by Omanis, the government is striving for development of an Omani curriculum, use of increasing numbers of female Omani nationals, and an upgrading of the status of teachers.
(6) Progress has also been rapid in expanding secondary education. In 1978/1979, there were only 685 secondary pupils (2 years previously they had totalled only 330). In the same year, there were 9 secondary schools with 32 classes. By 1983/1984 the schools numbered 29 with 240 classes and an enrollment of over 6300.
(7) In 1983/1984, a majority of the students (57%) were in the sciences, a pattern unusual in the Gulf where the arts are generally the most subscribed curriculum.
(8) In 1986, the country opened its first university. The school is actively involved with research that serves the needs of the Sultanate, and is planned to provide training for the community at large, the government, and private sector personnel.
(9) The university marked a major transition in human resource development in the Sultanate. It is very important from the perspective of the labor market, helping to supply much-needed Omani workers at higher skill and educational levels.

As a result of its rapid rate of progress in increasing the number of teachers and the rates of enrollment (Table 1), Oman is quickly closing the gap in these areas with countries having a much earlier start.

However, the sharp decline in oil prices beginning in late 1985 has placed considerable strain on the budget, particularly in terms of the major commitments made to human resource development. In 1986, for example, the country ran a budget deficit of about $1.8 billion, more than three times the targeted level.

Although oil revenues have fallen off in recent years, a relative advantage enjoyed by the Sultanate is that it is not a member of OPEC and therefore not obliged to adhere to the cartel's production policies. As a result, the country increased its oil production levels to partially compensate for the decline in prices.

Falling oil revenues have already affected implementation of the Third Development Plan covering 1986–1990, which was cautiously based on an assumed oil price of $20–24 per barrel (when the price was actually higher at $27 per barrel). The subsequent price declines have threatened to invalidate the plan. The government has asserted that it has no intention of abandoning the plan. However, it is likely that the plan will be only partially successful.

Table 1. Oman, social indicators of development

Indicator	1965	1975	Most recent	Reference groups: Upper middle income	Reference groups: Industrial market economy
Labor force					
Total labor					
Force (thousands)	160	207	370		
Female (%)	6	7	8	30	38
Agriculture (%)	62	53	50	30	7
Industry (%)	15	20	22	30	35
Participation					
Rate (%)					
Total	28	27	29	37	47
Male	52	50	51	51	59
Female	3	4	5	23	35
Age					
Dependency (%)	88.7	91.7	90.9	71.8	49.4
Education					
Enrollment rates:					
Primary:					
Total	NA	44	89	105	101
Male	NA	63	97	108	101
Female	NA	24	80	102	101
Secondary:					
Total	NA	1	32	57	93
Male	NA	2	43	57	91
Female	NA	0	21	56	93
Pupil–teacher ratio:					
Primary	NA	27	27	25	19
Secondary	NA	7	13	18	15
Pupils reaching grade six (%)	NA	80	81	65	99

Source: *Social Indicators of Development* [9].

Table 2. Oman: main components of government revenue and expenditure (OR million)

	1982	1983	1984	1985	1986	1987
Available resources						
Oil revenue	1215.7	1277.5	1304.6	1510.0	928.9	1194.4
Other revenue	118.1	146.3	208.6	266.2	291.9	273.6
Total revenue	**1333.8**	**1423.8**	**1513.2**	**1776.2**	**1220.8**	**1468.0**
Expenditures						
Defense	581.3	670.7	728.2	749.9	665.4	568.1
Civilian						
Civil Min.	315.7	362.7	409.4	489.0	500.0	475.4
Operational	55.7	58.7	58.5	62.9	72.3	63.8
Interest on loans	17.5	19.2	39.3	47.1	75.9	72.9
Total civilian recurrent	**388.9**	**440.6**	**507.2**	**599.0**	**648.2**	**612.1**
Development						
Civil Min.	289.0	290.7	374.0	433.7	363.1	229.1
Capital Exp.	106.2	86.4	90.7	96.0	163.3	87.5
Exploration	—	—	—	4.0	6.0	7.0
Total develop	**395.2**	**377.1**	**464.7**	**533.7**	**532.4**	**323.6**
Participation in enterprises	47.5	58.5	60.2	50.7	40.8	47.5
Total expenditures	**1412.9**	**1546.9**	**1760.3**	**1928.3**	**1886.8**	**1551.4**
Grants (net)	14.7	50.7	72.8	−8.8	−0.3	23.8
Net borrowing	41.0	162.8	150.7	73.4	215.9	−59.0
Final surplus or deficit	−23.4	90.4	−23.6	−87.5	−450.4	−118.6
Funds to (−) or from (+) state general reserve fund †	**−98.4**	**−89.9**	**−27.5**	**96.9**	**492.4**	**88.1**

Source: *Statistical Yearbook* [7].

In fact, the country's small financial reserves, limited overseas investments, rapidly increasing recurrent expenditures, and sizable production costs ($5 per barrel) for its oil have made the post-1986 period a financially difficult one. But while total revenues in 1986 were only OR1221 million,† in 1987 (Table 2) some of the lost ground was recovered when total revenues rose by 20.3% to OR1468 million (of which 81% was from oil).

FINANCIAL RESOURCES FOR HUMAN CAPITAL DEVELOPMENT

In terms of expenditure, the cost of supporting the country's military and security forces more than trebled from 1978 to 1985, after a decline during the previous years which had resulted from

†OR = Omani Rials.

Table 3. Oman: public external debt ($ million)

	1981	1982	1983	1984	1985	1986
Total	**921.3**	**1384.7**	**1787.8**	**2100.4**	**2880.0**	**3271.7**
Disbursed	**537.2**	**724.0**	**1131.7**	**1345.4**	**1929.3**	**2501.2**
Official creditors	374.1	360.8	344.9	357.0	402.7	411.8
Multilateral	46.5	43.5	44.6	72.4	95.3	115.2
Bilateral	327.7	317.3	300.2	284.7	307.4	296.6
Private creditors	163.0	363.1	786.9	988.4	1526.6	2089.4
Suppliers	10.4	2.7	30.1	32.1	97.1	97.1
Financial markets	152.7	360.4	756.8	956.3	1429.5	1992.3
Debt service	**119.2**	**117.5**	**135.5**	**214.4**	**256.7**	**394.6**
Principal	84.4	84.0	135.5	214.4	256.7	394.6
Interest	34.8	33.5	52.5	85.4	113.4	171.8
Memorandum						
Debt service ratio (%)	2.4	2.5	3.0	4.5	4.8	11.3
Disbursed debt/GDP (%)	8.2	10.5	16.1	17.2	21.8	38.3
Concessional loan's share of disbursed debt (%)	50.7	35.7	20.5	16.5	14.0	11.6
Variable interest rate loans' share of disbursed debt (%)	—	—	23.4	22.3	15.6	30.7

Source: *World Debt Tables* [10].

the ending of unrest in Dhofar. Actual defense expenditure until 1985 was often higher than planned, a result of the Sultan's attempts to increase further military facilities on the Musandam Peninsula, which borders the Straits of Hormuz.

Civilian expenditure rose quickly, increasing from OR383.7 million (1980) to OR922.1 million (1985). Together with rising defense expenditure, this led to the first deficit of OR23.4 million (after borrowing) in 1982. Increased borrowing was necessary, but the 1985 deficit still rose to OR87.5 million. This led the government, for the first time, to call on its reserves in the State General Reserve Fund (SGRF). In 1986, a withdrawal of OR492.4 million was needed to cover that year's deficit. In 1987, the actual government deficit (before borrowing) was reduced by more than had been expected.

Total expenditure fell 17.8% from OR1887 million (in 1986) to OR1551 million (in 1987) due mainly to a reduction in development and military expenditure. Development expenditure in 1987, excluding the government's share in development investment and gas exploration, was OR229.1 million, the lowest figure since 1980. The 1987 deficit, after borrowing, was OR118.6 million; the withdrawal from the SGRF was OR88.1 million (18% of the 1986 level).

Although Oman contributes to several aid funds abroad, the country itself has been a large recipient of loans and aid from the Arab world and from European lenders. In addition, the country has a high external debt by GCC standards (Table 3). In 1979, it tapped the international commercial market for a 150 million dollar euroloan to finance the development of the oil fields in Dhofar. A 300 million dollar euroloan was raised in 1983 to finance development; was heavily oversubscribed, reflecting the country's excellent credit rating at that time. However, a 500 million dollar euroloan in 1986 was raised with somewhat more difficulty, reflecting Oman's weaker financial position after the oil price collapse. No further loans were taken out in 1987, but it is becoming increasingly likely that Oman will be forced to raise further loans.

The Third Five Year Plan approved in January 1986 lays stress on the rapid rate of development and the consequent increase in revenue and expenditure:

(1) Expected total revenues for the plan are estimated at OR8656 million, as against OR6947 million for the Second Five Year Plan and OR3126 for the First Year Plan.
(2) Fixed expenditure (including salaries) is estimated at OR6818 million. This compares to OR5138 million for the Second Five Year Plan and OR2348 million for the First Five Year Plan.
(3) Development expenditure is estimated at OR2211 million compared to OR2115 million for the Second Five Year Plan and OR905 million in the First Plan.
(4) Total expenditure for the Third Five Year Plan is estimated at OR9250 million compared with figures of OR7368 million and OR3337 million for the Second and First Plans, respectively.
(5) Net non-oil revenues for the Third Plan are estimated at OR1200 million compared with previous figures of OR343 million and OR265 million.
(6) Net oil revenues are estimated at OR7171 million against OR7092 million for the Second Five Year Plan and OR3861 million for the First Plan.

FACTORS AFFECTING FUTURE HUMAN CAPITAL DEVELOPMENT

The previous sections give some indication of the gains made to date in human resource development in Oman, together with several of the factors responsible for these accomplishments. However, there remains the question of identifying which key factors may retard or at least slow progress in this area. Two areas related to the budget and the country's fiscal capabilities appear to have special significance in this regard:

(1) The manner in which government expenditures are likely to impact on the economy, particularly with regard to the effect they have on the growth of certain key sectors and the subsequent demand for labor from these sectors.
(2) The manner in which other budgetary categories may, in a fiscal environment of relative austerity, compete with education for funding.

Defense expenditures

As noted above, Oman has devoted a relatively large share of its resources to defense, even by GCC standards. A recent study by Looney [5] of the Omani economy indicates that there is a good chance these allocations may have diverted potential resources in recent years from other activities, particularly manufacturing. The main findings of the study indicate that:

(1) In 1975, the country's heavy defense burden did not seem to have been a major factor with respect to industrial diversification efforts. On the other hand, the government's civilian expenditures appear to have provided a mild stimulus to industry.
(2) As might have been anticipated, the greatest impact of government expenditure was on the construction sector, with the service sector (and to a lesser extent the distribution sector) also positively affected.
(3) In general, total expenditures (absorption) impacted less on sectoral structures than either type of government expenditure. In Oman's case, the effect on industry was neutral.
(4) By 1981, the situation had changed to the extent that while military expenditures were still somewhat neutral with respect to industrial development, non-defense expenditures were tending to impact on non-industrial activity so as to reduce the relative share of this activity in the GCC states. In 1981, Oman followed the standard pattern in this regard.
(5) Overall expenditures or absorption tended to have their greatest impact on the relative development of the distributive trade sectors, while remaining neutral with regard to industrial development. Since this expenditure term has a large private sector component, it appears that private expenditures were not playing a leading role in Omani industrial development. Instead, these expenditures were facilitating the relative expansion of construction/distribution, followed by the service sectors.
(6) In sum, at the peak of the oil boom the Omani productive structure was largely molded by the level and pattern of government expenditures. Private sector expenditures played a smaller role in marginally expanding the non-industrial shares of non-oil Gross Domestic Product (GDP) to total expenditure (absorption).
(7) Finally, by 1985, defense expenditures in Oman were such as to reduce the relative share of industrial output.
(8) As in 1981, the private sector was not able to offset the government expenditure effect and as a result had a relatively neutral impact on industrial diversification in Oman.

Certainly by 1985, Oman's defense expenditures were taking a toll on the country's industrial development, as falling oil revenues combined with high defense expenditures to create a series of strains on the economy. It is hard to assess the precise effect this development may have had on the demand for trained Omani workers, given the rapid exodus of foreign workers at the current time. However, it is apparent that labor markets were becoming slack. Ceteris paribus, the slack labor markets in certain areas will act as a deterrent to Omanis investing in additional education and training.

Table 4. Oman: central government budgetary expenditures, 1972–1987 (million OR)

Category	1972	1975	1980	1987	Average annual rate of growth 1972/1980	Average annual rate of growth 1980/1987
General public services	9.6	38.0	138.4	179.5	39.6	3.8
Defense	27.3	241.0	407.0	583.6	40.2	5.2
Education	2.6	9.4	37.8	150..0	39.7	21.7
Health	4.1	14.7	23.2	63.3	24.2	15.4
Housing	2.1	0.6	15.7	15.8	28.6	0.1
Other social	1.5	9.3	5.8	37.1	18.4	30.4
Economic	16.9	109.2	146.1	227.9	30.9	6.6
Administration	0.1	2.9	14.7	72.8	86.6	25.7
Agriculture	0.3	4.4	14.7	18.4	62.7	3.2
Mining/manuf.	0.2	2.1	0.1	43.1	−8.3	137.9
Fuel/power	0.1	38.7	43.6	55.8	113.7	3.6
Roads	4.3	38.7	49.8	32.5	35.8	−5.9
Communications	4.5	9.5	4.1	5.3	−1.2	3.7
Other purposes	5.3	44.3	20.9	72.9	18.7	19.5
Deficit (−) surplus (+)	−17.1	−37.7	9.1	−146.2		
Debt	15.0	143.9	169.9	887.7	35.4	26.6

Notes: based on data from: *Government Finance Statistics Yearbook* [3], *International Financial Statistics Yearbook* [4].

Budgetary tradeoffs

As noted above, one of the distinctive features of the Omani government's budget has been its rapid growth since the early 1970s. This growth has not been particularly uniform, with the biggest gains coming in the 1970s. In the 1980s, there was a general slowing down in growth for most of the major expenditure categories (Table 4). As a result of this differential rate of expansion, the relative shares of the major expenditure categories have undergone a considerable shift over the years (Table 5):

(1) In 1975, defense accounted for 51.7% of the public sector's expenditures. While this ratio has declined slightly, military expenditures still accounted for 43.9% of the budget in 1987.
(2) Economic expenditures had the second largest share of the budget in 1987, but accounted for only 17.1% of the public sector's allocations.
(3) While education received only 11.3% of the budget in 1987, this represented an increase from 7.7% in 1985 and 2.0% in 1975.
(4) The expansion of debt had reached the point where its size was over 66% of current expenditures, up from 21.3% in 1980.

The rapid shifts in budgetary shares over time suggest that a considerable shift in government priorities may have taken place. While on the surface these shifts would not seem to have affected education in any negative way (given its rapid growth over the period), it is still apparent that certain sectors did expand at rates faster than the country's educational commitments. To

Table 5. Oman: composition of the central government budget, 1972–1987 (percent of central government expenditures)

Category	1972	1975	1977	1980	1982	1985	1987
General public services	13.8	8.1	12.3	17.4	10.8	15.9	13.5
Defense	39.3	51.7	47.6	51.2	49.4	43.0	43.9
Education	3.7	2.0	3.9	4.8	7.7	7.7	11.3
Health	5.9	3.2	2.7	2.9	3.1	4.2	4.8
Housing	3.0	0.1	1.8	0.9	1.4	1.3	1.2
Other social	2.1	2.0	1.4	0.7	1.8	1.7	2.8
Economic	24.4	23.4	26.0	18.4	23.9	23.3	17.1
Administration	0.1	0.6	0.7	1.8	4.2	6.8	5.5
Agriculture	0.4	9.4	1.5	1.8	2.0	2.4	1.4
Mining/manuf.	0.3	0.5	1.2	2.4	5.3	2.4	3.2
Fuel/power	0.1	9.3	6.2	5.5	6.5	5.4	4.2
Roads	6.1	8.3	8.2	6.3	4.2	5.0	2.4
Communications	6.5	2.0	2.2	0.5	1.7	1.3	0.4
Other purposes	7.6	9.5	5.2	2.6	1.5	2.7	5.5
Deficit (−) surplus (+)	−24.6	8.1	11.7	1.1	−18.9	−21.0	−11.0
Debt	21.6	30.8	40.3	21.3	22.2	37.4	66.7

Notes: based on data from: *Government Finance Statistics Yearbook* [3], *International Financial Statistics Yearbook* [4].

Table 6. Oman: budgetary tradeoffs, total education (1974–1987)

Per capita income (YP), debt/revenues (DEBT)
(1) EDU = 0.81 YP + 0.07 DEBT
(3.82) (4.39)
RHO = 0.08, $t = 0.29$, $r^2 = 0.809$; $F = 21.14$; DW = 1.50

Economic services (ECON)
(2) EDU = 0.80 YP + 0.06 DEBT − 0.31 ECON
(6.28) (4.50) (−2.45)
RHO = −0.35, $t = -1.35$, $r^2 = 0.936$; $F = 43.63$; DW = 2.36

Mining, manufacturing and construction (MMC)
(3) EDU = 0.05 YP + 0.07 DEBT + 0.77 MMC
(1.77) (5.72) (2.32)
RHO = 0.01, $t = 0.05$, $r^2 = 0.894$; $F = 25.27$; DW = 1.81

Fuel and energy (FE)
(4) EDU = 0.07 YP + 0.07 DEBT − 0.34 FE
(5.99) (5.80) (−2.75)
RHO = −0.20, $t = -0.80$, $r^2 = 0.924$; $F = 44.51$; DW = 1.75

Roads (ROADS)
(5) EDU = 0.05 YP + 0.05 DEBT − 0.52 ROADS
(2.91) (4.19) (−3.19)
RHO = −0.18, $t = -0.68$, $r^2 = 0.940$; $F = 42.21$; DW = 1.79

Notes: based on data from: *Government Finance Statistics Yearbook* [3], *International Financial Statistics Yearbook* [4]. All budgetary variables are a percentage of government expenditures. ( ) = t-statistic; r^2 = coefficient of determination; F = F-statistic; DW = Durbin–Watson statistic.

determine whether education suffered systematically at the expense of other budgetary categories, an equation (with expected signs) of the following form was estimated for the period 1974–1987:

EDU = [YP(+), DEBT(+), NON-EDUCATION SHARE OF BUDGET (?)]

where

EDU = the share of the budget devoted to education
YP = a control variable, the level of *per capita* income (based on the presumption that the demand for and supply of education increases with income)
DEBT = a financing variable/constraint, the ratio of government outstanding external debt to revenues.

The results (Table 6) of this exercise produced several insights into the country's budgetary process:

(1) In general, education has increased in pace with the country's prosperity—there is a close relationship between the increase in Omani *per capita* incomes and the share of the budget allocated to education.
(2) It appears that a large proportion of the debt accrued since the mid-1970s has gone to expand the country's educational system. In fact, *per capita* income (YP) and the ratio of debt to government revenues (DEBT) accounts for slightly over 80% of the fluctuation in educational expenditures.
(3) Interestingly enough, defense (not shown here) does not affect the share of education in the government's budget. In spite of its large share of the budget, defense expenditures did not expand at the expense of education.
(4) On the other hand, education received competition for funds from economic expenditures in general, and several subcategories of economic services in particular. Adding the share of the budget allocated to economic services to the regression equation, however, only increased the explained fluctuation in the educational share of the budget by approximately 14%.
(5) Within the economic area, education faced some competition for funds from (a) fuel and energy development, and (b) road development.

In short, these results indicate the high priority given to education in the country's development strategy. While the country does commit a large share of its resources to defense, education appears immune to any reductions in its budgetary share stemming from increased allocations to the

Table 7. Oman: factors affecting central government budgetary deficits (1973–1987)

Education/government expenditures (EDU), lagged debt/revenues (DEBTL)

(1) DEFIC = −6.88 EDU + 0.70 DEBTL
(−2.69) (3.67)

RHO = 0.69, $t = 3.58$, $r^2 = 0.581$; $F = 7.62$; DW = 2.53

Defense (DEF)

(2) DEFIC = −2.79 EDU + 0.29 DEBTL + 2.23 DEF
(−2.63) (1.51) (3.14)

RHO = −0.38, $t = -1.55$, $r^2 = 0.625$; $F = 5.56$; DW = 1.77

General public services (GPS)

(3) DEFIC = −2.69 EDU + 0.24 DEBTL + 2.87 DEF + 2.65 GPS
(−3.23) (1.45) (4.74) (2.03)

RHO = −0.66, $t = -3.35$, $r^2 = 0.793$; $F = 8.64$; DW = 2.17

Other social expenditures (OS)

(4) DEFIC = −0.80 EDU + 0.44 DEBTL + 2.35 DEF − 16.81 OS
(−2.00) (0.44) (9.89) (−7.88)

RHO = −0.89, $t = -5.15$, $r^2 = 0.964$; $F = 60.10$; DW = 3.25

Economic services (ES)

(5) DEFIC = −4.38 EDU + 0.74 DEBTL + 1.75 DEF + 2.55 ES
(−1.67) (4.40) (2.18) (2.32)

RHO = 0.72, $t = 3.96$, $r^2 = 0.754$; $F = 6.89$; DW = 1.70

Fuel, power (FP)

(6) DEFIC = −3.61 EDU + 0.26 DEBTL + 2.29 DEF − 4.77 FP
(−4.02) (1.66) (4.07) (−2.50)

RHO = −0.43, $t = -1.79$, $r^2 = 0.789$; $F = 8.42$; DW = 2.67

Notes: based on data from: *Government Finance Statistics Yearbook* [3], *International Financial Statistics Yearbook* [4]. All budgetary variables are a percentage of government expenditures. ( ) = t-statistic; r^2 = coefficient of determination; F = F-statistic; DW = Durbin–Watson statistic.

military. This is in fairly sharp contrast to many countries with high defense expenditures, where, as Looney [6] has shown, education is often sacrificed during times of military expansion.

On the other hand, their findings suggest that the future expansion of education may be increasingly dependent on the country's ability to raise external capital. As previously noted, the country's debt service ratio has increased rapidly in recent years, and this may ultimately limit the rate at which the country can pursue its commitment to human capital formation.

While most external borrowing has not been specifically contracted for expanding education, it is clear that external funds obtained from this source do facilitate the sector's continued growth. This fact is made more apparent when one examines the factors responsible for the year-to-year movements in the government's fiscal deficit.

In an effort to identify those expenditure factors contributing to the increased tendency of the country to run deficits, an additional equation was estimated:

$$\text{DEFIC} = [\text{EDU}(-), \text{DEBTL}(+), \text{DEF}(-), \text{OE}(?)]$$

where

DEFIC = the public sector annual budget deficit (−) or surplus (+)
EDU = the share of education in the budget
DEBTL = the ratio of debt to revenues in the year prior to the one under consideration
DEF = the share of defense in the budget
OE = the share of other (non-education, non-defense) budgetary categories.

Implicitly, it is assumed that both expansions in education and defense are facilitated by increasing the fiscal deficit. However, the size of the fiscal deficit itself is assumed to be constrained by the outstanding debt/service commitments, as proxied by the previous year's debt/revenue ratio. Finally, other budgetary categories, although not large relative to defense, may systematically affect the deficit. They were thus added to the regression equation for completeness.

Again the results produced several important insights into the Omani budgetary process (Table 7):

(1) As expected, increases in the share of education in the budget were facilitated with expanded fiscal deficits. The share of education (EDU) in the budget, together with the previous year's debt service ratio (DEBTL) thus accounted for slightly less than 60% of the fluctuation in the fiscal position.
(2) Contrary to expectation, increases in defense expenditure were not aided by larger deficits. In fact, the reverse was the case—increases in the defense share of the budget were associated with lower deficits/and or surpluses. This finding suggests causation may actually be from the budget situation to defense—military expenditures are allowed to expand in years where financial constraints are not a particular problem.
(3) In terms of other sectors, other social services (OS) also strongly contribute to the deficit. These may have a high emergency component, and thus could easily justify their contribution to the deficit. The same may be the case for fuel and power (FP).
(4) General public services (GPS) and economic services (ES) have positive impacts on fiscal position and most likely can be explained as a luxury similar to the explanation given above for defense expenditures.

More detailed analyses will have to be undertaken to clarify the relationship between such sectors as defense and the country's fiscal position. However, the pattern with education is clear. The high priority given that sector by the government has isolated it from both post-1982 austerity measures, and the encroachment of other categories such as defense.

CONCLUSIONS

From the start, Oman's development proceeded at a rapid pace, but was well planned. By comparison with some of its neighbors, Oman's oil resources were modest. It therefore avoided prestige projects and concentrated on the building of sound infrastructure, and on education and health. By good fortune, the financing of development was greatly aided by the steep increases in world oil prices in the 1970s.

Oman began oil production and general development quite recently. As a result, the country will remain heavily dependent on oil revenues for some time. External asset accumulation has only been proceeding for a few years while the economic base of the country and the shortages of sufficiently skilled Omanis make substantial imports of goods and labor unavoidable. Fortunately, considerable potential remains for finding new and viable oil and gas fields. Further, the relative ease with which Oman finds customers for its oil suggests that the development process will pick up pace again once oil prices and revenues recover. Developments in oil should also increase the external credit worthiness of the country, and allow it to expand its borrowing to the extent that major cutbacks in infrastructure or education can be avoided.

Whereas other Gulf countries are constrained by labor resource limitations, Oman's relatively large indigenous population and the quality of education now being offered to the majority of those of school age suggest that considerable expansion of the non-oil economy may be possible during the Third and Fourth Five Year Plans.

The main threat to such an expansion would appear to lie in the excessive military development plans of the Sultanate. While defense expenditures to not appear to compete with education for budgetary allocations, there is the possibility that the military's competition for non-financial resources might slow down job creation in such sectors as manufacturing to the extent that the demand for education by Omani nationals is reduced. The government should thus avoid at all cost its tendency to expand defense expenditures once oil revenues begin to expand.

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