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SOCIAL SECURITY AND PHYSICAL QUALITY OF LIFE IN DEVELOPING NATIONS: A CROSS-NATIONAL ANALYSIS

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ABSTRACT. Much research has been done assessing cross-national variation in level of social security program development, but very little analysis has been done of the link between social security development and social welfare outputs such as physical quality of life. There is much debate as to whether any independent effect remains once differences in level of development are taken into consideration. Hypotheses derived from several general theories of inequality and welfare state development are tested. The analysis is based in part on a cross-sectional sample of 80 developing nations and in part on a pooled sample for 1970 and 1975. We find strong support for hypotheses derived from industrialism theory and demographic modernization theory. In addition we find support for hypotheses derived from dependency theory and ethnic conflict theory and some effect for social security spending. Also of note is our failure to find support for hypotheses derived from democratic theory or class (working class strength) theory.

In recent years there have been a number of studies of cross-national differences in social security (welfare state) development. Many focus on welfare input measures, such as government expenditures for social security programs (Richter and Parrish, 1983; Wilensky, 1981; Hewitt, 1977; Cutright, 1967b; Aaron, 1967) while others consider measures of welfare output such as mortality, life expectancy, and nutrition (Weatherby et al., 1983; Rodgers, 1979; Morris, 1979; Haniff, 1976). Few, however, make a systematic effort to assess the link between welfare inputs and real welfare outputs.

The strength of the link between social security input and welfare output has important implications for the validity of theories of inequality and welfare state development, particularly those linked to the neo-Marxist and Social Democratic perspectives. This link is also an issue of major interest to planners and policy makers, to say nothing of the critics and defenders of social security programs and the tax policies needed to finance these programs. Given the large sums of money spent on such programs, the fiscal burdens that have come to be associated with such spending (Ross, 1979; Fisher, 1978), and the pressures to reduce spending on these programs (Hibbs and Madsen, 1981; Wilensky, 1976), there is a pressing need for research directed at assessing the relationship between social security spending and the
resulting physical quality of life, particularly physical quality of life among the poor.

It is also necessary to consider dependency theory, which receives attention in cross-national studies of income inequality, but is ignored in studies of social security development. The present study gives much needed attention to assessing the usefulness of this theoretical perspective in accounting for cross-national variation in physical quality of life among the poor.

THEORETICAL BACKGROUND

Industrialism Theory

Theorists in this tradition account for the emergence of a number of social structures and institutions within industrial societies in terms of the consequences and requirements of an industrial economy (Wilensky and Lebeaux, 1965) and they see the growth of industrial technology as the engine of social change that transforms traditional societies into modern societies (Kerr et al., 1960). As nations industrialize, increases in the national product raise the standard of living of the poor as well as the rest of the population. Of particular relevance for the present analysis is the tendency for scholars in this tradition to discount the relevance of political factors in accounting for social structures and public policies (Mishra, 1977; Haniff, 1976).

Scholars have used industrialism theory in a variety of different ways. Relevant here is the distinction between those who focus on level of economic development and those who present a more qualified version of the theory that emphasizes a number of other factors viewed as caused by and closely linked to level of economic development (Pampel and Williamson, 1985; Entwisle and Winegarden, 1984). The first perspective is illustrated by those who argue that once level of economic development is controlled, other factors such as those suggested by democratic theory, class theory, and dependency theory will prove spurious (Kerr et al., 1960). Wilensky (1975), on the other hand, presents a weaker or more qualified version of industrialism theory when he posits that the emergence of the welfare state is due not only to economic development, but also to the demographic and bureaucratic outcomes of this development. This line of analysis can be easily extended to the study of physical quality of life among the poor. The argument would be that some and possibly much of the effect of level of development on physical
quality of life is mediated by demographic factors such as birth rates and bureaucratic factors such as degree of social security program development. Most industrialism theorists view social security programs as having an egalitarian impact, but a few (e.g., Janowitz, 1976) question this conclusion.

What we refer to as welfare state theory is a specialized variant of the weaker version of industrialism theory that emphasizes the importance of social security predictors in accounting for variation in physical quality of life. On the basis of this theory one would hypothesize that various indicators of social security development will have an independent effect on physical quality of life even after controlling for level of economic development. Similarly, one would expect indicators of welfare state development to mediate the effect of level of development on physical quality of life.

Jackman (1975) presents evidence that supports industrialism theory for a combined sample of industrial and developing nations. Yet, critics of industrialism theory point out that much of the empirical evidence purporting to support the theory is based on heterogeneous (combined) samples of industrial and developing nations. This only shows the considerable gap in wealth between the industrial and developing nations without showing the existence of relationships within the two groups. These critics call for studies that consider industrial and developing nations separately (Castles and McKinlay, 1979).

Conflict Theory

Conflict theory emphasizes the role that social classes and political parties as well as groupings based on religious, ethnic, and linguistic differences play in efforts to influence the distribution of scarce resources. Conflict theory makes no assumption that economic development has a positive effect on equality. Alternatively, a case can be made that strong effects for level of development are inconsistent with the theory. Conflict theory is a very general perspective that can be viewed as encompassing two more specific perspectives we will be considering, class theory and ethnic conflict theory.

Class theory includes the work of Marx (1967), of neo-Marxists (Offe, 1984; O'Connor, 1973; Miliband, 1969) and of many in the Social Democratic tradition (Shalev, 1984; Myles, 1984; Korpi, 1983; Stephens, 1979). It emphasizes the role that social classes and class-based social movements play in the distribution of societal resources that affect the standard of living avail-
able to the working class and the poor. Scholars in this tradition often consider indicators of working class strength such as leftist (or socialist) party strength or the proportion of workers in labor unions. It is most consistent with the neo-Marxist perspective to argue that in capitalist nations there will be little if any relationship between working class strength and physical quality of life among the poor, the reason being that in a capitalist nation elites control the government and prevent any effort to substantially change the distribution of the national product. However, it is most consistent with the Social Democratic tradition to hypothesize that there will be a positive association between working class strength and physical quality of life among the poor and nonelites more generally. Strong working class political parties and labor unions are able to exert pressure on government policy makers to increase the share of national resources allocated to social programs that benefit the disadvantaged. Most of the empirical support for class they would more accurately be described as support for the Social Democratic version of class theory and comes from studies that focus on the advanced industrial nations. Empirical support for class theory can be found in many studies including: Myles, 1984; Stephens, 1979; Hewitt, 1977.

A case can be made that for the analysis of the distribution of scarce resources in developing nations, ethnic cleavages may be more relevant than class cleavages (Nagel, 1984). Societies homogeneous with respect to ethnicity, religion, language and other such primordial factors may allocate a greater share of societal resources to the disadvantaged. This implicitly assumes that in a more homogeneous society it is easier to identify with the plight of the poor and that this contributes to a greater willingness to provide for such persons.

Democratic Theory

Some scholars view elections as an expression of democratic class conflict (Lipset, 1960), but democratic theory is more directly linked to the interest group pluralism tradition than to the conflict theory tradition. Following Hewitt (1977) a distinction can be made between the "social democratic hypothesis" (class theory) and the "simple democratic hypothesis" (democratic theory) that degree of political democracy by itself is likely to have an egalitarian effect on the distribution of a nation's resources. One of the most cited versions of the theory that democracy tends to lead to a reduction in
economic inequality is that outlined by Lenski (1966, pp. 313–325). He argues that industrialization has contributed to the rise of democracy, and subsequently both have had important independent effects on the distribution of scarce resources. The causal mechanism here is that democracy increases the influence of nonelites who are able to increase the portion of the national product going to nonelites. One consequence of this would be an improvement in physical quality of life among the poor. A number of empirical studies provide evidence that formal democratic institutions tend to reduce inequality (Stack, 1979; Rubinson and Quinlan, 1977; Cutchright, 1967a) and increase spending on social welfare programs (Richter and Parrish, 1983; Cutchright, 1967b). There are others, however, that find no such relationship (Bollen and Jackman, 1985b; Cho, 1983; Bollen and Grandjean, 1981; Hewitt, 1977; Jackman, 1975).

Dependency Theory

Central to dependency theory is the idea that the world division of labor is a major determinant of the degree of inequality within nations. Some scholars treat dependency theory and world system theory as separate theoretical perspectives. For the purposes of the present analysis the two will treated together. Both trace their roots to Marx (1967) and Lenin (1965). Both have also been influenced by many of the same more recent scholars such as Wallerstein (1979) and Galtung (1971). Theorists in this tradition point out that power differentials between nations can be expressed in different ways ranging from direct military force and formal political subjugation (old style colonialism) to more subtle forms of subjugation based on foreign investment, foreign aid, and trade relations favoring powerful nations (neo-colonialism).

In the present study three categories of dependency are considered: world-system position, investment dependency, and trade dependency. Investment dependency refers to the direct penetration of third world nations by industrial nations through the private investments made by transnational corporations which directly own enterprises in the host country and thereby control production process. Peripheral nations that depend on foreign trade with more powerful nations for a substantial fraction of national income are vulnerable to policies by core (western industrial) nations that influence the world market for their products (Galtung, 1971). Investment dependency,
trade dependency, and a location at the periphery of the world system all tend to reduce a nation's control over its national product. Foreign investors are in a position to demand expatriation of a lion's share of the economic surplus that might otherwise have been spent on social welfare programs that in turn would have improved the physical quality of life for the poor. If a nation has its exports highly concentrated in a few primary products, it becomes highly vulnerable to fluctuations in world market prices. The resulting economic instability is not likely to provide the steady income a nation needs to support expansion of its social welfare programs.

Theorists in the tradition of modernization theory, neo-classical economics, and industrialism theory tend to view foreign investment and foreign trade positively because they are assumed to be contributing to economic development and consequently to an improvement in physical quality of life among the poor. From this perspective outside capital is needed to build up the local economy to the point that there will be an economic surplus available to support government social welfare programs. Theorists in the dependency theory tradition, in contrast, view these economic exchanges between rich and poor nations as having a long run negative impact on the economies of the poor nations and consequently having a negative impact on physical quality of life among the poor.

Some studies in the dependency theory tradition find that investment dependency contributes to income inequality (Bornschier, 1983; Bornschier and Baller–Cao, 1979; Bornschier et al., 1978; Kaufman et al., 1975). Rubinson (1976) shows similar results for trade dependency. Nolan (1983) reports an effect for world system position; however, Bollen and Jackman (1985b) take issue with this finding. Most of these studies deal with income inequality, others deal with social security policy (Neysmith and Edwardh, 1984), but very few of these studies deal explicitly with a quality of life measure. There is one study that does and it finds no evidence that dependency has an independent effect on physical quality of life after level of development is controlled (Jackman, 1975).

METHODS

We consider a sample of 80 developing nations for which we have data on our dependent variables and at least one of our social security indicators. We have taken all nations for which data are available and have excluded
from this sample the advanced industrial nations and nations with non-market economics. The issue of physical quality of life is relevant to the poor of all nations, but it is particularly relevant for the poor in developing nations. The measures used in the present study could be used in an analysis that included industrial nations, but being based on such variables as infant mortality rate, caloric consumption, and literacy rate, they are much more appropriate as indicators of physical quality of life among the poor in developing nations. For developing nations the measures we are using are also appropriate as indicators of physical quality of life for the general population; however, we choose to be conservative and refer to these measures as indicators of physical quality of life among the poor. If infant mortality rate is high this tells us something about the quality of health care for the average citizen, but it tells us even more about the quality of health care available to the poor.

Since the components of our physical quality of life measures are based on means, averages, and rates, they refer to the general population, not to a particular segment of the population such as the poor. As there are limits as to how much food and health care any one individual can consume, there are corresponding limits as to how much any cross-national difference can be accounted for by the consumption of a small number of elites. For this reason differences in caloric and protein consumption as well as differences in infant mortality rates and life expectancy tell us more about differences in physical quality of life among the general population than among elites. However, as those at the bottom of the socioeconomic distribution are the most affected by shortages in food and health resources, these same indicators are even better indicators of cross-national differences in conditions among the poor than in the general population. For more elaboration see Morris (1979) and Jackman (1975).

Our study is restricted to a sample of developing nations for several reasons: (1) The issue of physical quality of life among the poor is more pressing in these nations. (2) Our models will tell us more about the causal factors affecting quality of life in developing nations if the sample is restricted to this category of nations as opposed to a more heterogeneous sample that includes industrial nations as well. (3) Our aggregate measures of physical quality of life are better indicators of conditions among the poor in developing nations than in industrial nations. The case is even stronger when these measures are interpreted as indicators of physical quality of life for the general
population. (4) Exclusion of the industrial nations provides a stronger and more appropriate test of industrialism theory (Castles and McKinlay, 1979). The present analysis is restricted to nations with market economics due to data availability problems.

We begin with a cross-sectional analysis circa 1975. Due to the small size of this sample we restrict ourselves to models with no more than three predictors. This preliminary analysis calls for estimation of models with more predictors. For this purpose we pool data for 1970 and 1975. In addition to increasing the sample size, this pooled cross-section time-series design provides additional variation and helps reduce collinearity among our predictors. However, since this pooling of data introduces some statistical complications, special estimation techniques are called for to adjust for serial dependence of errors, heteroscedasticity, and the unmeasured variables responsible for these problems. Since the units are not independent each does not provide completely new information. The serial dependence of errors that may result violates an important assumption of ordinary least squares. To deal with this problem the pooled models are estimates with both OLS and with modified generalized least squares (MGLS) techniques (See: Fuller and Battese 1974; Judge et al., 1980; Pampel and Weiss, 1983).

Variable Measurement

We consider two indicators of physical quality of life among the poor. One is the Physical Quality of Life Index (PQLI) developed by Morris (1979) which is the best existing measure for use with developing nations circa 1975. This measure has three components: (1) literacy rate, (2) life expectancy at age one, and (3) infant mortality rate. Morris (1979) provides a thorough discussion of why these components were included as well as why a number of others are not included. The second measure is our alternative to PQLI which we call the Physical Standard of Living Index (PSLI). This measure includes four components: (1) caloric consumption per day per capita, (2) protein consumption per day per capita, (3) infant mortality rate, and (4) life expectancy at birth (Source for all four components: Taylor and Jodice, 1983). Our measure excludes the literacy component included in the PQLI measure as we believe that literacy rate is better viewed as a determinant of physical quality of life than as an actual measure of it. We have added two nutrition measures that have been used extensively by other scholars attempting to
measure physical quality of life (e.g., Hibbs, 1973; Jackman, 1975). Factor analysis results indicate that our four components all load on the same factor and all have basically the same loadings (0.80 to 0.91). As the loadings were so similar we have constructed our final scale by taking the mean of the standard scores for each of these four components. Due to the common components PQLI and PSLI are highly correlated ($r = 0.89$).

In our assessment of industrialism theory we focus on two indicators: (1) the Logarithm of Real GNP Per Capita (LRGNP/C) and (2) Crude Birth Rate (CBR). The first is particularly useful for assessing the relevance of a strong version of industrialism theory; the other is useful for assessing a weaker version of the theory. Our measure of level of economic development is the Logarithm of Real GNP Per Capita (Source: Summers and Heston, 1984). This measure adjusts for the purchasing power in the local economy a well-known problem with using foreign exchange rates when estimating GNP Per Capita for developing nations. See Summers and Heston (1984) for a detailed discussion of how their measure is an improvement over more standard measures based on GNP Per Capita. There are good theoretical as well as empirical grounds for working with the log as opposed to the linear version of our measure of Real GNP Per Capita (hereafter LRGNP/C); the effects for the linear version are substantially weaker.

In any analysis of physical quality of life in developing nations it is essential to control for a measure of fertility rate which will always be a strong predictor. Our measure is Crude Birth Rate (CBR) (Source: Taylor and Jodice, 1983). This measure assesses the relevance of one of the most important demographic correlates of industrialism.

We consider three indicators in our assessment of welfare state theory: (1) Social Insurance Program Experience (hereafter SIPE), (2) Social Security Effort, and (3) Social Security Generosity. SIPE (Source: USDHHS, 1982) can be interpreted as a measure of institutionalization or bureaucratization of the social security system (Williamson and Weiss, 1979) or as a measure of social welfare effort (Jackman, 1975). Social Security Effort (Source: ILO, 1981) is the percent of the Gross Domestic Product spent on a set of social welfare programs (See Note 1). Social Security Generosity (Source: ILO, 1981) is the ratio of government expenditures on this same set of social welfare programs to the nation's total population. The SIPE indicator has the advantage of being available for a very large sample of nations; since they measure actual spending, the other two indicators are somewhat preferable.
on theoretical grounds for assessing the impact of social security programs on physical quality of life.

We consider two conflict theory indicators, Organized Labor and Ethnic Homogeneity. Organized Labor (Source: Taylor and Jodice, 1983) is a measure of the percent of all workers who are union members. This variable has often been interpreted as a measure of working class strength. Ethnic Homogeneity (Source: Taylor and Jodice, 1983) is a measure of the degree of homogeneity of a nation with respect to ethnic and linguistic subgroups. We have reversed the direction of this variable (Ethno-Linguistic Fractionalization in our source) so as to measure degree of homogeneity rather than heterogeneity. Democracy is measured using Bollen's (1980) index (circa 1965) which is based on six components, three measure popular sovereignty and three measure political liberties.

We consider three indicators suggested by dependency theory. Foreign Investment (Source: Ballmer—Cao and Scheidegger, 1979) is a measure of the penetration of a nation’s economy by multinational corporations. It is computed as the ratio of the total stock of foreign direct investment to the square root of the total population (a proxy for capital intensity) times total energy consumption (a proxy for total stock of capital of the host country). See the source for a discussion of the rationale for the components of this measure. Export Commodity Concentration (Source: Taylor and Jodice, 1983) is a measure of degree of concentration of a nation's exports in a small number of commodities. A nation scores high when a large fraction of its export commodities are concentrated in a small number of products. Periphery of the World system (Sources: Bollen, 1983; Snyder and Kick, 1979) is a measure of a nation's structural position in the world system. It is based on Bollen's modification of the variable as originally proposed by Snyder and Kick. Nations are divided into three categories: core, semiperiphery, and periphery. Our variable is a dichotomous variable with those in the periphery given a score of 1 and all others given a score of 0.

RESULTS

We first consider a set of cross-sectional regressions all of which include LRGNP/C and Crude Birth Rate as controls. In Table I the betas for Crude Birth Rate tend to be much larger than those for LRGNP/C, but this is less so in Table II. This is due, no doubt, in part to the high correlation between
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<sup>a</sup> Standardized coefficients (beta weights) are below the unstandardized coefficients.

<sup>b</sup> \( p < 0.01 \).

<sup>c</sup> \( p < 0.05 \).

<sup>d</sup> \( p < 0.10 \) (nearly significant).
### TABLE II

Unstandardized and standardized coefficients for OLS estimates of physical standard of living index (PSL), circa 1975

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<td>4.08&lt;sup&gt;b&lt;/sup&gt;</td>
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<td>4.68&lt;sup&gt;b&lt;/sup&gt;</td>
<td>4.24&lt;sup&gt;b&lt;/sup&gt;</td>
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<td>INTERC</td>
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<td>-0.116&lt;sup&gt;d&lt;/sup&gt;</td>
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<td>ADJ R—SQ</td>
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<tr>
<td>DF</td>
<td>70</td>
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<td>39</td>
<td>57</td>
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<td>69</td>
<td>62</td>
<td>67</td>
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</table>

<sup>a</sup> Standardized coefficients (beta weights) are below the unstandardized coefficients.

<sup>b</sup> p < 0.01.
birth rates and infant mortality rates; infant mortality rates makes up a larger fraction of PQLI (1 component out of 3) than of PSLI (1 component out of 4). The consistently large betas for LRGNPC/C is consistent with the strong version of industrialism theory (Kerr et al., 1960). However, the large betas for Crude Birth Rate can be used to make a case for Wilensky’s (1975) weaker version of the theory. The relatively weak betas for Organized Labor and Democracy offer further support for industrialism theory.

Results for welfare state theory are mixed. In Table I none of the three welfare state effort predictors (SIPE, Social Security Effort, Social Security Generosity) have substantial effects in the predicted direction on PQLI. None of the three show positive effects, the one significant effect (for Social Security Generosity) turns out to be negative (as opposed to the positive effect that the welfare state hypothesis would suggest). The results in Table II using what we consider a superior indicator of physical quality of life (PSLI) do offer some support for the theory that if we control for level of development then nations that allocate a greater share of government resources to social security programs tend to end up with a higher physical quality of life for their citizens, particularly the poor. The strongest support for welfare state theory is the significant beta for Social Security Effort.

The beta for Democracy is relatively weak in Table I and even weaker in Table II; these results do not provide much support for democratic theory. For both PQLI and PSLI we find that the beta for Organized Labor is weak, a finding that fails to support social democratic or class theory. However, Ethnic Homogeneity has a substantial impact on both PQLI and PSLI. Thus our support for conflict theory is limited to support for what could be described as potential for ethnic conflict.

We also find some mixed support for dependency theory. In connection with PQLI (Table I) we find all three of the dependency theory measures have the predicted negative coefficients, but only the beta for Concentration of Export Commodities is significant. In Table II we find that the betas are again consistently negative, but here they are somewhat stronger. The beta is significant for Concentration of Export Commodities (trade dependence), and for Foreign Investment (investment dependence), and near significance for Periphery (world-system position).

In Tables I and II we have limited ourselves to three predictors per model. One reason was to give each of the predictors an opportunity to show a strong effect with a minimum of dilution due to collinearity. Another reason
for keeping the number of predictors to a minimum is the relatively small samples size; for several of these equations, particularly Social Security Effort and Social Security Generosity, we were down to about 40 countries. However, having examined the evidence as presented in Tables I and II, it is reasonable to ask which of these predictors continue to have significant effects when included in models that include more controls. To this end we shift from a cross-sectional regression model to a pooled cross-section time-series model. This alternative increases the number of degrees of freedom making it feasible to include more predictors in a single equation. In Table III we present our results for four models of particular theoretical interest. These models are based on OLS estimation procedures using the pooled sample. However, when we pool cross-sections it is necessary to adjust for autocorrelation and the lack of independence among observations. The

<table>
<thead>
<tr>
<th>TABLE III</th>
</tr>
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<tbody>
<tr>
<td>Unstandardized and standardized coefficients for OLS estimates of physical standard of living index (PSLI), pooled data for 1970 and 1975&lt;sup&gt;a&lt;/sup&gt;</td>
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<table>
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<tr>
<th>Eq</th>
<th>3.1</th>
<th>3.2</th>
<th>3.3</th>
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<tr>
<td>LRGNP/C</td>
<td>0.375</td>
<td>0.422&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.377&lt;sup&gt;b&lt;/sup&gt;</td>
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<td></td>
<td>0.377&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.442</td>
<td>0.383</td>
<td>0.331</td>
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<td>-0.028&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-0.028&lt;sup&gt;b&lt;/sup&gt;</td>
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<td></td>
<td>-0.275</td>
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<td>-0.414</td>
<td>-0.390</td>
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<tr>
<td>Soc sec eff</td>
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<td>0.237</td>
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<td></td>
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<tr>
<td>Ethnic homg</td>
<td>0.277&lt;sup&gt;d&lt;/sup&gt;</td>
<td>0.451&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.467&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.583&lt;sup&gt;b&lt;/sup&gt;</td>
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<td></td>
<td>0.109</td>
<td>0.208</td>
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<tr>
<td>Foreign inv</td>
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<td>-0.510&lt;sup&gt;b&lt;/sup&gt;</td>
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<td>-0.166</td>
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<tr>
<td>Periphery</td>
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<td>-0.264&lt;sup&gt;b&lt;/sup&gt;</td>
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<tr>
<td></td>
<td>-0.174</td>
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<tr>
<td>INTERC</td>
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<td>-2.69</td>
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<td>-2.19</td>
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<td>ADJ R−SQ</td>
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<td>0.77</td>
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<tr>
<td>DF</td>
<td>67</td>
<td>145</td>
<td>155</td>
<td>140</td>
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<sup>a</sup> Standardized coefficients (beta weights) are below unstandardized coefficients.
<sup>b</sup> p < 0.01.
<sup>c</sup> p < 0.05.
<sup>d</sup> p < 0.10 (nearly significant).
Modified Generalized Least Squares procedure (MGLS) adjusts for these problems (Table IV).\textsuperscript{5}

In Eqs. 3.1 (Table III) and 4.1 (Table IV) we note that Social Security Effort has a significant effect even after controls are added for Periphery and Ethnic Homogeneity. A number of additional models were estimated that have not been presented in Tables III and IV. They show that Social Security Effort continues to have a significant effect even when all three of the dependency predictors are included in the model at the same time. In one of our final models (Eq. 4.1) Social Security Effort has a significant effect comparable to that for the Periphery variable; however, the effect is substantially weaker than the effect for the two industrialism theory measures, LRGNP/C and Crude Birth Rate. The effect of Social Security Effort relative to Ethnic Homogeneity is more complex to assess. In Table

\begin{table}[h]
\centering
\caption{Unstandardized and standardized coefficients for MGLS estimates of physical standard of living index (PSLI), pooled data for 1970 and 1975\textsuperscript{a}}
\begin{tabular}{lcccc}
\hline
Eq & 4.1 & 4.2 & 4.3 & 4.4 \\
\hline
LRGNP/C & 0.335\textsuperscript{b} & 0.329\textsuperscript{b} & 0.373\textsuperscript{b} & 0.323\textsuperscript{b} \\
 & 0.334 & 0.319 & 0.357 & 0.310 \\
CBR & -0.021\textsuperscript{b} & -0.032\textsuperscript{b} & -0.028\textsuperscript{b} & -0.029\textsuperscript{b} \\
 & -0.337 & -0.460 & -0.435 & -0.415 \\
Soc sec eff & 0.043\textsuperscript{c} & 0.161 & 0.161 & 0.161 \\
Ethnic homg & 0.394 & 0.585\textsuperscript{b} & 0.474\textsuperscript{b} & 0.596\textsuperscript{b} \\
 & 0.170 & 0.266 & 0.207 & 0.260 \\
Foreign inv & & -0.0003 & & -0.084 \\
Con exp com & & & -0.380\textsuperscript{b} & -0.129 \\
 & & & & \\
Periphery & -0.242\textsuperscript{b} & & & -0.217\textsuperscript{c} \\
 & -0.173 & & & -0.148 \\
INTERC & -2.35 & -2.21 & -2.37 & -2.17 \\
DF & 58 & 131 & 131 & 117 \\
\hline
\end{tabular}
\end{table}

\textsuperscript{a} Standardized coefficients (beta weights) are below unstandardized coefficients.

\textsuperscript{b} \( p < 0.01 \).

\textsuperscript{c} \( p < 0.05 \).

\textsuperscript{d} \( p < 0.10 \) (nearly significant).
II (Eqs. 2.2 and 2.6) the betas are about equal, but the equation for Ethnic Homogeneity (Eq. 2.6) is based on a much larger sample (N = 70 vs. N = 41 for Eq. 2.2). This raises a question as to the relative effects for a model based on data for the same set of countries. We have this in Eq. 4.1 and find the betas about equal in absolute size although due to a larger standard error for the Ethnic Homogeneity measure it is not statistically significant (p = 0.11).

Ethnic Homogeneity may not have a significant effect for the higher GNP per capita nations for which Social Security Effort data are available, but it does have a much stronger effect when we consider the larger sample of developing nations for which the other variables are available are considered.²

A major finding of Eqs. 3.2–3.4 and Eqs. 4.2–4.4 is that Ethnic Homogeneity has effects that are consistently stronger than those for the various dependency theory predictors. The betas for Ethnic Homogeneity in these equations are similar to the betas for Social Security Effort in Eq. 3.1 and somewhat larger than that for Social Security Effort in the final model (Eq. 4.1). However, again the effects for the industrialism theory predictors are much stronger.

The final set of models offer modest support for dependency theory. In Eqs. 3.2–3.4 we find that the coefficients for all three dependency theory predictors are significant. In Eqs. 4.3 and 4.4 we find further support for the Concentration of Export Commodities and Periphery indicators. While the Foreign Investment indicator (p = 0.11) is not significant, the effect is in the predicted direction.

**DISCUSSION**

As a check on the robustness of our findings we have carried out an analysis of outliers and influential cases as suggested by Bollen and Jackman (1985a). Our focus was on the final set of models (Tables III and IV). There was some evidence of influential outliers, but the removal of these observations did not lead to any major changes in our findings. For Eq. 3.1 the partial plots and dfbeta statistic indicated that Bolivia was having a strong effect on the coefficients for Social Security Effort and Ethnic Homogeneity. When Bolivia was excluded, the beta for Ethnic Homogeneity decreased from 0.11 (p < 0.10) to 0.06 (n.s.) and the beta for Social Security Effort increased from 0.24 to
0.27. A similar analysis suggested that if Panama were excluded in Eq. 3.2, the beta for Foreign Investment would increase from $-0.10 \ (p < 0.05)$ to $-0.17 \ (p < 0.01)$. As the exclusion of these cases would not change any of our conclusions, we decided to leave them in the sample. As a further test of the robustness of our results we estimated models excluding Spain, Greece, and Portugal, European nations which some analysts would not want to include in a sample of developing nations. These exclusions did not change our results at all.

Industrialism theory receives strong support in this study. Since the betas for Crude Birth Rate are often as large or larger than those for LRGNP/C, the support is greater for Wilensky’s (1975) weaker version than Kerr et al.’s (1960) earlier and stronger version of the theory. As a further check on this conclusion we did a four-variable path analysis and found that 51 percent of the total effect of LRGNP/C on PSLI is mediated by Crude Birth Rate and Social Security Effort, a finding that lends further support to Wilensky’s version of the theory.

A number of prior cross-national studies have focused on the determinants of social security development or on determinants of inequality. In the present study our goal has been to go beyond this previous research by analyzing the relationship between social security program development and Physical Quality of Life among the poor. We have focused on the relationship between government program inputs and quality of life outputs that are particularly relevant for assessing degree of deprivation among the poor. Previous scholars have argued that it is difficult to demonstrate a link between government program efforts and real welfare or quality of life outputs. We would argue on the basis of the present research that it is possible to demonstrate such a link even for developing nations with their less developed social security systems.

Based on the existing literature a plausible argument might have been made that for developing nations government social security programs would have no impact on physical quality of life once level of economic development is controlled. In the present study we confirm the hypothesis that level of economic development is the major determinant of physical quality of life in developing nations, but equally importantly we demonstrate that in these nations government programs do tend to have an independent effect over and above that which can be attributed to level of development alone. Some very important policy implications follow from this finding. One of the most
important being that a case can be made for attempting to further develop and expand social security programs in these nations. However, if a choice has to be made between policies that increase level of economic development and those that increase spending on social security programs, a stronger case can be made for increasing level of development.

The present study builds on and extends previous research in the dependency theory tradition. Previous scholars have demonstrated that dependency tends to contribute to an increase in income inequality. The present study takes the analysis one step further as it deals with inequality in the realm of physical quality of life. As might be expected based on this prior research, we have found that economic dependency has a negative impact on physical quality of life among the poor even after controlling for level of economic development.

The social democratic version of class theory would lead one to expect that after controlling for level of development, an indicator of working class strength such as Organized Labor should be a strong predictor of physical quality of life among the poor. Our results suggest to the contrary that working class strength as measured by Organized Labor is not an important determinant of physical quality of life among the poor once such variables as level of economic development (LRGNP/C) and fertility (Crude Birth Rate) are controlled. This finding still leaves open the possibility that working class strength has a strong indirect effect through its impact on social security program development. This hypothesis was checked using path analysis, but no support was found.

In Tables I and II we present data for only one indicator of working class strength, Organized Labor. However, we did consider others such as: (1) Leftist Party Strength, (2) Workers per Industrial Dispute, and (3) Workers in Industrial Disputes Relative to the Size of the Working Age Population. In no case did the coefficients for these predictors approach statistical significance. We have not presented results for these variables due to our reservations about the quality of this data for many of the nations in this sample. We also estimated a set of models that added the Organized Labor predictor to each Equation in Table III; in all cases the coefficient for this predictor was very small and in no instance did it approach significance. While our results do not support the social democratic version of class theory, they are consistent with the neo-Marxist argument that socialist parties and labor unions have little impact on the distribution of scarce resources in nations

The Ethnic Homogeneity variable can be interpreted as an indicator of ethnic cleavages (or more conservatively as potential for such cleavages). This variable turned out to be a very strong predictor in several of our final models. The most important theoretical implication of this finding is to suggest that for developing nations we are likely to find ethnic politics as important if not more important than class politics as a determinant of Physical Quality of Life among the poor and of inequality or the distribution of scarce resources more generally. This finding also has important policy implications. It would suggest that some attention should be given to ethnic politics when foreign aid and particularly relief aid is given to third world nations, least this aid go primarily to one ethnic group to the exclusion of others. This finding also offers support to those who have criticized the lack of attention to ethnic and tribal considerations when many colonial territories were carved up into nation states in such regions as Sub-Saharan Africa.

ACKNOWLEDGEMENT

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NOTES

1 In this paper the term “social security” refers to government spending related to the following categories of social welfare programs: (1) old-age pensions, (2) sickness benefits, (3) unemployment benefits, (4) compensation for injured workers, (5) family allowance benefits, (6) maternity benefits, (7) invalidity benefits, and (8) survivor’s benefits, (9) benefits to war victims, (10) benefits to public employees, (11) public health and medical care, and (12) public assistance benefits (ILO, 1977, pp. 1–3).

2 We refer to “industrialism theory” rather than “convergence theory” as the latter term is more appropriate when the perspective is used in the analysis of longitudinal trends (Williamson and Fleming, 1977; Meyer et al., 1975).

3 On the basis on industrialism theory one would expect a negative relationship between birth rate and physical quality of life, but there are scholars who make strong arguments to the contrary (Simon, 1981; Bauer, 1981). They view population growth as a resource rather than as a drain on resources, a perspective that would lead one to hypothesize a positive relationship.

4 PSLI is superior to PQLI for two reasons: (1) it includes two nutrition indicators and (2) it excludes the literacy indicator. When literacy is added to equations 2.1, 2.2, and 2.3, the results for the welfare state effort predictors are unchanged. Literacy is generally not included in our models due to collinearity considerations.
With MGLS it is not possible or appropriate to report estimates of Adj R-Sq or R-Sq. It is not appropriate to pool data for different years if there is evidence of interaction between year and any of the predictors for a particular model. We checked all of our final models (Tables III and IV) and found no evidence of interaction.

The mean GNP per capita was $809 for the sample for which Social Security Effort was available as opposed to $665 for the larger sample of developing nations for which the other variables in Eq. 3.1 were available.

Our consistently strong negative betas for Crude Birth Rate are clearly more consistent with industrialism theory than with the theories of those who view population growth as having a positive effect on physical quality of life in developing nations (Simon, 1981; Bauer, 1981).

APPENDIX SAMPLE (N = 80)

Afghanistan, Algeria, Argentina, Barbados, Benin, Bolivia, Brazil, Burma, Burundi, Cameroon, Central Africa Republic, Chad, Chile, Colombia, Costa Rica, Cyprus, Dominican Republic, Ecuador, Egypt, El Salvador, Ethiopia, Gabon, Gambia, Ghana, Greece, Guinea, Guyana, Haiti, Honduras, Hong Kong, India, Indonesia, Iran, Iraq, Ivory Coast, Jamaica, Jordan, Kenya, Liberia, Madagascar, Malawi, Malaysia, Mali, Malta, Mauritania, Mauritius, Mexico, Morocco, Nepal, Nicaragua, Niger, Nigeria, Pakistan, Panama, Paraguay, Peru, Philippines, Portugal, Republic of Korea, Rwanda, Senegal, Sierra Leone, Singapore, Somalia, Spain, Sri Lanka, Sudan, Syria, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Uganda, Upper Volta, Uruguay, Zaire, Zambia.

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