The Impact of the Military on the Physical Quality of Life in Latin American Nations

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The purpose of this paper is to assess the impact of influential militaries on the physical quality of life in Latin American nations. While a considerable number of researchers have examined the relationship between military influence and the socio-economic development of Third World states, few have attempted to determine the ramifications of that influence on the effected citizens' lives.

The nations to our south deserve focused analysis because "there are fundamental differences in the natural history of militarism in South America. The forms of military intervention represent more than a century of struggle and accommodation which has produced political institutions different from those found in the new nations."

The Literature

Lucian Pye suggested that militaries are some of the most, if not the most, technologically advanced organizations in the Third World. Others have argued that the military's awareness of technological developments places it in a position to lead modernization of Third World nations. Johnson points out that in addition to the military's cognizance of technology, "social economic background, social status, and professional experience have combined to give officers, as a group, characteristics that influence their thinking when they intrude in civilian politics." Furthermore, Johnson contends that the soldiers' middle class backgrounds produce politicos sympathetic to the needs of the working class. Social and economic programs designed to redistribute the wealth in class stratified nations are, therefore, enhanced when middle class soldiers control the political institutions.

In addition to the military's middle class values and its pursuit of technological advancements, the armed forces possess the ability to coerce and remain cohesive in periods of turmoil. This, some argue, provides soldier-politicians the necessary political control to pursue developmental policies.

On the other side of the question, a number of studies have concluded that politically influential militaries will lobby for federal funds for military technological advancement, often at the expense of social programs. The military will, some suggest, deliberately sabotage attempts at social reform in an effort to minimize the development of competing forces. Arturo Valenzuela suggests that the military overthrow of Chile's Allende was due
in large part to the interference of civilian groups in the internal affairs of the military and the threat that the military was losing much of its political influence. The 1963 coup in Honduras, led by Colonel Castillo Armas might be another example of a threatened military attempting to protect its self-interest. Victor Villanueva concluded that every government of Peru that has attempted to reduce the military budget has been overthrown.

Others do not accept the notion that the military deliberately pursues policies detrimental to social change. Instead, they claim that the military is not prepared to lead national politics. According to Jae Souh Sahn: . . . meager education, internal cleavages, separateness from civilian society, and lack of appropriate political skills are factors that limit the capacity of the [armed forces] . . . to provide effective political leadership for a country striving for economic development . . .

Samuel Huntington concluded that there may not be as much conflict between the arguments noted above as one might expect. He suggested that in some situations militaries do advance social change, but in others they act as a regressive, or at least a conservative, force. Huntington observed that: . . . as society changes, so does the role of the military . . . the more backward a society is, the more progressive the role of the military; the more advanced a society becomes, the more conservative and reactionary becomes the role of the military . . . In the former case, the military . . . promote social and economic reform, national integration, and in some measure, the extension of political participation . . . If, however, a society moves into a phase of mass participation . . . the military becomes engaged in a conservative effort to protect the existing system against the incursion of the lower classes.

Huntington's proposition has been subject to empirical analyses in recent years. The preponderance of the evidence available today suggests that the military has virtually no impact on social change in developing nations irrespective of the nation's level of development. The result has been a general rejection of Huntington's hypothesis.

The approaches used in most analyses of Huntington's hypothesis have not examined the influence of the military. Instead they have developed either a dichotomy between military and non-military regimes, or measured the number of months the military held the reins of political power. Both of these approaches assume that the military is either in or out of power. The military may be an important influence in civilian regimes, and civilian interest groups may be important influences in military regimes. Even though the military virtually dominated every formal political institution at one time or another during the 1960s in Argentina, Brazil, Ecuador and Peru, the influence of the civilian technocrats was never eliminated. Few would argue that the Mexican military has not had influence with Presidents Diaz, Echeverria or Portillo. The important point of this discussion is that the either/or approach, while convenient for analytical purposes, probably is not an appropriate model of reality.
Implicit in Huntington's works, but ignored by most analysts, is the idea that the educated middle class (white collar and professionals) are more likely than any other group to pressure the political institutions for reform, irrespective of who controls those institutions. Adelman and Morris recognized the importance of this group but were never able to adequately measure its political influence.

The political influence possessed by the educated middle class may have a significant impact on the military's ability to pursue policies of reform or stabilization. On the one hand, the educated middle class may assist the military in their efforts for reform in lesser developed nations. On the other, the middle class may obstruct the military's ability to stall social change.

To summarize the literature—the impact that the military has on social change in Latin American nations is a bit of an enigma to analysts at this time. Some researchers have concluded that the military has a positive impact on social change while others have concluded that the effect is either negative or non-existent. Huntington suggested that all of these interpretations are correct, depending upon the level of development of the nation examined. According to Huntington, militaries in lesser developed nations will enhance social change while militaries in the more developed states will undermine that change. Secondly, Huntington and others suggest that the influence of the middle class, particularly as that influence is assimilated into the values of the soldier politicians, will have an impact on the relationship between the military and social change.

This paper will examine the relationship between the political influence of the military and the change in the physical quality of life in Latin American nations. We will also attempt to determine if the influence of the middle class has any bearing on that relationship.

Methodology

To determine the change in the physical quality of life in 20 Latin American nations between 1960 and 1970 the Physical Quality of Life Index (PQLI) developed by the Overseas Development Council (ODC) in 1977 is used. The PQLI, which measures the degree to which a nation is meeting the minimum human needs of its people, has been widely used since its inception.

We have long recognized the deficiency of income and GNP as measures of development. The standard of living is often better in nations with lower income and GNP than other nations seemingly more economically sound. The PQLI is not a measurement of development, though, it is a measurement of how well that development has actually addressed the needs of the people. This index measures "three apparently universal concerns;" infant mortality rates, literacy rates, and life expectancy. The originators of the index argue that it: 1) does "not assume that there is
only one pattern of development; 2) . . . avoid[s] standards that reflect the values of specific societies; 3) . . . measure[s] results, not inputs; 4) . . . reflect[s] the distribution of social results; 5) . . . is easy to construct and comprehend; and 6) . . . lend[s] itself to international comparison." 27

The founders of the PQLI surveyed over 100 indicators of development and/or welfare and concluded that "only three—infant mortality, life expectancy, and basic literacy—meet the [six] criteria set out above." 28 The index is an unweighted summation of the three elements transformed to result in a 0 to 100 scale. Since the ODC’s survey of PQLIs is incomplete for many nations examined in this analysis, the author was forced to collect the necessary raw data and compute the index through the various formulas specified by the ODC. 29

The Physical Quality of Life Index does not consider such things as political and religious freedom, freedom from persecution, or freedom of mobility. Instead, it focuses on how well a government is meeting the "basic needs for food, sanitation, medical care, education, and all other necessities that determine life expectancy, infant mortality and literacy." 30 The founders of the index make no pretense that it measures the overall quality of life for inhabitants of specific nations, only the physical "distribution of services that contribute to basic human requirements for life." 31

Once the PQLIs for 1960 and 1970 were determined for each country, a scheme to measure the change during the decade was necessary. The simplest procedure would have been to subtract each nation’s PQLI for 1960 from the PQLI for 1970. But, it was feared that this would give biased results. As an example the PQLI for the Dominican Republic in 1960 was 59, and increased to 68 in 1970, a 9 point improvement. In Venezuela the PQLI increased from 70 to 79 during the same period. Obviously, Venezuela’s improvement was the same, in terms of points gained, as the Dominican Republic’s. But, we would expect it to become more difficult to increase the PQLI as a nation moves closer to 100. A nation with a 99 percent literacy rate in 1960 would have more difficulty improving that rate 1 point by 1970 than would a nation with a literacy rate of 49 percent. Therefore, the following formula was designed by this author to adjust for the absolute level of the PQLI while still taking into account the observed change:

\[
PQLI_a = \frac{(PQLI_c - PQLI_b) \times PQLI_b}{100}
\]

Where PQLI_a is the measurement of how much the PQLI improved from 1960 to 1970; PQLI_b is the PQLI for 1960; and PQLI_c is the PQLI for 1970. Multiplying the difference by the absolute value in 1960 means that a nation with a higher starting point will receive more credit for a similar change than a nation with a lower starting point. Back to our example—adjusted improvement in the PQLI of the Dominican Republic is:

\[
PQLI_a = \frac{(68 - 59) \times 59}{100} = 5.31;
\]
whereas the same measure for Venezuela is:

\[ PQLI_a = \frac{(79 - 70) \times 70}{100} = 6.30. \]

In this manner both change and the absolute level of PQLI are considered.

The advantage of the PQLI over individual measurements of the three components of the PQLI is that each culture or society may stress different programs to improve the quality of life of their residents. The PQLI allows for these cultural differences.

James Torres' ratings of interest group power in Latin American countries is used to determine the political influence of both the military and the educated middle class. Professor Torres sent questionnaires to "political scientists recognized as specialists in Latin American affairs."

From the responses to his survey, plus a measurement of the size of the various interest groups, Torres developed a rating of the political power of numerous interest groups, including the educated middle class and the military, in each Latin American nation. Torres computed the standard deviation for the ratings of each group's influence in individual Latin American nations and found a high level of agreement among his respondents.

Zero order correlation coefficients will be calculated between the Physical Quality of Life Index and the influence of the military. The advantage of this coefficient over the more commonly used regression coefficient is that the results of zero-order correlation indicate the direction of the relationship. Since we want to know if the military is positively or negatively affecting the physical quality of life in Latin America, this coefficient was considered most appropriate for our data.

The political influence of the educated middle class and the economic development of each nation will act as control variables. The nations will be categorized into one of two groups depending upon whether they are in the pre-industrial revolution or industrial revolution stage of development. The relationship between the PQLI and military influence will be compared within and between each group.

A second method of control will be used to eliminate the influence of the educated middle class on the PQLI within each category of economic development. This method, partial correlation, also shows direction and is useful when the number of cases is too small for categorical controls. Though we are dealing with a population and not a sample, we will arbitrarily set the level at which we reject the null hypothesis at \( \cdot05 \).

**Analysis**

The data in Appendix I indicate that the physical quality of life improved in all 20 Latin American nations between 1960 and 1970. But, as would be expected, the degree of improvement varied significantly. Columbia improved the most while Uruguay and El Salvador improved the least. The influence of the military in each of the nations of Latin America during the 10
year period from 1960 to 1970 was not found to be associated with the
degree of improvement in the Physical Quality of Life Index. The product
moment correlation coefficient between PQLI and military influence is
\( -0.0951 \) which is not significant at the \( .05 \) level (See Table 1). Much of
the recent literature would lead us to expect this result.

Huntington suggested that it is not enough to look at all nations—that
the military will affect social change differently depending upon the level of
development of the nations in question. When we categorize the Latin
American nations as either in the pre-industrial stage of development or the
industrial revolution stage of development our results change somewhat. The
data in Columns 2 and 3 of Table 1 indicate that when this division is
made, the impact of the military on the PQLI in the more industrial nations
of Latin America is still relatively minor (\(-0.148\)). But, the impact in the
pre-industrial nations is increased to a positive \(0.421\). Though neither of
these statistics is statistically significant, the results are interesting. These
results suggest that in pre-industrial revolution Latin American nations, the
more influential the military, the more improvement we will find in the
PQLI. The correlation for industrial revolution nations is too weak to make
any judgements about. Huntington indicated that the militaries in the pre­
industrial nations will “promote social and economic reform” to a greater
extent than in the more industrialized nations. So, we might conclude that
our findings support Huntington, though the correlations found may have
occurred by chance.

The influence of the educated middle class appears to have an impact
on the relationship between the military and the change in the PQLI. The
data in Table 2 display a surprising result. When the interfering effects of
the educated middle class are removed, the impact of the military on politics
is highly related to the physical quality of life in both the more industrial
and pre-industrial nations. The resulting coefficients of \(-0.888\) for in­
dustrial revolution nations and \(+0.642\) for pre-industrial revolution na­
tions are both significant at the .05 level of significance. This result suggests
that once the political influence of the educated middle class is removed, the
military is a fairly conservative force in the industrial revolution nations. It
appears, on the other hand, to be a progressive force in the pre-industrial
revolution nations. This finding, unlike the results of most recent research,
supports Huntington’s thesis that the military is a conservative force in the
more industrial nations of Latin America, as long as it does not have to con­
tend with a politically potent middle class.

Most recent research has not found the influence of the military to be
an adequate predictor of a system’s performance. Our findings suggest that
both the military and the middle class have an important influence on the
improvement in the physical quality of life in Latin America. It might be in­
teresting to note how accurately we can predict a change in the physical
quality of life knowing the influence of both the military and middle class. Using the least squares regression approach we find that knowing the influence of both the military and the middle class we can predict the level of improvement in the PQLI with a high degree of accuracy. In fact, knowing the political influence of the military and middle class in either the industrial revolution or pre-industrial revolution nations in Latin America, we can account for 81 percent of the variance in the PQLI (See Table 3).

Conclusion

Unlike most recent studies which have concluded that the military has little effect on the system’s performance, this analysis has provided information to suggest that the military has at least a potential for that influence, if the efforts aren’t subverted by the middle class. We found a curvilinear relationship between military influence and improvement in the physical quality of life in Latin America when the effects of the middle class are removed (See Charts 1 & 2). If our assumptions of causality have any validity, in the pre-industrial states the military is a positive force, but in the industrial revolution states, the military becomes a more conservative force. This finding supports Huntington’s thesis.

Our measure of change, PQLI, is a desirable indicator of the system’s success in meeting the needs of the citizens, but there are many more factors that should be examined. In future research, indicators of economic and political change, as well as social, political and religious freedom should be examined closely in order to determine what impact the military has on the overall quality of life in Latin America.

TABLE I

Zero Order Correlation Coefficients Between Military Influence and PQLI

<table>
<thead>
<tr>
<th>Influence of The Military</th>
<th>PQLI All Nations</th>
<th>PQLI—Industrial Revolution Nations</th>
<th>PQLI—Pre-Industrial Revolution Nations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$r = -0.095$</td>
<td>$r = -0.148$</td>
<td>$r = +0.421$</td>
</tr>
<tr>
<td><em>(n/a)</em></td>
<td><em>(n/a)</em></td>
<td><em>(n/a)</em></td>
<td><em>(n/a)</em></td>
</tr>
</tbody>
</table>

*figures in parentheses represent the level of significance for each correlation coefficient (‘n/a’ = above .05).
### TABLE 2

Partial Correlation Coefficients Between Military Influence and PQLI Controlling for Influence of Educated Middle Class

<table>
<thead>
<tr>
<th>Influence of Military</th>
<th>PQLI—Industrial Revolution Nations</th>
<th>PQLI—Pre-Industrial Revolution Nations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$r = -0.888$</td>
<td>$r = +0.642$</td>
</tr>
<tr>
<td></td>
<td>$(0.005)$</td>
<td>$(0.05)$</td>
</tr>
</tbody>
</table>

*Figures in parentheses represent the level of significance for each correlation coefficient.*

### TABLE 3

Ordinary Least Squares Regression Coefficients Between PQLI and the Influence of the Military and Middle Class

<table>
<thead>
<tr>
<th>Influence of Military</th>
<th>PQLI—Industrial Revolution Nations</th>
<th>PQLI—Pre-Industrial Revolution Nations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$r^2 = 0.022$</td>
<td>$r^2 = 0.177$</td>
</tr>
<tr>
<td></td>
<td><em>(n/a)</em></td>
<td><em>(n/a)</em></td>
</tr>
<tr>
<td>Influence of Middle Class</td>
<td>$r^2 = 0.102$</td>
<td>$r^2 = 0.683$</td>
</tr>
<tr>
<td></td>
<td><em>(n/a)</em></td>
<td><em>(0.01)</em></td>
</tr>
<tr>
<td>Influence of Military and Middle Class</td>
<td>$r^2 = 0.810$</td>
<td>$r^2 = 0.813$</td>
</tr>
<tr>
<td></td>
<td><em>(0.01)</em></td>
<td><em>(0.01)</em></td>
</tr>
</tbody>
</table>

*Figures in parentheses represent the level of significance for each correlation coefficient ('n/a' = above 0.05)
CHART I
Pictorial Representation of Relationship Between Strength of Military and Improvement in PQLI with Effects of Military Removed—Pre-Industrial Revolution Nations

CHART 2
Pictorial Representation of Relationship Between Strength of Military and Improvement in PQLI with Effects of Military Removed—Industrial Revolution Nations
### APPENDIX I

<table>
<thead>
<tr>
<th>NATION</th>
<th>STAGE OF DEVELOPMENT*</th>
<th>CHANGE IN PQLI 1960–70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>Bolivia</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>Brazil</td>
<td>2</td>
<td>3.1</td>
</tr>
<tr>
<td>Chile</td>
<td>2</td>
<td>6.8</td>
</tr>
<tr>
<td>Colombia</td>
<td>2</td>
<td>7.9</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>1</td>
<td>5.4</td>
</tr>
<tr>
<td>Cuba</td>
<td>2</td>
<td>7.2</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>1</td>
<td>5.3</td>
</tr>
<tr>
<td>Ecuador</td>
<td>1</td>
<td>4.2</td>
</tr>
<tr>
<td>El Salvador</td>
<td>1</td>
<td>3.4</td>
</tr>
<tr>
<td>Guatemala</td>
<td>1</td>
<td>3.6</td>
</tr>
<tr>
<td>Haiti</td>
<td>1</td>
<td>2.2</td>
</tr>
<tr>
<td>Honduras</td>
<td>1</td>
<td>5.2</td>
</tr>
<tr>
<td>Mexico</td>
<td>2</td>
<td>4.6</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>1</td>
<td>5.2</td>
</tr>
<tr>
<td>Panama</td>
<td>2</td>
<td>6.4</td>
</tr>
<tr>
<td>Paraguay</td>
<td>1</td>
<td>7.8</td>
</tr>
<tr>
<td>Peru</td>
<td>1</td>
<td>3.6</td>
</tr>
<tr>
<td>Uruguay</td>
<td>2</td>
<td>1.7</td>
</tr>
<tr>
<td>Venezuela</td>
<td>2</td>
<td>6.3</td>
</tr>
</tbody>
</table>

*1 = pre-industrial revolution; 2 = industrial revolution

### NOTES


Cited in Needler 1975, op. cit.


A similar argument is expressed by Ronfeldt, Ibid.


Morris, op. cit. pp. 7–19.

Ibid, see pp. 20–40 for a discussion.


Ibid, pp. 15–19.

The formulas are specified in Ibid, pp. 41–50 and in respective footnotes.


Ibid.


Torres also looked at the political power of the church, urban-blue collar, rural labor, industrialists and landed oligarchy.


These categories are modifications of the categories employed by Bruce M. Russett, World Handbook of Political and Social Indicators. (New Haven: Yale University Press, 1964) in which he utilizes the classifications of "Traditional," "Transitional," and "Industrial Revolution." His other categories are not applicable to this study.


Actually, significance levels are irrelevant when one is examining an entire population. They are used here simply to satisfy the common expectations of social scientists. For a discussion see Blalock, op. cit. pp. 151–155.