

Freedom Index. Such indices cannot, however, be used to draw precise comparisons (for example, to contrast changing levels of social and military spending). Finally, no one has created adequate measures for such things as "security" or "militarization," although a range of indicators, from military expenditure per capita, to the number of soldiers per thousand, to the presence of officers in government, have been used or suggested.³⁵ This report makes use of the first two measures in an attempt to capture indirectly the military "presence" in a state.

A second conceptual problem concerns the *timing* of the expected effect of military expenditure, on such things as economic growth prospects. Most studies (including this one) rely on "snapshots" of data that capture levels of military expenditure and other economic and security indicators at one moment. Yet any relationship, between levels of military expenditure and economic growth for example, should be apparent only over a long time-scale, and perhaps with variable lags. Statistical manipulations designed to capture an effect at a particular point are unlikely to find significant correlations. Hence in Figure 1, for example, recent levels of military expenditure (which have been declining in most states over the past decade) were compared against the average rate of growth over a 13-year span. This sort of figure does not allow comparisons of the impact of military spending on growth, or of changes in spending on changes in growth over time (although the studies that have attempted to do so have been noted in this report). Longitudinal time-series can help solve this problem, but the amount of time and energy required to collect and analyze the data becomes enormous, and the "value-added" by such an exercise remains questionable. Such data is presented in the regional case studies below.

The third conceptual issue concerns the question of *opportunity costs*, which are at the heart of the expectation that military spending has a negative impact on economic growth or social welfare. Simple assertions or analyses of opportunity costs do not work, for two reasons. First, resources are not easily fungible between different uses. Second, the concept of opportunity costs assumes a comparable measure of "output": a certain amount of money spent on defence will provide one unit of "well-being" whereas the same amount spent on health care will provide two units of "well-being." But since we have no way of specifying what a unit of "well-being" might look like, we are actually comparing apples and oranges!³⁶ It is also difficult to argue in the abstract that economic growth should be given priority over subjective (and perhaps genuine) perceptions that physical survival would be threatened if resources were taken away from the armed forces.

³⁵ Andrew Ross, "Dimensions of Militarization in the Third World," *Armed Forces and Society*, 13:4 (Summer 1987), 561-578.

³⁶ See David Dabelko and James McCormick, "Opportunity Costs of Defense: Some Cross-National Evidence," *Journal of Peace Research* 14:2 (1977), 145-154, and, for the critique, Carl Hampus Lyttkens and Claudio Vedovato, "Opportunity Costs of Defence: A Comment on Dabelko and McCormick," *Journal of Peace Research* 21:4 (1984), 389-394.