

**Military Expenditure vs. Human Development Expenditure:
Changing Global Structure and Trend in the Post-Cold War Period**

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There has been continued decline in the defence expenditure in the post cold war security scenario across the globe (UNDP, 1991; Singh, 1998). The defence expenditure which was 1360 billion US dollar in 1987, declined to 727 billion US dollar in 1997(Singh, 1998).

The socio-economic scenario in the world today is characterised by a sharp divide in literacy, infant mortality rate, and per-capita income in general and human development in particular. Human development index (HDI) of the developed countries with high HDI ranged in between 0.939 for Norway to 0.801 for Qatar, for the medium human development countries it was 0.798 for Trinidad and Tobago to 0.502 for Congo and for the low human development countries it was 0.498 for Pakistan to 0.258 for Sierra Leone. Considering the magnitude of regional variations in human development, there is a tremendous need to increase the human development expenditure particularly in the area of health and education.

Between the year 1960 and 1987 military spending in developing countries had risen three times faster than in the industrial countries (UNDP,1991). North-South division in arms purchase was also sharp and HDR (Human Development Report) 1991 pointed out that South's combined GDP was only 15% that of the North's but it bought 75% of the arms traded (ibid). Considering the menace of military spending, HDR1991 pointed out "even if Third World military spending were merely frozen for the next few years, rather than rising annually at 7.5%, this would release \$10-15 billion each year for human development – a peace dividend that would take care of many essential items on human agenda for the 1990s" (UNDP.1991, p. 82). Therefore the present paper is an attempt to analyse the trend in military expenditure in the 1990s among the different countries of the world and to examine the trend relationship between defence expenditure and human development expenditure.

Inequality in Military and HD Expenditure

The following Table shows the composition of World Military expenditure vis-à-vis other developmental indicators for the year 1999.

Table.1

Category	Number and %	Military Expenditure (Million US\$)	% Share in World GDP	% Share in total military expenditure	% Share in World Population	Per-capita military expenditure (US\$)	Military expenditure as a % of GDP	Per capita Education Expenditure (US\$)	Per capita Health Expenditure (US\$)
HHDC	48, (29.63)	551735.8	82.77	81.5	17.97	523.77	2.22	1200.95	1421.46
MHDC	78, (48.15)	116394.5	16.39	17.3	68.03	29.17	2.35	49.28	13.99
LHDC	36, (22.22)	8178.6	0.84	1.2	13.94	10.00	3.22	6.83	3.7
All				100	100	115.38		250.33	265.49

Abbreviations: (HHDC: High Human Development Countries, MHDC: Medium Human Development Countries, LHDC: Low Human Development Countries)

Source: Computed from Human Development Report 2001 (UNDP, 2001).

Note: The data related to education refers to the period 1995-97. The other data refers to the period 1999.

The Table shows the share of expenditure of different groups of countries in the World in different areas in 1999. In terms of command over resources it is revealed that 17.97 percent of the World population living in the high human development countries had GDP share of 82.77 percent, 68.03 percent of the population living in the medium human development countries accruing for 16.39 percent of the World income and 13.94 percent of the population living in the low human development countries were getting only 1.2 percent of the World income. Therefore, one may infer, the presence of large-scale inequality in command over resources among the countries across the globe.

In terms of military expenditure also high human development countries were responsible for 81.5 percent of the global military expenditure where as the share of the medium and low human development countries were 17.3 and 1.2 percent respectively. The per capita military expenditure of the high, medium and low human development countries were 523.77, 29.17 and 10.00 US dollar respectively in 1999. When a comparison is made taking the military expenditure as a percentage of GDP, the ratio of the high human development countries comes to 2.2 percent. The ratios for the medium and low human development countries are 2.35 and 3.22 percent respectively.

Thus one may infer that though the per capita military expenditure of the high human development countries is high, the burden of military expenditure is severe in low human development countries. There is also a greater degree of inequality among the countries when a comparison is made between the per-capita military expenditure vis-à-vis health and education expenditure. The high human development countries were spending a high per capita amount of 1200 and 1421.46 US\$ in education and health. The per capita spending of medium and low

human development countries in health were 13.99 and 3.7 US\$ and in education were 49.28 and 6.83US\$ respectively. Given the prevalence of inequality in the expenditure level in military as well as human development sectors

it is of importance to examine the trend in military and human development expenditure of the countries during the post cold war era.

Trend in World Military Expenditure (1990-99)

Military expenditure as a percentage of GDP is available in HDR 2001 for two time periods namely 1990 and 1999. In order to examine the trend in military expenditure between 1990-99 the following model is formulated.

$$Y_{it} = a + b_1D_1 + b_2D_2 + u$$

Here, Y_{it} = Military expenditure of the i th country in time 't' = 1991 and 1999; a , b_1 and b_2 are the coefficients; 'u' is the disturbance term. D_1 is a dummy variable representing country and takes value '0' for high human development countries and takes value '1' for medium and low human development countries. D_2 is a dummy variable representing time and takes value '0', when the time is 1990 and takes value '1' when the time is 1999.

In total for 124 countries, the military expenditure data are available for the time 1990 and 1999. The estimated equation is,

$$Y = 3.14 - 0.152D_1 - 0.931D_2$$

(6.912)*** (-0.266) (-1.742)*
 $R^2 = 0.12, F = 1.556, N = 248$
 * Shows significance level at 10%.
 Parenthesis shows the 't' statistic.

The above equation reveals that the military expenditure has declined in 1999 as compared to 1990 because the coefficient of D_2 is negative and statistically significant. On the other hand the coefficient of the other dummy variable is not statistically significant. Therefore a feeble conclusion can be derived that the military expenditure of the medium and low human development countries has declined during the same time period.

Because of the problem mentioned above the exercise is carried out by grouping the countries into high, and low human development countries. The country specific dummy variable is omitted here. A new explanatory variable i.e. Human Development Index (HDI) ranking of the countries is taken. The estimated equation is given below.#

Dependant variable: Percentage of military expenditure as a percentage of Gross Domestic Product	
High human development countries	$Y = 2.008 - 1.98D_2 + 0.105 \text{ HDI}$ (1.53) (-1.636)* (2.309)** $R^2 = 0.06, F = 1.36, N = 96$
Medium human development countries;	$Y = 4.619 - 1.151D_2 - 0.012 \text{ HDI}$ (4.13)*** (-2.13)** (1.16)*

	$R^2 = 0.05, F = 2.673^*, N = 113$
High human development countries;	$Y = 0.661 + 685D_2 + 0.0175 \text{ HDI}$ (0.08) (0.588) (0.311) $R^2 = 0.06, F = 1.36, N = 57$
*. **. *** Shows significance level at 10%, 5% and 1% respectively. Parenthesis shows the 't' statistic.	

On the basis of the above equations following conclusions are derived.

- * In high and medium human development countries the military expenditure has declined over time in between 1990-99, as the coefficient of D_2 is negative and statistically significant. In the case of low human development countries the coefficient is positive and statistically insignificant which implies weakly that military expenditure has increased.
- * In the high human development countries with the increase in HDI ranking i.e. with decline in HDI indices, military expenditure increases. The effect is statistically significant.
- * In the case of medium human development countries, with the increase in HDI ranking military expenditure declines.
- * The impact of HDI ranking on the military expenditure is positive in low human development countries, implies that low HDI ranked countries spend more in military.
- * Finally a broad conclusion can be derived, that is military expenditure as a percentage of GDP is quite high for the countries ranking low in the category of high human development countries and ranking high in the category of medium human development countries.

Trend and Determinants of HD Expenditure

In the preceding analysis it was observed that during the 1990s there has been a decline in military expenditure of the countries in general, and an increase in the low ranking high human development countries and high ranking medium human development countries. Therefore it is of importance to examine, the existence any trade-off between military expenditure and human development expenditure. In this context the determinants of human development expenditure is quite important. Here expenditure in two major component of Human Development i.e. health and education is examined using the following model.

$$Y_{it} = a + b_1D_1 + b_2D_2 + b_3HDI + b_4DEBT + b_5MIL + u$$

Here Y_{it} is expenditure on education and health in country 'i' in time period 't', where $t = 1990$ and 1999 ; 'a' is the constant term and b_i 's (i= 1 to 5) are the coefficients. D_1 is a dummy variable representing country and takes value '0' for high human development countries and takes value '1' for medium and low human development countries. D_2 is a dummy variable representing time and takes value '0', when the time is 1990 and expenditure as a percentage of

GDP of the country. Data was collected from Human Development Report 2001. Following are the estimated equations taking all the countries.

$Y_{(\text{edu})} = 3.836 + 0.463D_1 + 0.255D_2 - 0.0081 \text{HDI} + 0.034 \text{MIL} + 0.089\text{DEBT}$ $(6.896)^{***} \quad (0.822) \quad (0.88) \quad (-1.594) \quad (0.633) \quad (3.837)^{**}$ $R^2=0.13, F= 4.44^{***}, N=152$
$Y_{(\text{health})} = 3.651 - 0.659D_1 + 0.71D_2 - 0.13 \text{HDI} + 0.018 \text{MIL} + 0.027\text{DEBT}$ $(8.037)^{***} \quad (1.457) \quad (3.066)^{***} \quad (-3.437)^{***} \quad (0.385) \quad (1.629)^*$ $R^2=0.24, F= 8.843^{***}, N=146$
<p>*. **. *** Shows significance level at 10%, 5% and 1% respectively. Parenthesis shows the ‘t’ statistic.</p>

On the basis of the above equations the following conclusions can be inferred.

- * Higher is the debt position of the country higher is the expenditure on education and health, and the impacts are statistically significant.
- * The health expenditure has increased significantly during the time 1990 –1999; where as the increase in education is not statistically significant.
- * The health expenditure declines significantly with increase in the HDI ranking of the country and the decline in education expenditure is statistically not significant.
- * Expenditure on education and health is positively related with military expenditure. However the relationships are statistically not significant.

Conclusion

The above analysis reveals some disturbing trend in military expenditure of the countries. The military expenditure in general has declined. As a percentage of GDP, low ranked countries among the high human development countries and high ranked countries among the medium human development countries have increased their military expenditure during 1990-1999. The most serious conclusion is that the low human development countries have increased their military expenditure over the same period of time. The decline in military expenditure has not exerted any significant impact in the increase in human development expenditure; rather external borrowings influence it more. The low level of per capita expenditure on health and education by the medium and low human development countries, calls for a serious thinking about their financing of human development – should it be through more debt or through reduction in military expenditure? Hence the same optimistic hope of HDR 1991, stands unfulfilled today “there is no inherent drive yet in the developing countries towards a major reduction in arms expenditure. Establishing a peace machinery and encouraging more active peace negotiations could provide the necessary impetus. Peace and human development go together. Restructuring budgets to advance human development ... would call for the attainment and use of the peace dividend. And enhanced human development would help stabilize peace”(UNDP, 1991,p.83).

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