Politics, Class, and Growth in Social Security Effort: 
* A Cross-National Analysis*

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ABSTRACT

Between 1965 and 1975 most nations experienced an historic expansion in the proportion of the national product spent on social security programs. Several competing theories of social security development are considered in an effort to account for this expansion. Panel regression results are presented for 32 developing and 26 industrial nations. For the industrial nations, the level of democracy proves more useful than any indicator of working class strength for explaining variation in social security effort. Evidence is presented suggesting that for many nations spending on social security programs may be more a reflection of middle-class power than of working class power. Evidence is also presented that percent aged is a stronger predictor of social security effort in developing nations than in industrial nations.

THE RELATIONSHIP between degree of political democracy and spending in the social welfare sector has long been a concern among comparative political sociologists. This has been an important aspect of a more general interest in assessing the relevance of political factors as determinants of cross-national variation in the proportion of a nation’s national product spent on social welfare programs. Although there have been several studies of social security development in recent years (e.g., Aaron, 1976; Cutright, 1976; Pryor, 1968; Wilensky, 1975; Haniff, 1976; Hewitt, 1977; Coughlin and Armour, 1983), a number of important issues have not been given adequate attention. First, most previous studies have considered indicators associated with

* We would like to thank Anna Petronzio, Debra Kattler, and Joseph Costa for assistance in data preparation as well as Alex Inkeles, Robert Lay, Kenneth Bollen, and Elizabeth Johnson for their comments on earlier drafts of the paper. This research was supported by a grant from the National Institute on Aging, No. AG04340.
one or two of the theoretical perspectives considered in the present study, but few have attempted to be comprehensive. Of particular note has been the neglect of indicators associated with dependency theory. Second, most previous studies suggest that variation in social security spending is basically an issue for industrial nations, not for developing nations. Very few studies have included developing nations, and fewer still have attempted to construct separate models for these nations (Castles and Mckinlay, 1979). Growth in social security expenditures is becoming an increasingly important issue for developing nations as well. Third, most studies to date have been based on cross-sectional data. The present study is the first to carry out a longitudinal analysis (using panel regression) that includes developing nations. Longitudinal data are particularly useful when the goal is, as in the present study, to account for changes in spending patterns over time.

**Theoretical background**

*Industrialism Theory*

This theory is used to explain the development of a number of major social institutions and structures within industrial societies in terms of the requirements and consequences of an industrial economy (Wilensky and Lebeaux, 1965; Inkeles, 1981; Kerr, 1983). Industrialism theory suggests that the dislocation associated with the process of economic development reduces the effectiveness and adequacy of traditional familial based social support systems, creating a need for government intervention in the form of various social welfare programs. There are many versions of industrialism theory. Some focus on economic development (Kerr et al., 1960), while others emphasize some of the demographic and bureaucratic changes associated with this development (Wilensky, 1975; Pampel and Williamson, 1985). Of particular relevance for the present study is the emphasis in industrialism theory on economic development to the exclusion of political institutions (democratic theory) and class conflict (class theory) (Mishra, 1977). A strong version of industrialism theory can be used to hypothesize that when level of development is controlled, other predictors of social security effort suggested by democratic theory, class theory, and dependency theory will prove to be spurious. A weaker (less extreme) version of the theory can be used to hypothesize the same outcome when certain industrialism-linked indicators of demographic demand (e.g., Percent Aged) and bureaucratic development (e.g., Social Insurance Program Experience) are controlled. A number of studies provide empirical support for this theory (Jackman, 1975; Wilensky, 1975; Haniff, 1976).

* Corporatist Theory*

The concept of corporatism has been proposed by Wilensky (1976, 1981) and it can be viewed as an extension of industrialism theory. Corporatism denotes a system of policy making in which centralized unions and leftist
political parties are integrated into a form of decision making that also involves business and government elites. It measures the ability of elites to quickly implement policies that meet societal needs and in this sense measures society’s ability to respond to the logic of industrialism. A nation that is high in corporatism is high in degree of class collaboration. One form this collaboration can take is increased spending on social security programs.

**Democratic Theory**

One of the most frequently cited versions of the theory that democracy tends to affect the distribution of the social product is outlined by Lenski (1966: 313-325). He views the change in the structure and productivity of the economy associated with industrialization as contributing to the rise of democracy; both industrialization and democratic institutions are viewed as having contributed to an increase in spending on social programs and to a reduction in social inequality. Democratic theory suggests that democracy tends to increase the political influence of non elites. Persons seeking elective office can be expected to promise new social programs and the expansion of existing programs that service a substantial portion of the electorate. As a portion, and sometimes a substantial portion, of the benefits go to the middle class, predictions based on this theory do differ from those based on class theory which emphasize working-class strength. Democratic theory makes no assumptions about the relative strength of rightist versus leftist political parties; politicians of all political persuasions are expected to support the introduction and expansion of social programs in an effort to get elected. A number of studies offer empirical support for this theory (Cutright, 1965, 1967; Richter and Parrish, 1983).

**Class Theory**

This perspective emphasizes the role that class-based social movements and social structures play in influencing decisions concerning the distribution of scarce resources (Korpi, 1980; Shalev, 1984). Hewitt (1977) refers to the idea that democracy by itself will have egalitarian consequences as the “simple democratic hypothesis” (democratic theory) to differentiate it from the “social democratic hypothesis” (class theory). According to class theory, more democracy alone does not assure greater spending on social security programs. For there to be more such spending the working class must use the freedom to organize to form strong labor unions or use the franchise to elect socialist governments, and preferably both. Recent work in the class theory tradition points to the importance of the relative influence of rightist parties (Castles, 1983; Hicks and Swank, 1984), and union centralization. Several studies offer empirical support for this theory (Pryor, 1968; Hewitt, 1977; Stephens, 1979; Myles, 1984).
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. Theorist in this tradition point out that power can be exercised in a variety of forms ranging from old-style colonialism to more subtle forms of neo-colonialism based on patterns of foreign investment, foreign aid, and trade relations (Galtung, 1971; Wallerstein, 1974; Evans, 1979). Dependency theory can be used to argue that investment dependence, debt dependence, and trade dependence reduce the state’s control over the allocation of its national product. As one example, foreign creditors are in a position to demand repayment with funds that might otherwise be spent on social security programs. While there have been a number of studies of the effect of dependency on economic inequality (Chase-Dunn, 1975; Rubinson, 1976; Bornschier et al, 1978; Bornschier, 1983; Bollen and Jackman, 1985b), to date there has been no systematic attempt to assess the relevance of the theory to social security expenditure levels (Neysmith and Edwardh, 1984).

Methods

Sample

Our total sample consists of the 58 nations for which data are available on the dependent variable, Social Security Effort. This sample is particularly appropriate for testing hypotheses derived from industrialism theory. However, some hypotheses, particularly those derived from democratic theory and class theory, are better suited to explaining social security effort in industrial nations; while others, such as those derived from dependency theory, are most appropriate for developing nations. For this reason we first analyze a combined sample of 58 nations and then analyze subsamples of 32 developing nations (GNP per capita in 1975 below $2400) and 26 industrial nations (GNP per capita in 1975 above $2400). Where data are available, we have included Eastern European nations because industrialism theory and democratic theory apply to nations with centrally planned economies as well as those with market economies. Where appropriate we qualify our conclusions based on separate analyses that exclude the Eastern European countries or include an appropriate dummy variable.

Time Period

The reason for selecting the 1965 to 1975 time period is that social security programs throughout the world underwent greater expansion during this period than during any other. The marked expansion in spending on social security programs makes this period of particular theoretical interest to researchers seeking to understand the factors affecting the post-war expansion of social security programs.
Panel Regression

Our decision to focus on change in social security effort between 1965 and 1975 led us to the panel regression mode. Preliminary work that considered a variety of different time lags convinced us that a ten-year lag was the most appropriate choice given our interest in assessing the impact of a number of political variables; although, where appropriate we do qualify our findings based on models using 15- and 20-years lags. In recent years analysts have tended to use the panel regression model as opposed to the difference score alternative (Kessler and Greenberg, 1981), but there has also been some renewed interest in difference score models under some circumstances (Liker et al., 1985). We emphasize the more conventional panel model in the presentation of our data. However, we have also analyzed our data using difference score models and where appropriate our results are qualified.

Measurement

Social Security Effort, our dependent variable, is an indicator of a nation's commitment to the social security of its citizens. It is the percent of the GNP expended on five categories of social security programs (Source: ILO, 1981). Social Security expenditures, according to the definition adopted by the Social Security Administration (U.S.DHHS, 1982), include government spending on programs in each of the following areas: (1) old age, invalidity, and death; (2) sickness and maternity; (3) work and injury; (4) unemployment; and (5) family allowances.

Industrialism Variables

We consider three variables in connection with industrialism theory. Energy Use, an indicator of level of economic development, is measured by the logarithm of energy consumption per capita for 1965 (Source: Taylor and Jodice, 1983). Percent Aged is the percent of the total 1965 population that is age 65 and over (Source: ILO, 1977). Social Insurance Program Experience (SIPE) is the sum of the number of years of experience a nation has had with social insurance programs in each of five areas between 1934 and 1965 (Source: U.S. DHHS, 1982).

Corporatism is based on Wilensky's (1976: 50) measure of corporatist technocratic linkages. It sums the appointment power of the central government as well as the degree of centralization among labor unions.

Democracy is measured using Kenneth Bollen's 1965 political democracy index (Source: Bollen, 1980). It is based on six indicators including three indicators of political liberty and three indicators of "popular sovereignty". With this measure it is possible to make distinctions among the capitalist democracies as well as among third-world nations with their less developed democratic institutions. As this measure takes into considerations the political situations in the Eastern European nations, there is no need to exclude them from the equations which include this predictor.
Class Variables

As class theory has been formulated for use with industrialized democracies, the following five class theory variables have only been obtained for noncommunist countries in our industrial nation sample. Percent Unionized is a measure of the percent of the total labor force who were union members in 1965 (Europa Year Book, 1969; ILO, 1977). Union Centralization is measured as a dummy variable recode of Stephens’ (1979) scale (Source: Hicks and Swank, 1984). A one indicates that unionized workers are concentrated in a small number of unions with centralized bargaining. Centralization \times Mobilization is a class theory variable suggested by Hicks and Swank (1984) and by Myles (1984) that is formed by multiplying our Centralization variable by our Percent Unionized variable. It is used to check whether or not centralization facilitates the effect of the Percent Unionized variable. Left Rule is the sum of the number of years of government control by leftist parties between 1946 and 1965. Right Rule is the sum of the number of years of government control by rightist parties between 1946 and 1965. The classification of parties by Castles (1983) was used to identify parties as right, left, or center. For each year between 1946 and 1965 a party received a score of 1 if it was in power, a score of 0 if it was not, and a score between 0 and 1 (depending on the proportion of legislative seats it controlled) if it participated in a coalition (Sources: Stephens, 1979; Mackie and Rose, 1982; McHale, 1983).

Results

On the basis of the strong version of industrialism theory we would expect Energy Use to have a strong positive effect on Social Security Effort for the total sample. The results for Eq 1.1 (Table 1) suggest that Energy Use has a statistically significant effect, but it is not as strong as one might expect based on this version of the theory. In Eqs 1.2 and 1.3 we see that the coefficients and $\hat{R}^2$. (Adjusted $R^2$) values are larger for the equations that include the indicators associated with Wilensky’s (1975) weaker version of the theory. Replicating Wilensky’s results, the betas for %Aged and SIPE are stronger than the betas for Energy Use. This interpretation was further confirmed in a set of models not presented here in which %Aged and SIPE were included at the same time in an equation that excluded Energy Use$^4$.

Central to industrialism theory is the hypothesis that political factors will have little if any impact on Social Security Effort. The results for Eq 1.4 do not support this hypothesis as the beta coefficient for Democracy is statistically significant and larger than that for Energy Use. While these results do not offer strong support for industrialism theory, they do support democratic theory$^5$.

Several of the theories that we want to consider are more appropriate for industrial nations than for the developing nations and others are more ap-
propriate for the developing nations than for industrial nations. It is generally assumed that political democracy has a greater impact on the distribution of resources in more developed nations where there is a greater economic surplus available for distribution. We might also expect the industrialism theory predictors to have stronger effects for a sample of developing nations than for a sample of industrial nations as the industrial nations would be expected to be more homogeneous with respect to Energy Use, %Aged, and SIPE. The data needed to test these and other related hypotheses are presented in Tables 2 and 3.\textsuperscript{6}

We hypothesized that indicators associated with dependency theory would have significant negative effects for the developing nations. The evidence in Table 2 (Eqs 2.5, 2.6, 2.7, 2.8) does not support this hypothesis. None of the coefficients for the dependency theory indicators are significant\textsuperscript{7}. In a separate regression in which all the dependency predictors were included in the same equation we found that even as a set these predictors did not significantly increase $R^2$.

As hypothesized, support for industrialism theory is stronger for the developing nations than for the industrial nations. However, this conclusion is not based on results for the Energy Use predictor, rather it is due in large measure to the results for %Aged. The beta for %Aged in Eq 2.2 (Table 2) is much larger than that for Energy Use (.476 vs .058); it is also larger than

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Table 1

Unstandardized and Standardized Panel Regression Estimates of Effects on Social Security Effort, Total Sample\textsuperscript{a}

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<th>Eq 1.1</th>
<th>Eq 1.2</th>
<th>Eq 1.3</th>
<th>Eq 1.4</th>
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\textsuperscript{a} Standardized coefficients are below unstandardized coefficients.

\textsuperscript{*} p < .05

\textsuperscript{**} p < .01
Table 2
Unstandardized and Standardized Panel Regression Estimates of Effects on Social Security Effort, Developing Nation Samplea

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<td>.670</td>
<td>.595</td>
<td>.574</td>
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a Standardized coefficients are below the unstandardized coefficients.
* p < .05
** p < .01

the beta for SIPE in Eq 2.2 (.476 vs .237). Similarly, the unstandarized coefficient for %Aged in Eq 2.2 (developing nations) is considerably larger than that in Eq 3.2 (Table 3, industrial nations) (.660 vs .421). When the three industrialism predictors alone are added for the industrial nations, the R² value increases by less than 1%, but when the same three predictors are added for the developing nations the R² value increases by 8%.

On the basis of our earlier discussion of corporatist theory, we would hypothesize that Corporatism would have a significant positive effect on Social Security Effort. The evidence for Eq 3.4 does not support this hypothesis.

Again, as hypothesized, support for democratic theory is much stronger for the industrial nations than for the developing nations. For the developing nations Democracy does not have any effect of Social Security Effort (Eq 2.4), but for the industrial nations this measure is one of the strongest predictors (Eq 3.5).
Table 3

Unstandardized and Standardized Panel Regression Estimates of Effects on Social Security Effort, Industrial Nation Sample

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<td>-.201*</td>
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<td>SOC SEC EFF</td>
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<td>.900**</td>
<td>.894**</td>
<td>1.20**</td>
<td>1.20**</td>
<td>1.29**</td>
<td>1.30**</td>
<td>1.31**</td>
<td>1.31**</td>
<td>1.26**</td>
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<td></td>
<td>.863</td>
<td>.715</td>
<td>.710</td>
<td>.850</td>
<td>.955</td>
<td>1.03</td>
<td>.913</td>
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<td>.891</td>
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<td>INTERCEPT</td>
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<td>2.25</td>
<td>-.482</td>
<td>-6.13</td>
<td>-6.04</td>
<td>-.119</td>
<td>-5.45</td>
<td>-5.57</td>
<td>-5.87</td>
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<td>26</td>
<td>19</td>
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<td>24</td>
<td>18</td>
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<tr>
<td>R²</td>
<td>.758</td>
<td>.778</td>
<td>.773</td>
<td>.854</td>
<td>.852</td>
<td>.795</td>
<td>.833</td>
<td>.831</td>
<td>.838</td>
<td>.874</td>
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</tbody>
</table>

*Standardized coefficients are below unstandardized coefficients.
*p < .05
**p < .01

In Table 3 we include five indicators associated with class theory. The beta with the largest absolute value is % Unionized, but the effect is not significant as it is not in the predicted direction (Eq 3.6). If anything it would seem that countries with a larger proportion of the labor force unionized had smaller net increases in Social Security Effort. The beta for Union Centralization (Eq 3.7) is small as is that for the interaction between % Unionized and Union Centralization (Eq 3.8). The beta for Left Rule is also small (Eq 3.9), but that for Right Rule (Eq 3.10) is much larger. Right Rule is the only class theory predictor that has a significant effect in the predicted direction. This finding is consistent with arguments by Castles (1983) and others that the strength of
opposition to egalitarian efforts by rightist parties is a more important factor than support by leftist parties. Taken together the five class theory predictors account for a 2% increase in $R^2$ as opposed to 8% for Democracy.

The data in Table 3 offer little by way of support for industrialism theory or corporatist theory, but these data do offer some support for class theory and even more for democratic theory. The support for class theory, however, is tied to the impact of Right Rule and not to indicators of union or socialist party strength.

Discussion

Our data suggest that level of Democracy has a substantial effect on change in Social Security Effort for industrial nations, but that there is relatively little effect for developing nations. This outcome is consistent with the theories of those (e.g., Lenski, 1966) who argue that democracy will have a greater effect on the distribution of societal resources in those nations with a greater economic surplus.

As a test of the robustness of the models presented in Tables 1, 2, and 3, we did a set of runs in which we excluded the Eastern European nations and a set in which we added a dummy variable for these nations. The results were basically the same for both sets of regressions. The effect on most of our coefficients was quite modest. With the exception of the regressions which included Democracy, none of the changes calls for explanation or qualification of previous results. However, there were some interesting differences involving the Democracy indicator.

For both the total sample and the industrial nation sample the beta for Democracy drops sharply and is no longer significant. However, it is important to keep in mind that there is a very high correlation between this dummy variable and the Democracy variable (~.98 for the industrial nations). In view of this it should come as no surprise that the coefficients for both of these variables drop sharply when they are included in the same equation. The exclusion of the Eastern European nations is also problematic as it results in the elimination of a substantial fraction of the nations with the lowest scores on the Democracy variable, particularly for the industrial nation sample. It is common knowledge that such truncation will generally reduce the observed effect of a predictor. There are good theoretical reasons for keeping the Eastern European nations in the sample as they represent important cases of nations that were low in democracy and showed slow growth in social security spending during the period under consideration. For these reasons we have the most confidence in the results which include the Eastern European nations and do not include a dummy variable. Given the high correlation between Democracy and the Eastern Europe dummy, particularly for the industrial nations, it makes sense to include one or the other, but not both in our equations. We favor Democracy rather than the dummy as the dummy is only a proxy for other variables. Our alternative offers a partial explanation as to why this
dummy has its effect. We are, however, unable to rule out the possibility that the effect may be due in part to other unmeasured characteristics of these countries. This should prove a fruitful topic for subsequent research.

While it is better to include the Eastern European nations, it is important to keep in mind the differences in the structure of social security systems between market and non-market economies. One of the most important differences is the reluctance of Eastern European nations to allow unemployment. In contrast, the industrial democracies substantial social welfare funds are allocated to unemployment compensation and to other social problems (e.g. poor single parent families) that can be directly or indirectly linked to unemployment. Another difference is the more extensive use of government subsidies in Eastern Europe that keep down the cost of food, housing and transportation.

For the Political Democracy predictor we find a ten-year lag works better than a 15- or 20-year lag. It may be that the effect of level of democracy is weaker for these longer lags due to competition from other variables, particularly those linked to short-term fluctuation in the economy.

As an alternative to the panel models, we estimated models in which the independent and dependent variables are measured as change scores. Such models have a number of benefits, particularly the ability to control implicitly for constant, but unmeasured variables and measurement error (Liker et al., 1985). These models even more strongly reaffirm the effects of Democracy; the beta for Democracy increases from .17 (Eq 1.4) to .47. There is a similar increase for Democracy in the industrial nations from .32 (Eq 3.5) to .55. There were also some differences for other predictors. Of note was the increase in the beta for SIPE for the industrial nations from .22 (n.s., Eq 3.3) to .54 (p < .05) and the increase for the developing nations from .24 (n.s., Eq 2.3) to .57 (p < .01). Also of note is the decrease in the beta for Right Rule for the industrial nation subsample from -.20 (p < .05, Eq 3.10) to .04 (n.s.). Overall, the change models confirm the role of democracy and further indicate the lack of class effects.

Given that there are some differences, it is reasonable to ask which model is to be preferred: panel regression or the use of difference scores? Both alternatives have their strengths (Kessler and Greenberg, 1981; Liker et al, 1985). Space does not permit a thorough explication of each here, but it is of note that in the present analysis the results are much the same with either model.

When working with small samples it is important to check for outliers and influential cases (Bollen and Jackman, 1985a). Using partial regression plots and standard test statistics (e.g., DFBETAS), we found that Czechoslovakia was an influential case for both the industrial nation sample and the total sample. We did a set of regressions in which this country was excluded and there was a modest impact on the coefficients for some predictors, but never so great as to call for a revision of our earlier conclusions. For example, for Democracy there was a drop in the beta from .17 to .13 for Eq 1.4 and from .32 to .21 for Eq 3.5, but in both instances the coefficient remains significant at the .01 level.
For the developing nations %Aged is a strong predictor of change in Social Security Effort, but this is less the case for the industrial nations. Other research shows that %Aged is an important determinant of levels of Social Security Effort for industrial nations (Aaron, 1967), where the aged population has for some time influenced expenditures for pensions and social security. Our research suggests that this variable has also become important for Social Security Effort among third-world nations. For many years the problem of old age dependency has been overshadowed by the more pressing problem of high fertility rates and child dependency. But the number of old people in these nations is increasing in response to medical and public health advances. The problem of rapidly expanding populations of the elderly in many third-world nations emerged as a major issue at the 1984 World Population Conference in Mexico City. In the years ahead the aged may become a major force in the less developed nations as they already are in the developed nations.

It is important to keep in mind that we are predicting change in Social Security Effort between 1965 and 1975. Most of the industrial nations were already quite high in Social Security Effort by 1965 due in part to the graying of the age structure that had already taken place. Thus there may be a ceiling effect at work limiting the extent to which Social Security Effort can increase. Note that this is not a relevant consideration for developing nations which were starting from a lower base with respect to Social Security Effort. It is also of note that our findings for %Aged hold up when we shift from a 10- to a 20-year lag.

Our negative findings with respect to predictors associated with dependency theory are important, given the dominant position this paradigm presently commands among students of cross-national variation in social and economic inequality. Most studies in this tradition have focused primarily on predictors associated with dependency theory, to the relative neglect of a variety of other potentially relevant predictors such as those associated with demographic demand and democratic theory.

Our analysis shows little support for class theory or for measures of union strength and leftist party rule. Rather than responding strictly or primarily to variation in strength of the working class, spending may reflect a broader form of political competition. Democracy differs from other class theory variables in being more an indicator of non-elite or possibly middle class strength rather than working class strength. For many nations spending on social security programs may reflect middle-class power more than working class power. Many of these programs, particularly pensions and medical care, benefit the middle class as much or more than the working class. Like class theory, these results emphasize the importance of the politics of the welfare state. Yet, they suggest the political strength of groups other than or in addition to the working class be considered.
NOTES

1 We use the term "industrial theory" rather than "convergence theory" because we prefer to reserve the latter term for situations in which the focus on the reduction over time in variation among nations with respect to various social indicators (e.g., Williamson and Fleming, 1977; Inkeles, 1981).

2 Industrial Nations (N = 26): Australia, Austria, Belgium, Canada, Czechoslovakia, Denmark, East Germany, Finland, France, Iceland, Ireland, Israel, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Poland, Singapore, Sweden, Switzerland, United Kingdom, USA, USSR, West Germany. Developing Nations (N = 32): Brazil, Bulgaria, Burma, Chile, Columbia, Costa Rica, Cyprus, El Salvador, Greece, Guatemala, Guyana, Hungary, India, Iraq, Jamaica, Kenya, Malaysia, Malta, Mexico, Nicaragua, Panama, Portugal, Senegal, Sri Lanka, Togo, Trinidad and Tobago, Tunisia, Turkey, Upper Volta, Uruguay, Venezuela, Zambia.

3 We have selected the log of energy consumption per capita rather than the log of GNP per capita because it is a stronger predictor, has less missing data, and is of greater theoretical relevance to industrialism.

4 These two predictors add 3% to R² as opposed to the 1% that Energy Use adds.

5 When all four of the predictors in Table 1 are included in the same model, only Democracy is significant (p < .05). These results, however, must be interpreted with caution as Haitovsky's (1969) test suggests serious collinearity due to the high correlation between %Ages and SIPE (r = .91). When Democracy is added to Eq 1.2 both Democracy and %Aged are significant (p < .01 and p < .05), but when Democracy is added to Eq 1.3 only Democracy is significant (p < .05).

6 In Tables 2 and 3 we do not include more than two independent variables (in addition to the lagged dependent variable) in the same equation. This helps to minimize the loss of cases and the minimize collinearity, which is particularly a problem for the sets of predictors linked to the class and dependency theories. This is especially important for these tables since the samples are much smaller than in Table 1.

7 The only support for dependency theory we could find was with a dummy variable for world-system position (periphery vs semiperiphery). With a 20-year lag (but not with a 10- or 15-year lag) there was a significant effect (beta = .31, p < .05).

8 For the industrial nations when Energy Use (beta = .05), %Aged (beta = .05), SIPE (beta = .00), and Democracy (beta = .30, p < .01) are all included in the same equation, only Democracy is significant. When either SIPE or %Aged is excluded, the outcome is the same.

9 The results are the same when we use Stephens' (1979) unrecorded measure of centralization.

10 In a related study we find that %Aged is an even stronger predictor of pension effort (Pampel and Williamson, 1985).

11 In view of this we cannot rule out the possibility that the effect of %Aged is weaker among industrial nations because the lagged dependent variable summarizes its influence.

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