Defense Analysis Vol. 6, No. 2, pp. 207–210, 1990
Printed in Great Britain.

0743-0175/90 $3.00 + 0.00

Professional Notes

Contributions of between 250 and 1000 words which are concerned with defense issues of the day, new source material, interesting methodological approaches, novel interpretations of defense matters, or comment and reaction to the subject matter and content of the Journal are included in this section. None is refereed, and each submission is included at the Editors' discretion. In the manner and style of similar sections in scientific journals, the objective is to provide a forum for quick response to current developments in defense affairs generally.

The Relative Impact of the Gulf War on Human Capital Development in Iraq

ROBERT E. LOONEY
Naval Postgraduate School, Monterey, CA 93943, USA

INTRODUCTION

It is often argued[1] that the expansion in military expenditures in the Persian Gulf States over the last several decades has led to competition between the military and nonmilitary sectors for skilled labor. Furthermore, military expenditures are said to have preempted funds that might otherwise have been allocated to education and the improvement of human capital. As a result, military expenditures in the region tended to frustrate development plans even in the more affluent oil exporting countries.

Certainly if this thesis is correct, Iraq, particularly following the outbreak of the Gulf War, should be suffering a major decline in its human capital development. Up to the beginning of the war, Iraq had made significant strides in improving its educational system, with special emphasis given to advanced and vocational training. The literacy rate had shown marked improvement by 1980 to 43.4%, although there remained a pronounced difference between male literacy at 62.9% and female literacy at 23.3%. School attendance has been hampered in the years since 1980 by the war and by shortages of staff, especially at the secondary level.

Since 1980, however, the Iraqi economy has been adversely affected by three separate factors. The war itself has caused damage to plant and involved recurrent costs and disruption. Investment policy, influenced by political considerations, permitted high levels of de-

velopment expenditure at least during the early war years. This combined with the stepped level of military expenditures, particularly in the latter war years, to create a rapid expansion in the country's foreign debt. Finally, the international oil glut from 1981 onwards seriously reduced revenues.[2]

Clearly, the ability of Iraq to reconstruct its economy in the years to come will depend to a large part on the country's stock of human capital. The purpose of this Professional Note is to present some preliminary findings on the impact of the Gulf War. Our focus was on the country's investment in education. Has human capital in Iraq deteriorated during the war years and, if so, in what sense? How has human capital development compared with that in Iran? What are the implications for the country's postwar reconstruction?

FRAMEWORK FOR ANALYSIS

The main quantifiable variables pertained to allocations to defense, government expenditures and the public education that may generate human capital. The latter is proxied by the ratio of public education expenditure as a proportion of gross domestic product (GDP). Following Deger,[3] we assume that public education spending as a proportion of the national product is a crucial determinant of human capital formation. If this ratio falls, the rate of growth of human capital may, in all probability, fall too.

As Lebovic and Ashfaq have noted,[4] one of the main difficulties with previous studies was their lack of clarity as to whether the military burden acted in some way as a statistical proxy for government expenditures. To avoid this problem, total government expenditures were included in the analysis in addition to military expenditures, with each defined in terms of a different ratio. Specifically, government expenditures were treated in terms of their share of GNP.

To avoid spurious correlations with government expenditures, allocations to defense were defined in ways other than the traditional military burden (military expenditures share of GNP). Since the literature is unclear as to the most appropriate definition of the defense burden, three alternative measures were used: (a) military expenditures per soldier, (b) the defense share of the central government budget, and (c) the military participation rate—the number of soldiers per 1000 population.

Increases in human capital formation over any period are likely to be affected by the initial level of human capital formation. Specifically, countries with relatively low levels of human capital development are more likely to experience pressures to increase their allocations to education. This process is similar to the capital stock adjustment mechanism whereby investment is likely to be higher the greater the difference between the actual and optimal stock of capital assets.[5] To control for this factor, the rate of human capital development at the beginning of the period (i.e. 1974 for the 1974–1984 interval) was introduced into the regression equation.

Finally, rapid increases in per capita income may reduce the ratio of educational expenditures to GDP particularly in the oil exporting countries where, due to absorptive capacity problems, oil revenues often outrun the government's capability to expand productive expenditures.[6] To achieve unbiased estimates this factor should also be controlled for the share of the government budget at higher levels of per capita income. To control for this factor, the increase in per capita income with the expected negative sign was also introduced into the regression equations.

RESULTS

Our findings indicate that the process of human capital development in the Third World appears to be affected to a certain extent by

the pattern of military expenditures simultaneously undertaken by these states. The patterns vary considerably by subgrouping—Arab vs non-Arab—and by period—the late 1970s vs the early 1980s. In general, these patterns have become more extreme with time.

A major finding was that Arab countries have tended (particularly in the more recent times) to experience positive associations between military expenditures per soldier (and to a certain extent increased military participation rates) and human capital development. On the other hand, increased military expenditures per soldier (and to a lesser extent the military participation rate) appear to have come at the expense of human capital development in the non-Arab world.

During the earlier period, Iraq appears to have followed pretty closely the patterns experienced by most Third World countries, and certainly those of the Arab world. This situation deteriorated somewhat in the second period, however, with Iraq missing many of the apparent linkages between expanded military expenditures per soldier and allocations to education which existed in many other Arab states. On the other hand, there is some evidence that increased military participation during the 1979/1984 period stimulated increased rates of human capital development in Iraq.

As a basis of comparison, Iran appears to have done relatively well with regard to its human capital development, particularly during the earlier period.

CONCLUSIONS

While it might seem intuitively obvious that shifting public allocations toward military expenditures would retard human capital development and hence decrease a country's long-run growth prospects (and presumably increase its dependence on foreign workers), the results presented above indicate that this view is too simplistic. Admittedly, this possibility may hold some validity for many developing countries, but it does not appear to be an accurate description of the process by which resources are allocated in the Arab world. Certainly, in recent years, increases in military expenditure per soldier (and perhaps also the military participation rate) appear to complement the normal allocations to education provided by most states.

Based on the results presented above, one can only speculate as to the mechanisms linking military expenditures and human capital formation in the Arab world. Given shortages of skilled labor in Iraq,[7] the government may have assigned a very high priority to attracting available skilled labor to the military services.[8]

More likely, the Iraqi government has opted to subsidize education for increased numbers of civilians during periods of stepped up military expenditures with the understanding that upon completion of training those individuals will serve some time in the military. This strategy would allow the military to absorb the large volume of sophisticated weapons flowing into the country without requiring drastic increases in the number of foreign military advisers.

This interpretation is consistent with the results obtained above. Given the fairly high correlation between military expenditures and government revenues in the region,[9] allocations to both defense and education could increase fairly rapidly without either category experiencing significant changes in its share of the budget. Because of the low skill levels of the local population, it is unlikely that rapid increases in military expenditures per soldier and in the number of soldiers per capita could be absorbed without accelerated training programs both within and outside the military.

The results presented here suggest that additional estimates should be undertaken, in particular the impact on economic activity of other types of government expenditures—

especially those going to administration and services. It may well turn out that these expenditures have even higher opportunity costs in terms of labor shortages and/or reduced levels of educational attainment.

NOTES

1. Best articulated in J. Cummings, H. Askari and M. Skinner, Military expenditures and manpower requirements in the Arabian Peninsula. *Arab Studies Quarterly*, pp. 38–49 (Winter 1980).
2. G. Joffe and K. McLachlan, *Iran and Iraq: the Next Five Years*, p. 19. Economist Intelligence Unit, London (1987).
3. S. Deger, Human resources, government education expenditure, and the military burden in less developed countries. *Journal of Developing Areas*, pp. 42–43 (October 1985).
4. J. Lebovic and Ashfaq, Military burden, security needs, and economic growth in the Middle East. *Journal of Conflict Resolution*, p. 110 (March 1987).
5. Cf. M. K. Evans, *Macroeconomic Activity: Theory, Forecasting and Control*, Chap. 4. Harper & Row, New York (1969).
6. For an excellent description and application of the concept of absorptive capacity see R. El Mallakh and J. K. Atta, *The Absorptive Capacity of Iraq*. Lexington Books, Lexington, MA (1981).
7. Documented in A. S. Mehdi and O. Robinson, Economic development and the labor market in Iraq. *International Journal of Manpower*, pp. 3–39 (1983).
8. A possibility noted by Cummings *et al.*, *op. cit.*, p. 42.
9. Cf. R. E. Looney, The impact of defense expenditures on the Saudi Arabian private sector. *Journal of Arab Affairs*, pp. 198–229 (Fall 1987).

Defense Analysis Vol. 6, No. 2, pp. 210–212, 1990
Printed in Great Britain.

0743–0175/90 $3.00 + 0.00