

*Cultural Values, Stable Democracy, and Economic Development: A Reply**

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I. Introduction

In their contributions to this issue of the *AJPS*, Jackman and Miller (1996), and Swank (1996), have subjected our work, and that of Putnam (1993) to penetrating and forceful criticism. This rejoinder explains why we disagree with some of the points they have made, responding first to the arguments by Jackman and Miller concerning the linkages between culture and democracy, and then engaging the criticisms by Jackman and Miller and by Swank concerning culture and economic development.

II. Culture and Democracy

A. Theoretical Issues

In previous research, Jackman (1973), Bollen (1980), and Bollen and Jackman (1989) have made a strong case for not confusing the *stability* of democracy with *levels* of democracy—a point on which we emphatically agree. In their present contribution, however, Jackman and Miller seem to take the position that *levels* are the only aspect of democracy that can or should be studied. Here, we respectfully but firmly disagree with them.

We do not confuse the two. In another paper (Inglehart, et al. 1995), we analyze: (1) *levels* of democracy at a given point in time; (2) the *stability* of democracy in the given societies; and (3) *changes* in *levels* of democracy from one time to another. All three are significant. Whether or not democratic institutions survive throughout good times and bad, depends on whether they have built up deep-rooted cultural attachments among the citizens. Weimar Germany had a constitution that was, on paper, as democratic as that of any society on earth; the level was high. But democratic norms did not take root, and these institutions proved unstable.

Whether his conclusions are right or wrong, Inglehart's (1988, 1990) analysis of democratic stability deals with an important and legitimate object of study—a point that Jackman and Miller seem unwilling to accept. Their rigidity on this issue is so great that, even when he plainly is analyzing

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stability, Jackman and Miller speak as if he really were (or ought to be) examining absolute *levels*. Thus, they claim that Inglehart's analysis of the number of years for which democratic institutions have survived in given countries implies that Belgium has a higher level of democracy than France.

This mixes up two different things. In 1995, France and Belgium had almost exactly the same levels of democracy (as coded by the Freedom House rankings that Jackman uses); but the continuous stability of democratic institutions has indeed been shorter in France, where the IV Republic was brought down by the military uprising that brought De Gaulle to power in 1958 (with attempted military insurrections continuing into the 1960s). Similarly, although Bulgaria and Slovenia today are coded by Freedom House as having virtually the same *levels* of democracy as Britain and Sweden, democratic institutions have functioned much longer in Britain and Sweden than in Bulgaria or Slovenia—a fact that no prudent analyst would ignore in assessing the stability of democratic institutions.

Jackman and Miller claim that Inglehart's argument does "not address the issues that have motivated scholars, at least since Almond and Verba (1963), concerning the impact of democratic (i.e., civic) values on democratic performance," (650), again implicitly assuming that level of democracy is the only valid or important subject for investigation. They fail to advance any convincing argument supporting this central assumption of their critique.

Jackman and Miller also claim that measuring the stability of democracy is impossible because levels of democracy have changed greatly over the last two centuries. They argue that the expansion of mass participation makes it impossible to measure democratic stability from any given starting date because one cannot begin counting the number of years during which a society has been "democratic" until it becomes democratic by "today's" standards. This argument is convincing only if one adheres to a simplistic, unidimensional concept of democracy. Dahl (1971) distinguishes between two key aspects of democracy, contestation and inclusion. He argues that democracy is more likely to survive over time if contestation precedes broad mass inclusion. To insist that democracy does not exist until "today's" standards have been attained would be to define democracy as an empty cell. For levels of democracy continue to rise, in an ongoing process that in Western democracies began with enfranchisement of the middle class, was later extended to the working class, then to women and (in the 1970s), to 18–20 year olds. As Barnes, Kaase et al. (1979) and Inglehart (1977, 1990) argue, levels of mass participation continue to rise. It would be absurd to claim that Western democracy began only in the 1970s (or even in the late 1920s, when women obtained suffrage). These were impor-

tant stages in the extension of mass inclusion, but genuine contestation existed well before that time.

B. Empirical Issues

In their contribution, Jackman and Miller (1996) cite the article, "Derivation of Theory by Means of Factor Analysis, or Tom Swift and his Electric Factor Analysis Machine" (Armstrong 1967). This article argues that factor analysis is often used to generate theory, without the need for lengthy reflection or searches of the literature: simply by scanning the pattern of correlations within any body of data, one can automatically produce a theory that "explains" the empirical configuration. In their empirical analysis, Jackman and Miller use a surprisingly mechanical and atheoretical approach, almost as if they were developing an algorithm designed to automatically *refute* any theory by simply scanning a large number of correlations—regardless of whether they were relevant to the theory under consideration.

Social science theories often use variables based on multiple indicators because a central variable (such as Putnam's "Civic Community") is imperfectly measured by any single indicator. Thus a multi-item indicator often explains more of the variance in the dependent variable than any of its components. The converse is also true: if one breaks down a multi-item indicator into its component parts, one can greatly weaken its explanatory power.

Accordingly, the first step in Jackman and Miller's analysis of both Putnam's (1993) and Inglehart's (1988, 1990) findings, is to scan the correlations underlying the central variable. If the correlations fall below some arbitrary standard, it is claimed that they do not really tap a coherent underlying dimension, so henceforth one must analyze each of the component variables separately. Breaking down the key variable into its component parts increases measurement error, weakening the subsequent test of the theory.

The heart of Inglehart's investigation of culture and stable democracy is a structural equation analysis using a three-item indicator of "civic culture." Inglehart argues that democratic stability is influenced by a society's economic structure (measured by GNP per capita), social structure (measured by the percentage of the population employed in the service sector), and cultural structure. The latter, called "civic culture," is a variable comprised of three indicators: "(1) interpersonal trust; (2) life satisfaction; and (3) support for revolutionary change (which is negatively correlated with the civil culture)" (Inglehart 1990, 45). Inglehart demonstrates that this variable has a positive and statistically significant effect on democratic stability.

Jackman and Miller begin their criticism of this empirical relationship by questioning the construction of the civic culture variable. In their Table

4 they use seven cultural variables to generate 21 bivariate correlations. In examining this correlation matrix, Jackman and Miller declare that “The modest size of most of the correlations in Table 4 challenges the assertion that these indicators are all components of a single enduring and distinctive *cluster* of cultural traits” (646, emphasis in original). But, Inglehart never claims that all seven of these variables form a tightly integrated cluster or that all of these variables influence democratic stability. The three indicators that *are* used to generate the civic culture variable have pairwise correlations above the .5 level. Jackman and Miller virtually bury this fact in a table that contains everything but the kitchen sink. They simply take every variable included in chapter one of Inglehart’s book and scan the set of bivariate correlations. To justify this procedure Jackman and Miller cite a passage in which Inglehart says that five of the seven variables “tend to go together. They constitute a syndrome of positive attitudes toward the world in which one lives” (Inglehart 1990, 41). The other two variables do not even have this passing mention to justify their inclusion. For example, one variable, the percentage Conservative, plays no role in Inglehart’s analysis, appearing only as one of the categories in the table showing the percentage revolutionary. It is difficult to see why it was included except that it generates four of the five lowest correlations in Table 4.

Jackman and Miller use a similar approach in their Table 5, which tests some genuine predictions, but submerges them in a larger number of spurious ones, conveying an impression of inconsistent findings. Why *should* levels of interpersonal trust show the same relationship to economic growth rates as does the percentage of women discussing politics? Why should the percentage favoring revolutionary change show the same relationship to economic growth as does the percentage of Materialists? And why should we expect the percentage conservative to show any particular relationship at all with these variables? It is not even discussed either in Inglehart’s analysis of stable democracy or in his discussion of economic growth. The claim that they all should show uniform correlations has no theoretical basis. The only rationale for this claim would be if Jackman and Miller attributed to us the position that all six of these variables had virtually one-to-one relationships to each other—and consequently, the same relationships with everything else. This is a huge conceptual leap to make from the statement that most (but not all) of these variables “tend to go together.”

The three components of the multi-item civic culture variable are, in fact, closely related, as one can see if one looks closely at Jackman and Miller’s Table 4, and they show loadings from .76 to .91 on a common factor in a principal components analysis. This analysis also indicates that the dependent variable (years of democracy), the three political culture indi-

cators and two economic variables (GNP/capita in 1980 and the percent of the economy in the service sector) show loadings from .66 to .95 on a common factor.

In short, when we strip away the diluting variables added by Jackman and Miller, these variables are quite coherent. For the sake of the argument, nevertheless, let us break down our dependent variable and analyze each of its components separately, as they advocate. Instead of a structural equation analysis, moreover, let us use an OLS multiple regression analysis as Jackman and Miller seem to prefer. Finally, responding to Jackman and Miller's argument that our earlier analysis of stability covers a period before these societies were fully democratic (in particular, when women were not yet enfranchised), let us move the time period forward: instead of covering the period from 1900 to 1980, let us examine stability from 1920 to 1995 (14 years after the 1981 survey). This covers a period when women had obtained the vote in virtually all of the relevant countries.

What does this revised analysis find about the effect of cultural factors on stable democracy?¹ As Table 1 indicates, we find essentially the same pattern using the later period as we did with the earlier period. The shift in time periods does not change things greatly; the key requirement is that stability be measured over a long period—short-term political “stability” being a contradiction in terms.

Table 1 shows the results of the regression analyses of years of continuous democracy from 1920 to 1995 on the three components of political culture and two economic control variables. Model 1.1 is quite interesting: while none of the five independent variables are individually significant, the overall model is significantly different from zero ($F = 18.16$; $p = .00$) and it explains 79% of the variance in the dependent variable. Given that we only have 24 cases and that the cultural and economic variables share so much variance, these results are not surprising.² Taken together, how-

¹Jackman and Miller suggest that using cultural variables measured in 1981 to demonstrate democratic stability during a previous period is specious. Jackman and Miller claim that if the cultural variables are correlated with unemployment rates this indicates that they are sensitive to a variable that fluctuates from year to year, and are therefore unstable. Inglehart (1990) and Abramson and Inglehart (1995) have demonstrated that Postmaterialist values have a strong negative linkage with inflation rates. This in no way undermines their long-run stability; the underlying generational differences persist over time, creating a long-run trend toward Postmaterialist values despite the short-run fluctuations. Jackman and Miller mistakenly assume that cross-sectional correlations with unemployment rates demonstrate that these cultural values are unstable. When one actually measures cultural variables over time one finds an impressive degree of stability (see Inglehart, et al. 1995).

²It would be surprising if most of these variables were individually significant. The problem with collinear data is that the independent variables are causally related and can therefore provide little independent information. Leamer (1978) argues that collinearity is

Table 1. Stability of Democracy: Multiple Regression Model

Independent variable	Model 1.1	Model 1.2	Model 1.3	Model 1.4	Model 1.5
Culture:					
% Trust people	.45 (1.52)	.48 (1.57)	—	.50 (1.65)	—
Life satisfaction (mean, 10-pt scale)	10.53 (1.85)	12.74* (2.21)	—	14.89* (2.78)	—
% Revolutionary	-1.11 (1.31)	-1.71* (2.14)	—	-1.95* (2.55)	—
Pol. culture index	—	—	—	—	.48* (3.55)
Social Structure:					
% Service sector	.50 (.84)	.62 (.99)	1.31* (2.84)	—	.58 (1.03)
Economic:					
GNP/capita, 1980 (\$100s)	.18 (1.65)	—	.40* (4.26)	—	.19 (1.78)
Intercept	-76.3	-80.4	-54.8	-61.4	-52.3
Adjusted R²	.79	.77	.72	.77	.80

Note: Dependent variable is the number of years for which democratic institutions functioned continuously in the given society from 1920 to 1995. Entry is unstandardized OLS coefficient. The *N* is 24 for all models. Coefficient divided by standard error is in parentheses.

*Significant at .05 level.

ever, the cultural variables are statistically significant. A Wald test allows us to reject the null hypothesis that the cultural variables are not jointly significant at the .05 level of significance ($F = 4.39$). Models 1.2, 1.3, and 1.4 support this conclusion.

Model 1.5 includes a combined political culture index based on their loadings on the underlying political culture factor. This provides the most theoretically satisfying model. Inglehart's expectation was that political culture has a positive effect on democratic stability, controlling for social structure and economic variables. As expected, the multi-item indicator provides a more accurate measure of the underlying dimension than do any of its individual components. Controlling for the effects of per capita GNP and percent in the service sector, the effect of political culture is statistically significant.

Is the statistically significant relationship between political culture and democratic stability a product of selection bias? Jackman and Miller claim that it is and that Inglehart is guilty of "sampling on the dependent vari-

a problem of interpretation of multidimensional information. This is reason enough to construct a composite indicator.

able." This accusation is inaccurate. The 1981 World Values Survey over-represented democratic countries simply because at that time it was impossible to carry out surveys in most authoritarian societies. In fact, the survey went beyond most previous research on political culture in that it did include some authoritarian societies and several societies that had only recently made the transition to democracy. Jackman and Miller assert, nevertheless, that the linkages between culture and democracy would disappear if a broader sample were used. Jackman and Miller provide no theoretical or empirical evidence to back up this assertion. Contrary to their assertions, Inglehart, et al. (1995), analyze the effect of political culture on democratic stability using a sample that includes nine authoritarian countries, eight transitional democracies, several post war democracies, and several long-standing democracies. The results from this analysis flatly refute Jackman and Miller's claim. Using the broadest sample available, the findings regarding political culture and democracy strongly support the theoretical expectation that democratic stability depends on cultural attitudes.

To sum up, Jackman and Miller have set out to destroy a straw man that they themselves have created. They attempt to undermine the empirical relationship between culture and democratic stability by including theoretically irrelevant variables and by ignoring the multi-item index that was theoretically motivated.

III. Culture and Economic Development

Economic growth, being a summary measure of all of the activities of an entire society, necessarily depends, in some way, on everything that goes on in a society. Societies differ in many easily observed ways, and it is easy to identify various economic and cultural peculiarities and imagine that they are keys to growth performance. For this, as Jacobs (1984) rightly observes, we do not need economic theory: 'Perceptive tourists will do as well.' The role of theory is not to catalogue the obvious, but to help us to sort out effects that are crucial, quantitatively, from those that can be set aside (Lucas 1988, 13).

A. Theoretical Issues

1. Defining Growth. A major concern we have with both Jackman and Miller and with Swank is how they demonstrate the relationship between their alternative arguments and economic growth. We link cultural values to long-run growth rates within an endogenous growth framework. This is very different from focusing on short-run fluctuations in aggregate output. For example, a concern for stabilizing GDP (GNP) is the province of students who study business cycle—or short-run—fluctuations and the Phillips curve (Fischer 1977; Lucas 1972). On the other hand, the study of

long-run growth focuses on changes in per capita GDP over a period of decades. It involves a different set of factors such as technological shocks, national savings behavior and, more recently, human capital formation.

In other words, our concern here is not why GDP is more stable over some short period of time, but rather why certain countries grew at markedly different rates even though they may have similar endowments in population, working age population, urban residence, education levels, proportion of GDP in agriculture and manufacturing, and proportion of primary commodities in merchandise exports.³ The large difference in living standards, within a timespan as short as three decades, despite these initial similarities, pose a challenging puzzle. We believe cultural values play a role.

2. *Specification.* With growth defined we turn to standard theories. This is not a trivial exercise since explicit derivation moves us beyond simple correlation. Even if one were to catalogue a sensible theoretical motivation, the issue then remains as to how important the effect is since many things are “known” to influence economic growth. As Robert Lucas argues in the above passage, theory should take us beyond observation and help us to identify elements that are of crucial importance in explaining economic growth.

While both sets of critics fail to demonstrate explicitly how their arguments affect growth, Swank bases his selection of dummy variables on the social corporatism literature (i.e., Schmitter 1981; Lehbruch 1984; Cameron 1984). But here again we see the analytical deficit created by not being explicit about causal linkages. If one were to study short-run fluctuations in growth, we suspect social corporatism may play a role. We are agnostic on this issue. Our concern, however, is this casual theoretical treatment of causation between social corporatism and long-run growth. As a theoretical starting point, proponents of social corporatism argue that institutional mechanisms can restrain labor's inflation adjusted wage demands—real wage restraint—and that this *somehow* causes growth, but the failure to differentiate long-run from short-run growth suggests that much of this literature is based on a mixture of wishful thinking and suggestive—and poorly executed—aggregate data analysis. The argument for real wage restraint that allow for real—not nominal—fiscal and monetary policy effects has a tradition going back for many years. Stanley Fisher's (1977) sticky wage theory—due to the duration of contracts—could fit within a social corporatist model. But, Fischer's theory is about short-run changes in output. It plays no role in explaining our dependent variable—long-run growth.

³For example, from 1960 to 1988 the Philippines' and Korea's annual per capita GDP growth rate was 1.8% and 6.2% respectively. In 1960, per capita GDP for both was nearly identical and by 1988 Korea's was about three times greater (Lucas 1993).

Long-run growth theories derive from either Robert Solow's (1956) model of exogenous growth or from the more recent endogenous growth literature (Lucas 1988; Romer 1990). We work within an endogenous growth framework for reasons laid out in our article. While that article presents no formalization of the relationship between cultural values and economic growth (see below), we do argue that culture affects growth by, among other things, its influence on thrift and achievement motivation. Alternatively, it is difficult to see where social corporatism fits within this theoretical framework. To date, there is no explicit theory indicating how social corporatism fits in either a Solow model or an endogenous growth model. The effect of social corporatism then—as it pertains to long-run growth—is merely a correlation, if that.⁴

3. *A Simple Formalization.* As stated above, our paper is primarily an empirical replication of endogenous growth theory. Recall that a subset of endogenous growth models emphasize the role of human capital accumulation. We introduce a simple linkage in Lucas's (1988) model.⁵

Consider a world with heterogeneous economies. Our purpose is to model the growth rate of economies each of which is characterized by a number $C \in \{0, 1\}$, where "0" means the presence of cultural values that encourage thrift and achievement and "1" indicates the presence of cultural values that discourage thrift and achievement. These cultural values, we argue, influence human capital accumulation.

We now specify the choices individuals face in an economy. Using Lucas's notation (at time t) there are $N(t)$ individuals and this population grows at rate λ . Each individual, i , with a current stock of human capital, $h(t)$, spends $1 - u(t)$ of his time in retraining and skill enhancement. The rest of the time, $u(t)$, is spent working. When individuals spend $(1 - u(t))$ in skill acquisition, the rate of skill improvement, denoted $\dot{h}(t)$, is given as follows: $\dot{h}(t) = h(t) \times (1 - u(t)) \times \delta$, where δ is the upper bound on the rate of increase of an individual's skills.

With individual choices defined, we turn to resource constraints that apply in the aggregate (i.e., at the level of the economy). First, using a modified Cobb-Douglas production function, it is posited that if an econ-

⁴Even if social corporatism is only plausibly associated with short-run fluctuations in growth it could be argued that this is still an important issue. Lucas (1987; 20–31) shows, however, that when one measures the relative costs of a reduction in the growth rate versus an increase in growth instability there is a far greater loss to the individual when growth rates are reduced.

⁵This characterization is in reduced form. Cultural values could be criticized as being a "residual category" whereby explicit mechanisms are not fully specified. Future theoretical work is needed to resolve this issue. For our purposes here, we make the weaker claim that cultural values can plausibly "fit" in an endogenous growth framework.

omy, at time t , has a capital stock, $K(t)$, and a labor stock, $N(t)$, with human capital, $h(t)$, then total output produced is equal to:

$$AK(t)^\beta [u(t)h(t)N(t)]^{1-\beta} h_a(t)^\gamma \quad [1]$$

where A is available technology and is held fixed so as to isolate the effects of $h(t)$. The term $h_a(t)$ is the average human capital level in the economy. This "external effects" term is crucial to the results for this particular type of endogenous growth model. Further, the index, γ , quantitatively estimates the impact of external effects.

Total output generated in each economy from Equation [1] is then distributed between consumption goods, $N(t)c(t)$, or increases in the amount of capital goods, $K(t)$. The resulting relation follows:

$$N(t)c(t) + K(t) = AK(t)^\beta [u(t)h(t)N(t)]^{1-\beta} h_a(t)^\gamma \quad [2]$$

At this point we have identified the choice sets; individuals spend time between working and human capital activity (skill enhancement) and, in the aggregate, divide total output between consumption goods and capital goods. The next step is to identify the actual choices. This is accomplished by assuming that individuals maximize a standard utility function (Blanchard and Fischer 1989, 43-4):

$$\int_0^\infty e^{-\rho t} \left[\frac{c(t)^{1-\sigma} - 1}{1-\sigma} \right] N(t) d(t) \quad [3]$$

With this utility function we posit that individuals discount their consumption stream at the rate ρ . We also assume that individuals prefer more consumption to less.

To find the market equilibrium, Lucas uses Hamiltonian procedures. The steady state growth rate of consumption⁶ is shown to be:

$$v = [(\sigma(1 - \beta + \gamma))^{-1}(1 - \beta)(\delta - (\rho - \lambda))] \quad [4]$$

In this equation cultural values influence savings behavior and the ease with which skills are acquired. Societies with cultures that emphasize thrift and achievement ($C = 0$) have lower values of ρ and higher rates of δ relative to societal cultures that place less emphasis on thrift and achieve-

⁶The steady state occurs when each variable grows at a constant rate, but these constant rates need not be uniform across the variables. The analytical purpose is simplicity.

ment, ($C = 1$). Consequently, economies where $C = 0$ grow at a faster pace.

This result indicates the potential for cultural values to affect growth rates through specific parameters in the model—i.e., ρ , δ . The detailed mechanisms have not been spelled out in this example, however. One avenue for future theoretical work centers on Converse (1969) and Converse and Dupeux's (1962) work on the intergenerational transfer of political attitudes to include cultural characteristics as well. This intergenerational transmission fits in nicely with "overlapping generations" models of household behavior popularized by Samuelson (1958) and Diamond (1965). If this type of mechanism can be established—as a first principle, starting with utility functions—then cultural effects will merit increased attention.

Note, however, social corporatist arguments—as they are presently constituted—do not even meet the weaker requirement of plausibility. It is difficult to see how variables that influence long-run economic growth such as thrift, achievement, R&D spending, or human and physical capital can be affected by an argument that deals with real wage restraint.

B. Empirical Issues

1. *Jackman and Miller.* Jackman and Miller argue that "there is no systematic relationship between any indicator of culture and current economic growth rates" (652). As evidence of this they regress 1980–88 per capita growth rates on each of Inglehart's cultural variables and on a control variable for the 1980 level of per capita GDP. These results are presented in their Table 6.

Do these individual cultural indicators have an effect on economic growth? To correctly evaluate this question we add each of the six cultural variables to an endogenous growth model in Table 2.⁷ As the results in Table 2 indicate, there is little evidence of conditional convergence over this time period; few of the baseline economic variables are significant.⁸ Within an endogenous growth framework, however, four out of the six

⁷Inglehart's (1990) only relevant claim is that postmaterialist values are negatively linked with economic growth. He does not claim civic culture was conducive with economic growth, but in a sense, Putnam (1993) does if we can equate these cultural variables with civic community.

⁸This is most likely due to the fact that Jackman and Miller's dependent variable is economic growth over a nine-year period. Proponents of the conditional convergence hypothesis argue that poorer nations catch-up with richer countries (holding constant the initial level of human capital) over the long-run. The lack of convergence in this case is not a result of sample selection; the same sample of countries exhibits convergence over the period 1960–89. These results are available from the authors.

Table 2. CULTURE AND GROWTH
Dependent variable: GROW 1980-89

	2.1	2.2	2.3	2.4	2.5	2.6
Constant	-7.39* (2.07)	6.86 (1.09)	-2.04 (0.43)	-1.92 (0.51)	-5.83 (1.55)	3.95 (1.12)
Per Capita GDP in 1980	-0.38 (0.21)	0.30 (1.71)	0.19 (0.91)	0.09 (0.79)	0.20* (2.5)	0.04 (0.46)
Primary Education in 1980	0.64* (2.24)	0.008 (0.21)	0.01 (0.19)	0.03 (0.85)	0.05 (1.33)	-0.01 (0.35)
Trust	0.08* (2.12)					
Satisfaction		-1.13* (1.96)				
% Materialist			-0.08* (2.69)			
% Revolutionary				0.009 (0.11)		
% Conservative					0.04* (1.75)	
% Women Discussing						-0.02 (1.0)
R ²	.22	.14	.17	.02	.33	.11
F	1.80	1.31	1.12	0.14	2.74**	0.52
SEE	1.67	1.58	1.69	1.71	1.12	0.71
White (χ^2)	15.94**	15.46**	15.84**	16.68**	8.20	11.10
RESET (<i>F</i>)	1.18	0.007	2.62	1.42	2.22	2.50
N	23	23	20	23	20	16

Note: absolute values of *t* statistics, in parentheses, are computed using White's procedure for estimating consistent standard errors in the presence of heteroskedastic residuals. H. White, "A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity," *Econometrica*, 48 (1980), 149-70.

**t* statistic $p < .10$.

** χ^2 $p < .10$.

****F* statistic $p < .10$.

cultural variables are significant and have the correct sign.⁹ Further, the first four models show evidence of heteroskedastic disturbances (White test). Is it possible that Jackman and Miller find that the cultural variables are insignificant because they have inflated standard errors? The answer is yes. Replicating the analysis (not reported here) in Jackman and Miller's Table 6 using corrected standard errors leads to results similar to those reported in Table 2. Cultural variables do have a significant effect on economic growth after accounting for the problem of heteroskedasticity.

⁹Jackman and Miller (1996) point out in footnote 22 that two cases, South Africa and Argentina, are influential. These two cases exert undue leverage on coefficient estimates. They state that removal of these cases makes the effect of Percent Revolutionary and Trust even less significant. Rather than removing these cases, we replicated the analysis in Table 2 using Welsch's bounded influence estimator which downweights high leverage observations. Results of this analysis, available from the authors, do not differ significantly from those presented in Table 2.

2. *Swank*. Swank's contribution criticizes our analysis of the role of cultural factors in economic growth. It is similar to Jackman and Miller's contribution in one respect: it proposes an institutional interpretation to explain away the role of cultural factors. Instead of using one directly measured variable (Achievement Motivation) that was measured empirically through independent surveys in each society, Swank acted as a perceptive tourist and generated two variables that appear to measure institutional differences. He asserts that his variables, "Confucianism" and "Social Corporatism" tap something similar, but his argument is *ad hoc* and unconvincing. Not only does the institutional story he tells about "Confucianism" and "Social Corporatism" fail to provide any linkage to long-run growth, but his coding of the variables is suspect as well.

First, much of the literature on corporatism would include a wide range of other societies besides the five he codes as "social corporatist." Spain, Italy and Portugal were the original corporatist states; and more recently, much influential literature has used the corporatist label to refer to West Germany, Switzerland, The Netherlands and much of Latin America. Swank only codes five (high growth) states as corporatist, however: Norway, Sweden, Denmark, Finland, and Austria. He rejects the others, emphasizing the distinction between "Christian Democratic" corporatism and "Social Corporatism." What reason does Swank give to explain this crucial distinction? The fact that "Christian Democratic" corporatism was crucially shaped by Roman Catholic values and theology! In short, he uses a cultural criterion to define the independent variable that purportedly proves the irrelevance of cultural variables.

Second, by his own criterion, one of Swank's own five cases seems to be miscoded: Austria should be coded as a Christian Democratic corporatist society. Her corporatist structure reflected the *modus vivendi* that was reached in the postwar era between the (Roman Catholic) Austrian People's Party, and the secular Social Democratic Party. Austria is at least as clear a case of Christian Democratic corporatism as is Germany or the Netherlands. Removing Austria from the category of "Social Corporatist" means that this group is now composed solely of Nordic countries. This raises the question: Do the Nordic countries have high growth rates because they have similar institutions or because they have similar cultures?

The *ad hoc* nature of Swank's coding becomes even more striking when we turn to the variable "Confucianism." Figure 1 of our article makes it evident that all three of the East Asian societies included in the 1990 World Values Survey (Korea, Japan, and China) are characterized by: (1) very high levels of achievement motivation; and (2) very high growth

rates.¹⁰ Does this “Confucianism” variable capture common institutions, as Swank claims, or cultural values? Swank asserts that these three East Asian societies have common institutions and that these institutions have something in common with those of the “Social Corporatist” countries.¹¹

There are two problems with this view. For one, it is difficult to imagine a more diverse collection of political and economic institutions than those that characterize China, Japan, and Korea. Politically they include a stable democracy, a newly emerging democracy, and a one-party dictatorship. Economically, they range from China, with a state-dominated economy to two fairly open and free-market oriented economies.

In addition, let us assume for a moment that institutional differences help explain economic growth. Though they do not eliminate the effect of cultural values, they also contribute. If “Social Corporatist” and “Confucist” countries have similar institutional structure, why does Swank create two dummy variables rather than one? If the casual path from institutional structure to economic growth is through the “promotion of concertation and consensus” (Swank 1996, 670), then we should create a single dummy variable to capture communitarian institutions.¹² In fact, when we incorporate this dummy variable into our model 4 from the original article, we obtain the following results:

$$\begin{aligned} GROW &= 1.70 - 0.44RGDP + 2.64PRIMARY \\ &+ 1.34ACHIEVEMENT + 0.64COMMUNITARIANISM \\ R^2 &= .76 \end{aligned}$$

In this case, achievement motivation remains statistically significant ($t = 2.65$) when we include a variable capturing communitarian institutions. Only the communitarian institutions variable is not significant ($t = 1.46$).

¹⁰In our original article, we point out in footnote 13 that achievement motivation has a significant effect on economic growth even after we remove these three cases from the sample.

¹¹Carrying Swank’s procedure one step further, if one can code the high growth countries into “Confucian,” or “Social Corporatist” groups, why not create a dummy variable for “African societies,” which would include the two countries with the lowest growth rates, Nigeria and South Africa?

¹²Swank implicitly recognizes this fact when he reports that the “bivariate correlation between (log) 1948–77 deaths per 100,000 population from political violence and communitarian polities is $-.34$ (sig. $< .05$)” (670). If Confucian and Social Corporatist countries are different, why does Swank group them together in this case?

IV. Conclusion

The available evidence suggests that cultural factors play an important role in supporting both stable democracy and economic development. Jackman and Miller's assumption that the stability of democratic institutions cannot or should not be studied, has no theoretical (or operational) basis. It seems to blind them to what is actually taking place in Inglehart's analysis, leading them to make allegations that are unsustainable. Their empirical analysis might be described as Refutation by Dilution: in both Table 4 and Table 5 of their analysis, they virtually bury the theoretically relevant variables under a much larger number of diluting variables that are introduced with only the flimsiest justification. A mechanical scanning of the resulting array of correlations or regression coefficients conveys an impression of inconsistent and sometimes weak linkages; but if one focuses instead on the theoretically relevant variables, strong and statistically significant linkages between culture and stable democracy emerge—even when we shift the methodology and time period of our analysis in response to Jackman and Miller's criticism.

Our critics' analyses of cultural values and economic development is also flawed. If one uses a theoretically appropriate endogenous growth model and corrects for heteroskedasticity, the hypothesized linkage between achievement motivation and growth stands up, despite Jackman and Miller's criticisms. It also appears that Swank's effort to explain away these linkages between culture and growth rates with an institutional interpretation is neither parsimonious, theoretically coherent, nor empirically sustainable.

Our findings pertaining to cultural values and economic development must be viewed as preliminary, nevertheless. In the first place, cross-sectional data used in this analysis cannot provide as powerful a test of growth theory as does panel data (Quah 1993). Unfortunately, no feasible panel data exists that incorporates both economic variables and cultural variables for a sufficiently long time frame. Second, explicit theorizing is also needed. We use a simple formal model to express possible linkages between cultural values and growth, but the model can and should be improved.¹³

It would be absurd to argue that cultural values provide the entire explanation for why democratic institutions survive, or for why some societies have much higher growth rates than others. But they do, together with *ex-*

¹³There are also alternative ways to analyze these phenomena. One avenue is to examine—as data permits—the diffusion of cultural attitudes within a country as well as across continents. This carries promise that certain mechanisms can be identified. In addition, the dynamic effects on growth could be ascertained with the passage of time.

plicit, sensible economic and institutional factors, constitute an important part of the story.

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