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# BUREAUCRACY AND GROWTH: A CROSS-NATIONAL ANALYSIS OF THE EFFECTS OF “WEBERIAN” STATE STRUCTURES ON ECONOMIC GROWTH\*

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*The role of bureaucratic authority structures in facilitating economic growth has been a sociological concern since Max Weber’s classic contributions almost 100 years ago. Using a recent and original data set, we examine the characteristics of core state economic agencies and the growth records of a sample of 35 developing countries for the 1970–1990 period. Our “Weberianness Scale” offers a simple measure of the degree to which these agencies employ meritocratic recruitment and offer predictable, rewarding long-term careers. We find that these “Weberian” characteristics significantly enhance prospects for economic growth, even when we control for initial levels of GDP per capita and human capital. Our results imply that “Weberianness” should be included as a factor in general models of economic growth. They also suggest the need for more attention by policymakers to building better bureaucracies and more research by social scientists on variations in how state bureaucracies are organized.*

**E**xplaining economic transformation at the national level is a classic sociological preoccupation as well as a central concern of economic analysis. There are many ways to approach this task, but one of the most challenging involves trying to analyze the role that public institutions play in fostering (or impeding) economic growth.

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**Growth depends on governance.** Deciphering the relation between administrative structures and changing levels of economic output is, therefore, a perennial preoccupation of theorists and practitioners alike. In 1997, the World Bank took up the task again in a *World Development Report* called “The State in a Changing World.” Both the choice of topic and the content of the report itself signified an important shift in thinking about the role of the state within the “development establishment.” **Explaining why some state bureaucracies are more effective than others seems at last to be taking precedence over simply condemning excesses of state intervention.** Pursuing this agenda requires re-exploring classic arguments on the comparative effectiveness of different forms of administrative organization. It is an obvious opportunity for sociological analysis to make a contribution to the understanding of cross-national differences in rates of economic growth.

Among the classic arguments that need to be brought together with some systematic comparative evidence, Weber’s analysis of bureaucracy is perhaps the most obvious candidate. At the beginning of the century, Weber’s ([1904–1911] 1968) monumental



essays, *Economy and Society*, argued for the fundamental value of bureaucracy as one of the institutional foundations of capitalist growth. Subsequent comparative historical analysis (e.g., Polanyi [1944] 1957) echoed Weber's assertions, but the "bureaucracy as a tool of growth" thesis always had to contend with the historically prior and ideologically powerful "Smithian" view that government, regardless of its organizational form, was the enemy of growth as soon as it went beyond protecting property rights.<sup>1</sup>

In the 1970s and 1980s, neo-classical political economy and rational choice analysis provided new analytical reinforcement for the Smithian perspective (cf. Buchanan, Tollison, and Tullock 1980; Colclough and Manor 1991; Collander 1984; Krueger 1974). Case studies of "rent-seeking" and "predatory" states complemented these analytical arguments with equally powerful empirical support (e.g., Bates 1981; Klitgaard 1988). Unfortunately, in the rush to avoid the dangers of state intervention, the question of what kinds of state structures are most likely to promote economic growth was easily lost.

By the 1990s, however, economists (but surprisingly not sociologists) began to focus on cross-national data that demonstrated the importance of looking more closely at how states were organized. Their results showed various measures of "quality of government" to be powerfully connected to economic growth (Knack and Keefer 1995; Mauro 1995). This rapidly growing literature suggests that earlier neo-classical visions of government performance were too simplistic. Nonetheless, perhaps because of the absence of sociologists from the discussion, a way of describing what "good government" would look like was still lacking.

Contemporary empirical analyses of rent-seeking and corruption often use the term "bureaucracy" in its everyday pejorative sense rather than in the Weberian sense of a set of administrative organizations with specific structural features. Weber viewed bu-

reaucracy, not as a generic collection of state officials, but as a particular kind of organizational structure, set in contrast to earlier patrimonial and prebendal forms of government administration.

The Weberian perspective does not negate the positive effects of strengthening market institutions, but it does postulate that bureaucratically structured public organizations, using their own distinct set of decision-making procedures, are a necessary complement to market-based institutional arrangements.<sup>2</sup> More precisely, Weber argued that public administrative organizations characterized by meritocratic recruitment and predictable, long-term career rewards will be more effective at facilitating capitalist growth than other forms of state organization. This hypothesis cannot be dismissed simply by the discovery that people who call themselves bureaucrats have engaged in rent-seeking or that corrupt governments have undermined economic growth. Addressing the "Weberian state hypothesis" means answering the question, "Are countries whose administrative apparatuses more closely approximate bureaucratic forms of organization characterized by higher rates of economic growth?" For some reason, students of economic development have lacked the incentive required to generate a systematic empirical response to this apparently simple question. Our research reported here represents an initial effort to fill the lacuna.

Using an original data set, we examine the effect on economic growth of certain structural features that were key elements in Weber's original characterization of bureaucracy. Our "Weberianness Scale" offers a simple measure of the degree to which core state agencies are characterized by meritocratic recruitment and offer predictable, rewarding long-term careers.

<sup>1</sup> By "Smithian" we mean the standard "laissez-faire" view of government's role that is usually attributed to Adam Smith. Smith's own view was actually more sophisticated, including, for example, an appreciation of the importance of public provision of a range of collective goods.

<sup>2</sup> The spirit of the Weberian perspective is at least partially recaptured in Williamson's (1985) "new institutionalist" assertions that complex production systems are likely to require mixing (essentially nonmarket) governance structures with more traditional market transactions. But application of the Williamsonian perspective has generally been limited to analyses of relations among private firms and is rarely invoked in studies of state bureaucracies.

## RECENT LITERATURE

The literature on the role that state bureaucracies play in promoting or impeding economic growth ranges from detailed case studies of particular agencies in particular countries to cross-national analyses using statistical proxies drawn from many countries. Traditionally, political scientists have dominated the production of case studies (e.g., Stepan 1978; Waterbury 1983) while sociologists have focused more on cross-national analyses (e.g., Delacroix and Ragin 1981; Rubinson 1977; Snyder and Kick 1979). In recent years, awakened interest among economists in cross-national analysis has substantially expanded the production of cross-national statistical studies. **The principal stimulus to renewed interest among economists has been the emergence of "endogenous growth theory," which offers formal theoretical support for the proposition that institutional factors could have a fundamental effect on rates of growth** (cf. Lucas 1988; also see, e.g., Romer 1986, 1990, 1994).

The endogenous growth perspective legitimated a variegated set of cross-national analyses by economists examining the impact of a variety of noneconomic variables on national growth rates (see Crowley et al. 1998). In one of the earliest and most influential of these studies, Barro (1991) emphasized the negative role of government by stressing the negative impact of government consumption (as a share of GDP) on growth rates.

What both the earlier sociology literature and the recent cross-national economics literature lacked was the possibility of seriously addressing the question of **how variations in the form of state organization might affect economic dynamism**. Arguments in the early sociological literature were formulated in terms of the dubious concept of "state strength," with state revenues and expenditures offered as proxies for "state strength" (e.g., Rubinson 1977). The cross-national regressions of the new endogenous growth models included even more unsatisfying proxies, such as using the annualized number of assassinations or revolutions as a proxy for political stability (Barro 1991).

Neither economists nor (oddly enough) sociologists had focused their cross-national analyses on organizational differences.

Nonetheless, a literature developed that paid serious attention to bureaucratic structures and was directly relevant to the Weberian hypothesis. This literature was built around detailed case studies of individual countries and focused primarily on a single region. Johnson's (1982) classic study of Japan's Ministry of International Trade and Industry (MITI) during the golden years of Japanese industrialization led the way. Johnson's portrayal was surprisingly consistent with a Weberian perspective. Subsequent studies of Korea (Amsden 1989) and Taiwan (Wade 1990) reinforced the picture.<sup>3</sup> Because the "East Asian Tigers" described in these studies were also the most economically successful nations in the world during the 1970s and 1980s, they created a strong *prima facie* case in favor of the Weberian hypothesis. By the beginning of the 1990s, even the World Bank (1993) seemed to join in the chorus with its *East Asian Miracle* report that emphasized the positive role played by East Asian bureaucracies in the region's spectacular industrialization (also see Campos and Root 1996; Cheng, Haggard, and Kang 1995; Koh 1995; Quah 1993). Nonetheless, the argument continued to rest primarily on case studies. The question remained as to whether the Weberian state hypothesis could be substantiated with a broader set of systematic evidence.

In the 1990s the case-study literature was complemented by efforts to connect variations in the character of state bureaucracies to economic performance by means of quantitative cross-national analysis. Economists, rather than sociologists, took the lead in developing a more organizational focus. A new set of studies utilized the commercially available assessments of variations across national governments that businessmen had been using for some time.<sup>4</sup> The methodologi-

<sup>3</sup> Simultaneously, a complementary body of literature began to focus on the weakness of public institutions as a key barrier to growth in sub-Saharan Africa (cf. Bates 1989; Callaghy 1989; Easterly and Levine 1997; World Bank 1994, 1997).

<sup>4</sup> International Country Risk Guide (ICRG), Business and Environmental Risk Intelligence (BERI), and Business International (BI) are among the most prominent examples of such assessments.

cal validity and reliability of these measures were open to question. The rating services that provided them offered little explanation of how their data were derived or why they should be considered reliable. The data seemed to be based primarily on the assessments of consultants, but the basis on which these consultants were selected was not usually specified, and methodological issues were clearly not a primary concern.<sup>5</sup> The validity of these ratings as independent determinants of economic growth was also somewhat suspect. Most of the components of the ratings had clear “good” and “bad” poles—more or less corruption, more or less red tape, higher or lower “quality” of the bureaucracy, and so on. Because raters were aware of the economic performance of the countries they were rating, a tendency to give “good” ratings to high-performing countries and “bad” ratings to low-performing ones was likely to “build in” a correlation between the ratings and economic growth.

Despite their flaws, these ratings did provide a way to compare bureaucracies across a wide set of countries, and they did seem to produce results that confirmed the importance of variations across national bureaucracies in explaining variations in economic growth. Mauro (1995), using ratings on “corruption” and “red tape” from Business International, found that variation in these ratings was significantly associated with increased levels of investment, which were in turn one of the most obvious and powerful predictors of economic growth. Knack and Keefer (1995) used International Country Risk Guide (ICRG) ratings and Business and Environmental Risk Intelligence (BERI) ratings, and they too discovered that these ratings were directly related to variations in the growth of per capita income.<sup>6</sup>

<sup>5</sup> From the point of view of investors looking for the best current assessment of prospective future returns in a given locale, the invaluable feature of the data provided by these rating services is their timeliness. ICRG, for example, provides monthly ratings for 130 countries around the world on a variety of political and economic indicators. No purely academic study could ever come close to offering such immediate information.

<sup>6</sup> La Porta et al. (1999) offer an excellent discussion of the quality of government institutions,

Use of data on variations in state bureaucracies gives recent studies a clear advantage over earlier work that had to rely on gross measures, like aggregate government expenditures, or distant proxies, like number of assassinations. The fact that recent studies consistently find relationships between bureaucratic performance and economic growth provides new incentive for trying to refine our understanding of the roots of “bureaucratic performance.” Nevertheless, even this new generation of studies remains prisoner to the available measures. Convincing efforts to adjudicate the empirical validity of the Weberian state hypothesis must begin with information on how the structure of state bureaucracies varies across countries, which is what we have tried to do in our study.

### CONNECTING BUREAUCRATIC STRUCTURES AND GROWTH

Contemporary analysis of comparative bureaucratic structures needs to move beyond Weber, but Weber’s characterizations do provide a simple, accessible starting point for comparative research. In contrasting bureaucracies with prior organizational forms, Weber stressed a number of points that lend themselves to relatively objective empirical assessment. We emphasize two of these. The first is the importance of meritocratic recruitment, which ideally is based on some combination of education and examination (Gerth and Mills 1958:241; Parsons 1964:333, 339). The second is a predictable career ladder, which provides long-term tangible and intangible rewards for those recruited into the bureaucracy (Gerth and Mills 1958:200–203; Parsons 1964:334–35; Stinchcombe 1974).

We could have selected other Weberian organizational features.<sup>7</sup> One advantage of

but they focus on the determinants of quality and performance rather than on their effects on economic growth.

<sup>7</sup> Because the particular characteristics we have chosen to focus on are only a partial set of those described by Weber, stressing other features of Weberian bureaucracy might produce different results. For example, rule-governed decision-making, which is clearly a feature of the bureaucratic model, might be a double-edged sword, enhancing predictability and efficiency up to a certain point but producing rigidity and organiza-



meritocratic recruitment and rewarding/predictable career ladders is that these features are relatively easy to translate into simple measures that can be evaluated across countries, hence focusing on them facilitates empirical testing. Also, plausible theoretical connections can be constructed between these features and improved organizational ability to deliver the collective goods that constitute the state's potential contribution to economic growth.

Meritocratic recruitment not only increases the likelihood of at least minimal competence but also helps generate corporate coherence and esprit de corps, which in turn can be argued to have substantive effects on the motivation of individual officeholders. Bureaucrats who see themselves as having joined their confrères in office by virtue of sharing similar abilities are more likely to internalize shared norms and goals than are those who know they owe their office to the favor of a particular kinsman or patron. Identification with colleagues and the organization itself should also create internalized intangible costs for corrupt activities that subvert organizational goals and increase the effectiveness of monitoring.

Offering rewarding long-term careers might also increase competence in the long run, but, regardless of their effects on competence, such careers will increase corporate coherence. Likewise, the predictable prospect of long-term career rewards reduces the relative attractiveness of the quick returns available from corrupt individual practices. This is obvious insofar as one of the aspects of long-term career rewards is competitive salaries. It is equally clear that careers that provide the expectation of a series of promotions related to performance and conformity to organizational norms create disincentives to corrupt behavior, especially if such behavior undermines organizational goals. The costs of breaking organizational norms are also directly proportional to the expected longevity of membership in the organization and the expected rewards to longevity.<sup>8</sup>

tional sclerosis when carried further. The same argument could be applied to the idea that each office in the state apparatus should have strictly defined, nonoverlapping jurisdictions.

<sup>8</sup> Stinchcombe (1974:134–35, 147–48) focuses on industrial rather than administrative bureau-

Overall, meritocratic recruitment and predictable career ladders should help structure the incentives of individual bureaucrats in a way that enhances the ability of the organizations they manage to effectively pursue long-term goals.<sup>9</sup>

If the argument that these structural features contribute to a more competent, purposive, and cohesive bureaucracy is accepted, myriad specific causal paths leading to higher rates of economic growth are plausible. The longer time horizons associated with predictable, rewarding careers will increase the bureaucracy's propensity to advocate public-sector infrastructure investment rather than consumptive expenditures. Because the returns from public infrastructure investments depend essentially on their "systemness," the coherence of the bureaucracy should enhance their effectiveness. Likewise, the reduction in individual maximizing (i.e., corrupt) practices should reduce the implicit tax on the private sector that such practices represent.

Diffuse links may be equally or more important. Most of the case study literature on "developmental states" focuses primarily on the role state bureaucracies play in eliciting higher rates of private investment (e.g., Amsden 1989; Evans 1995; Johnson 1982; Wade 1991; World Bank 1993). Obviously, rational, risk-averse entrepreneurs will avoid making long-term investments in plant and equipment if they face a corrupt, unpredictable bureaucracy unlikely to provide complementary public investments. By the same to-

cracies but provides a very relevant analysis of the role of careers in shaping individual motivations.

<sup>9</sup> Meritocratic recruitment and career ladders are not the only structural characteristics that can be postulated to enhance the organizational performance of state bureaucracies. In *Embedded Autonomy*, Evans (1995) argues that the full potential contribution of state bureaucracies to capital accumulation is likely to be realized only when the corporate coherence provided by Weberian characteristics is combined with a dense systematic set of ties to the entrepreneurial class. In a different vein, theorists of the "New Public Management" would highlight "market mimicking" mechanisms such as "pay for performance" (see Barzelay 1997; Hood and Jackson 1991; Milgrom and Roberts 1992; Olsen and Peters 1996).

ken, shared perceptions of the state bureaucracy as dependable, predictable, minimally competent and committed to long-term growth makes investment appear less risky.

Competent bureaucracies can help individual entrepreneurs overcome coordination problems that may be crucial in instigating new activities. They can also turn informational resources into public goods in ways that increase the likelihood and effectiveness of investment (e.g., see Rodrik 1995). For example, when entrepreneurs in small countries are trying to upgrade into world markets, collective action to gather data on external markets and enforce standards among local producers may confer important advantages. Respected bureaucracies could act as “honest brokers” in overcoming collective action problems among exporters. A stronger version of this argument would see the bureaucracy itself as gathering information and providing advice and incentives that help local firms to better thread their way through the labyrinth of rapidly changing world markets.<sup>10</sup>

Adjudicating among the various paths that might account for a connection between competent, coherent state bureaucracies and economic growth would be a challenging and worthwhile task, but it is not our aim here. We aim to establish a basic connection between bureaucratic structures and economic growth, thereby providing additional incentive to explore alternative mechanisms that might account for the connection.<sup>11</sup>

To reiterate, we assess the effect of a particular set of bureaucratic structures; we do not attempt a comprehensive appraisal of all the features of bureaucratic structure that might enhance economic performance. We

selected meritocratic recruitment and career ladders because of the strong claims in the literature on their behalf and because they constitute an empirically identifiable, theoretically plausible set of structural characteristics that offers a good starting point for demonstrating the value of doing new research on the economic consequences of variations in bureaucratic structures.

Our strategy for connecting bureaucratic structures and economic growth obviously differs from Weber's. Weber was interested in long-term historical changes in organizational forms. We are interested in cross-sectional comparisons in the contemporary period. Our empirical proposition is a simple one. We predict that countries whose bureaucratic structures incorporated Weberian features will have experienced more rapid economic growth over the 20 years between 1970 and 1990 than did those countries in which such features were less fully incorporated.

## DATA

The absence of comparable measures of bureaucratic structure for a substantial set of countries is one of the principal impediments to assessing the effects of variation in bureaucracy on economic growth. We decided that only by collecting new, original data could we surmount this obstacle. The “Weberian state data set”<sup>12</sup> we have collected is built on comparable expert evaluations of bureaucratic structures in 35 countries, laboriously gathered over a period of almost three years (1993–1996).

Our sample began with the 30 “semi-industrialized” countries identified by Chenery (1980) and was complemented by 5 poorer

<sup>10</sup> According to Keesing (1988), this is essentially the role played by trade promotion bureaucracies in the four Asian tigers. Also see Rodrik (1995).

<sup>11</sup> There is, of course, another set of arguments in the literature that postulates a more central role for state bureaucracies in shaping national trajectories of investment and growth. Such arguments involve both the ability of governments to push entrepreneurs into investing larger shares of their profits by “disciplining” them (cf. Amsden 1989), and the ability of public agencies to stimulate more risky but ultimately rewarding forms of investment through selective subsidies and protec-

tion from external competition (cf. Amsden 1989; Ernst and O'Connor 1992; Evans 1995; Wade 1990). While these arguments are plausible, they clearly require more than minimal competence on the part of the bureaucracy. Insofar as these arguments apply, the case for the importance of bureaucratic structures becomes much more important, but the theoretical plausibility of the Weberian hypothesis does not depend on these stronger arguments regarding the role of public institutions in making growth possible.

<sup>12</sup> The discussion of the Weberian data set is drawn largely from Talbot (1997).



countries. Our reasons for starting with the Chenery sample were threefold. To begin with, we estimated that our available resources would not allow us to collect data on more than about 35 countries, so the Chenery sample was the right size. Second, we were interested in understanding variations in growth among developing countries rather than between developing and advanced industrial countries. We wanted to include countries that were still confronting the issue of industrial transformation during the period under consideration. The Chenery sample provided a good range of developing countries. Third, we wanted a good range of variation on "Weberianess." Although there were no systematic data available on Weberianess per se, we knew that variation in "bureaucratic performance" variables was much greater among developing countries than among industrialized countries. This latter consideration was also a motive for including some additional countries too poor to be included in the Chenery sample. Data on bureaucratic performance made it clear that excluding poorer countries would undersample the low end of the distribution on bureaucratic performance and therefore might also undersample the low ranges of Weberianess (see Rauch and Evans 1999:8-9, figs. 1b, 1c). Selection of the poor countries to be added was driven by a desire for increased representation of the Caribbean, South Asia, and Sub-Saharan Africa, and by our belief that there was a sufficient corps of experts on the bureaucracies of these countries to allow us to find at least three experts for each of them.<sup>13</sup> The resulting sample of 35 countries represents all the major regions of the developing world as well as the southern European fringe of the Organization for Economic Cooperation and Development (OECD). It also offers a range of growth performance over the 1970s and 1980s from Korea and Singapore (growing consistently at over 6 percent per capita per year) to Zaire (shrinking more than 2 percent). At the same time, our sample of countries offers a good range in terms of "bureaucratic perfor-

mance" as measured by commercial rating services (see Rauch and Evans 1999:8-9, figs. 1b, 1c).

Obtaining measures of different features of bureaucratic structure in each of these countries required the cooperation of a large number of experts, each of whom had specific knowledge of the state bureaucracy of a particular country. Collecting responses was labor intensive, but the level of collaboration was both surprising and gratifying. We were ultimately able to gather responses from a total of 126 experts, a minimum of 3 experts for 32 of our 35 countries, and 2 experts for the remaining 3 countries (Morocco, Thailand, and Uruguay). The experts were drawn from a combination of scholars known for their research on the bureaucracies of each country, local officials with reputations for having a broad perspective on their country's administrative structures, and professionals working on these issues in multilateral organizations. Together the experts in our sample account for a substantial portion of the published literature on the state bureaucracies for the countries in our sample.<sup>14</sup>

The experts' evaluations were structured by means of a fixed-response questionnaire.<sup>15</sup> In answering the fixed-response questions, the experts were asked first to identify the central state agencies that played the most important role in formulating economic policy, and then to answer questions regarding them.<sup>16</sup> We reasoned that the structure of the core economic agencies probably had an effect on economic growth, and because country case studies have shown that there is usually substantial variation across agencies, getting a measure that focused on the most relevant agencies made sense. Questions concerning the state bureaucracy

<sup>14</sup> For a more detailed discussion of the distribution of different types of experts across countries see Talbot (1997, table 2).

<sup>15</sup> All experts were encouraged to provide additional commentary and complementary materials, and most did so. This additional material was reviewed during the coding of the fixed-response questions, but is not analyzed separately here.

<sup>16</sup> Specifically, experts were asked to "list the four most important agencies in the central state bureaucracy in order of their power to shape overall economic policy."

<sup>13</sup> The five countries added to Chenery's sample were Haiti, Nigeria, Pakistan, Sri Lanka, and Zaire. For other analyses of Chenery's initial sample see Feder (1983) and Esfahani (1991).

generally followed those focused on the core economic agencies.<sup>17</sup>

Country experts were not asked to evaluate the performance or quality of the bureaucracy. Instead, the questionnaire focused on specific descriptive features of the bureaucracy that are subject to objective estimation. We then combined these descriptive features to construct a simple measure that reflected a Weberian bureaucratic structure built on meritocratic recruitment and rewarding predictable career ladders.

Because bureaucratic structures are notoriously resistant to change, we felt secure in assuming that the differences we discovered among bureaucratic structures would characterize the situation in place at the beginning of the period (and, indeed, had probably been in place for some time prior to 1970) and were, therefore, temporally antecedent to growth during the 1970–1990 period. To check on this assumption, experts were asked not only to provide responses that characterized the entire period but also to note any significant changes during the period. Despite some references to deterioration in the situation of bureaucrats over time (particularly in relation to relative salaries), it was clear from their comments that the bureaucratic structures they described antedated 1970–1990 economic growth.<sup>18</sup>

Ten questions were used to create what we call the “Weberianness Scale.” (See Appendix A for a discussion of the scale and a list of items.) An initial question indicated the importance of the agencies under consideration in generating economic policy. Two of the subsequent questions (questions 2 and 9 in Appendix A) measured the importance of exams in recruiting civil servants to the core economic agencies and more generally.<sup>19</sup> Three of the questions tapped issues relating

to careers: whether civil servants, once recruited, are likely to stay in the civil service (questions 3 and 5) and whether staying in the civil service implies possibilities for moving up within a hierarchy (question 4). An additional four questions tapped the issue of career rewards, both in terms of salaries and prestige (questions 6, 7, 8, and 10). The resulting Weberianness Scale provides a succinct, substantively plausible measure of the bureaucratic features that are the focus of our investigation.

To discover what relationship, if any, might exist between these features and economic growth during the 1970–1990 period, we drew on measures from available standard data sets to create our dependent variable, growth in GDP per capita from 1970–1990, and our control variables, initial income level and pre-existing human capital. (See Appendix B for definitions and data sources for the dependent variable and control variables.) The 1994 (“Mark 5.5”) version of Summers and Heston’s (1991) Penn World Tables provided the source for our measures of real GDP per capita in 1965, 1970, and 1990. As our proxy for human capital we used an updated version of Barro and Lee’s (1993) measure of average years of education for the population 25 years and older.

## ANALYSIS

Our aim is to discover whether “Weberianness” has an effect on economic growth that is independent of the effects of other variables classically associated with economic development. **There is a strong and significant correlation between score on the Weberianness Scale and total growth of real GDP per capita during the 1970–1990 period ( $r = .67$ ;  $p < .001$ ),** but it could be argued that Weberianness is simply a proxy for overall level of development or existing stocks of human capital. (See Appendix C for Weberianness Scale Scores for the 35 countries in our sample.) Such an argument cannot be dismissed out of hand. We know that more highly developed bureaucracies are more likely to be found among the developed countries (Rauch and Evans 1999:8, fig 1a, fig 1a; also see World Bank 1997). We also know that high levels of human capital, which are generally associated with high lev-

<sup>17</sup> For the full questionnaire see Rauch and Evans (1999, app. A). For coding of questionnaire, see Talbot (1997, app. A).

<sup>18</sup> Although bureaucratic structures were generally stable during the period under study, experts’ comments indicated that the early 1990s may have been a period of change in which a number of bureaucracies were restructured in response to pressure from multilateral agencies.

<sup>19</sup> Question 9 is actually a composite created by combining the answers to questions 17 and 18 on the original questionnaire.

els of development, are strongly associated with growth. In fact, virtually no association emerged between the degree of approximation to Weberian characteristics and initial levels of per capita income in this sample of developing countries ( $r = .05$ ). In this sample of developing countries at least, it is hard to argue that past growth or higher levels of income are important causes, in themselves, of more Weberian states. Put more optimistically, it seems that low levels of per capita income are not necessarily a barrier to achieving more competent and coherent state bureaucracies. Nonetheless, there is a modest (though not significant) correlation between the Weberianness Scale in our sample and preexisting level of human capital ( $r \approx .25$ ,  $p = .15$ ), and human capital has, in turn, a significant positive effect on subsequent growth.

Our first key result, then, is that even after the effects of initial GDP per capita levels and preexisting levels of human capital have been controlled, the relation between the Weberianness Scale score and economic growth remains strong and significant. As the regression equations below indicate, the

Weberianness Scale continues to have a powerful and significant effect on economic growth. Weberianness is not simply a spurious proxy for effects of preexisting levels of development or human capital.

The basic equation in unstandardized form is:

$$\begin{aligned} \% \text{ Change in GDP per capita } 1970-1990 = & \\ & -44.54 - .02 (\text{Real GDP per capita } 1965) \\ & + 15.77 (\text{Average years of schooling } 1965) \\ & + 16.05 (\text{Weberianness score}). \end{aligned} \quad (1)$$

In standardized form the equation is:

$$\begin{aligned} \% \text{ Change in GDP per capita } 1970-1990 = & \\ & - .317 (\text{Real GDP per capita } 1965) \\ & + .307 (\text{Average years of schooling } 1965) \\ & + .615 (\text{Weberianness score}). \end{aligned} \quad (2)$$

The scattergram of growth regressed on the Weberianness Scale with the effects of initial level of GDP per capita and preexisting levels of human capital controlled is shown in Figure 1. One of the things that stands out in this scattergram is the strong degree to which the regional distribution of Weberian characteristics parallels regional differences in growth performance.

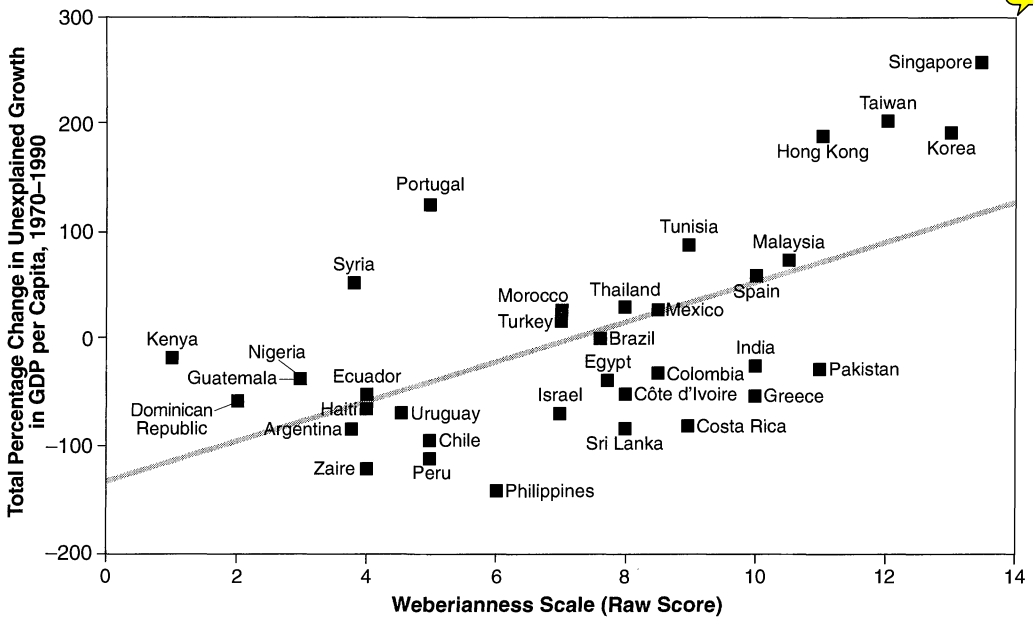


Figure 1. Scattergram Showing Relationship between Weberianness Scale Score and Unexplained Growth in GDP per Capita, 1970 to 1990

Note: Unexplained growth is that growth not explained by level of GDP in 1965 and years of school in 1965.

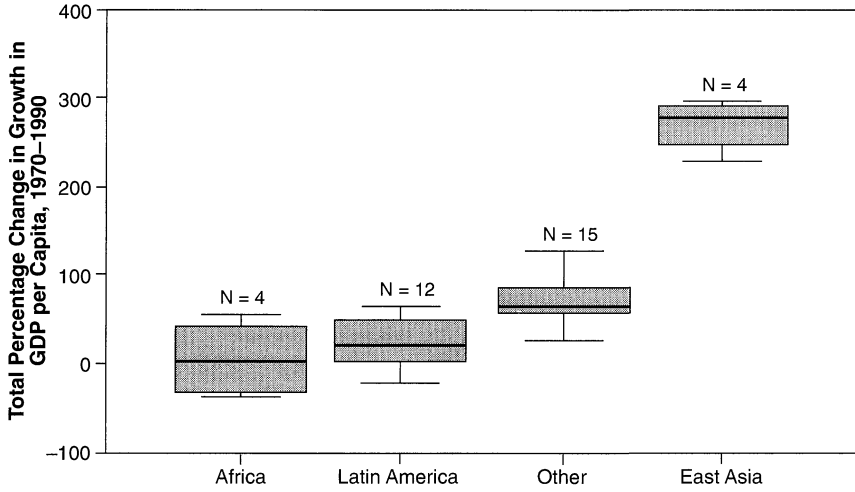


Figure 2. Boxplot of Growth in GDP per Capita by Region, 1970 to 1990

Regional differences in both growth in GDP and Weberianness are summarized in Figures 2 and 3. Figure 2 shows the range, interquartile range, and median for growth in GDP for each of four regional country groupings. When the four regions are arranged in the order that would be expected on basis of the existing literature, they almost form a perfect regression line with Sub-Saharan Africa at the bottom and the four East Asian tigers at the top. The Latin American region exhibits a growth performance that is clearly inferior to any region except for Sub-Saharan Africa, largely because Latin America's growth experience in the period we are examining is dominated by the "lost decade" of the 1980s.

Figure 3 portrays regional differences in Weberianness Scale scores and makes the parallel between regional variations in growth and regional variations in bureaucratic structure graphically clear. Just as Sub-Saharan Africa defines the bottom of the scale in terms of growth, it is also the region in which state bureaucracies are least Weberian. Likewise, the four East Asian Tigers epitomize, during this period at least, both high growth and Weberian bureaucratic traits. The Weberianness Scale appears to capture a key institutional element of the "high performing" East Asian economies while pointing to an institutional deficit that may help explain low rates of growth in Africa.

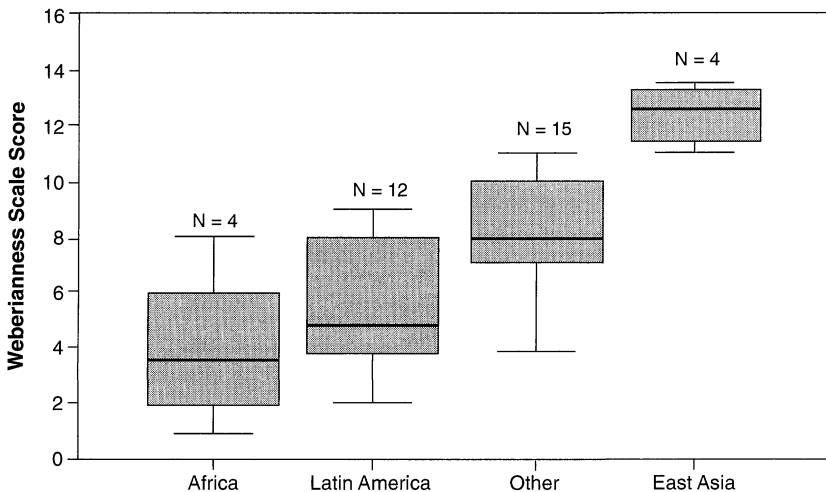


Figure 3. Boxplot of Weberianness Scale Score by Region

**Table 1. Standardized Coefficients from Regressions of Growth in Real GDP Per Capita, 1970–1990, on Selected Independent Variables: 35 Developing Countries**

Independent Variable	Model 1	Model 2	Model 3	Model 4
Weberianness Scale score	.615** (4.649)	.537** (3.700)	.599** (4.268)	.247* (2.418)
GDP per capita, 1965	-.317 (-1.749)	-.270 (-1.472)	-.324 (-1.753)	-.150 (-1.251)
Years of school, 1965	.307 (1.645)	.319 (1.725)	.290 (1.487)	.090 (.724)
Latin America	—	-.180 (-1.242)	—	—
Africa	—	—	-.056 (-.367)	—
East Asia	—	—	—	.696** (6.638)
Number of countries	35	35	35	35
Adjusted R <sup>2</sup>	.460	.469	.444	.774

Note: Numbers in parentheses are *t*-values.

\**p* < .05      \*\**p* < .01 (two-tailed tests)

Table 1 presents a set of regressions that add dummy variables for region to the basic regression illustrated in Figure 1. The effects of the Weberianness Scale still appear robust. Introducing the dummy variables for Sub-Saharan Africa and Latin America reduce the Weberianness Scale coefficient only modestly (Models 2 and 3). Even more important, a significant “bureaucratic structure effect” remains, even when a dummy variable for East Asia (the Four Tigers) is included (Model 4).<sup>20</sup>

Do the effects of Weberianness continue to be significant in regressions that intro-

duce other variables used in standard growth models? Levine and Renelt (1992) surveyed 41 studies that used cross-national regressions to explain economic growth. They concluded that even though “over 50 variables have been found to be significantly correlated with growth in at least one regression” (p. 924), the list of variables whose effects are truly robust is, in fact, small. They identified three basic variables—initial level of GDP per capita, investment, and human capital—as most robustly related to growth (1992:947, table 1). Model 5 in Table 2 shows that the results with respect to these variables using our sample, time period, and variable definitions are consistent with previous work, except that the effects of human capital (years of school) fall short of significance (using a two-tailed test). Initial investment is the most significant predictor of growth, and the initial level of GDP per capita continues to have a negative relation to growth.

When the Weberianness Scale is added to this basic equation (Model 7), it becomes the most powerful predictor of growth and the adjusted R<sup>2</sup> increases significantly. Model 6 in Table 2 shows the effects of two additional variables that Barro (1991) found to have significant negative effects on growth—government consumption and revolutions. In

<sup>20</sup> The effects of the Weberianness Scale are robust in the face of different definitions of regional dummy variables (two variations on the East Asian dummy variable that include six or seven Asian countries) and a broader version of the African dummy (which adds three North African countries). In fact, the Weberianness Scale has a more powerful effect when the broadest definition of “East Asia” is used. Only when the East Asian dummy variable is included along with the Sub-Saharan Africa or Latin American dummy variable does the effect of the Weberianness Scale drop below statistical significance. Also, the Weberianness effect is not robust in the face of the simultaneous inclusion of three regional dummies, but as these three dummy variables in combination include at least 18 of our 35 countries, this is an extremely stringent test.

**Table 2. Standardized Coefficients from Regressions of Growth in Real GDP Per Capita, 1970–1990, on Selected Independent Variables: 35 Developing Countries**

Independent Variable	Model 5	Model 6	Model 7	Model 8
Weberianness Scale score	—	—	.490** (3.647)	.482** (3.104)
GDP per capita, 1965	-.644** (-3.171)	-.778** (-3.642)	-.458* (-2.554)	-.498* (-2.402)
Years of school, 1965	.401 (1.988)	.420* (2.068)	.258 (1.470)	.211 (1.115)
Average annual proportion domestic investment, 1965–1970	.580** (3.498)	.434* (2.463)	.360* (2.362)	.298 (1.861)
Average annual proportion government consumption expenditure, 1970–1985	—	-.334 (-2.024)	—	-.179 (-1.169)
Average revolutions per year, 1970–1985	—	-.136 (-.950)	—	-.003 (-.023)
Number of countries	35	34 <sup>a</sup>	35	34 <sup>a</sup>
Adjusted R <sup>2</sup>	.343	.373	.529	.521

Note: Numbers in parentheses are *t*-values.

<sup>a</sup> Côte d'Ivoire lacks data on government consumption and is omitted.

\**p* < .05      \*\**p* < .01 (two-tailed tests)

Model 6 when these variables are added to the basic Levine and Renelt set (Model 5), their coefficients are not significant, and they result in only a trivial increase in the adjusted R<sup>2</sup>.<sup>21</sup> In Model 8 the Weberianness Scale is added to Model 6. The results parallel those of Model 7: The Weberianness Scale once again becomes the most significant predictor, and the adjusted R<sup>2</sup> is again significantly increased.<sup>22</sup> Overall, these re-

sults suggest that if data could be collected for a broader range of countries, Weberianness would become a valuable addition to the existing literature on cross-national growth models.

Given the powerful and robust relationship between investment levels and growth in the standard cross-national literature and the fact that sociological work on cross-national models of growth has also emphasized the important role of investment (cf. Firebaugh 1992:125), it makes sense to look at the effects of Weberianness on investment levels as well as on rates of growth.<sup>23</sup> Table 3

<sup>21</sup> Consistent with Barro (1991), the coefficient for government consumption is negative. But in our results it is significant only at the *p* < .10 level. Government consumption does have a significant negative relation with growth when investment is omitted from the regressors (i.e., when only initial level of GDP and human capital are included). The coefficient for the revolutions variable is always nonsignificant (though consistently negative).

<sup>22</sup> It might be expected that there would be an interactive relationship between government consumption, the Weberianness Scale score, and growth such that increased Weberianness would reduce or reverse the negative effect of government consumption on growth. We tried introducing an interaction term (Weberianness Scale × government consumption) into several different

regressions, but we found no significant effects. Nonetheless, it is worth noting that there is a strong negative correlation between Weberianness and government consumption in our sample (*r* = -.35; *p* < .05), which is consistent with the observations in the case study literature that developmental states are not usually “big” states in fiscal terms.

<sup>23</sup> Like Firebaugh, Barro (1991:426, table III) also reported results using investment as a dependent variable. He did not, however, use investment as an explanatory variable in his “basic” growth regressions (Barro 1991:410–13, table I), presumably because of concern about endo-

**Table 3. Standardized Coefficients from Regressions of Average Annual Proportion Domestic Investment, 1985–1990, on Selected Independent Variables: 35 Developing Countries**

Independent Variable	Model 9	Model 10	Model 11	Model 12	Model 13
Weberianness Scale score	.489** (3.508)	.477** (3.044)	.456** (3.103)	.348* (2.146)	.370* (2.276)
GDP per capita, 1965	-.179 (-.936)	-.172 (-.867)	-.194 (-1.003)	-.115 (-.603)	-.354 (-1.609)
Year of school, 1965	.443* (2.255)	.445* (2.225)	.407 (1.994)	.360 (1.814)	.436* (2.128)
Average annual proportion government consumption expenditure, 1970–1985	—	—	—	—	-.314 (-1.931)
Average revolutions per year, 1970–1985	—	—	—	—	-.136 (-.951)
Latin America	—	-.026 (-.169)	—	—	—
Africa	—	—	-.119 (-.747)	—	—
East Asia	—	—	—	.267 (1.599)	—
Number of countries	35	35	35	35	34 <sup>a</sup>
Adjusted R <sup>2</sup>	.400	.381	.392	.429	.434

Note: Numbers in parentheses are *t*-values.

<sup>a</sup> Côte d'Ivoire lacks data on government consumption and is omitted.

\**p* < .05    \*\**p* < .01 (two-tailed tests)

shows that the Weberianness scale score has a consistently significant positive effect on end-of-period investment levels, reinforcing the position generally taken in the case-study literature on “developmental states,” which emphasizes the role of the state in elevating levels of private investment as a principal mechanism through which states promote higher rates of growth (Evans 1995).<sup>24</sup>

## DISCUSSION

The evidence we have presented adds credence to the proposition that state bureaucracies characterized by meritocratic recruitment and predictable, rewarding career lad-

generacy. We tried to avoid the endogeneity problem by using only the prior level of investment in our growth regressions.

<sup>24</sup> We also explored the relationship between Weberianness and levels of public investment with the thought that introducing an interaction term might reveal a significant positive effect of public investment on growth contingent on high levels of Weberianness. We found no such effect.

ders are associated with higher growth rates. Because the data refer primarily to core economic agencies, the implication is not that the entire bureaucratic apparatus must be structured in this way to have positive effects on growth. Having Weberian structures in the strategic core of the bureaucracy may be sufficient.

Weberianness provides a parsimonious, analytically satisfying account of observed differences in regional growth performance. These findings support interpretations of high East Asian growth that emphasize the contribution of competent, cohesive bureaucracies and offer a succinct, objective, and replicable substitute for the unsatisfyingly amorphous and atheoretical idea of an “East Asian effect.” The findings are also consistent with explanations of low African growth rates, which emphasize problems of governance. More generally, these findings suggest that an important contribution could be made to the existing literature on the cross-national analysis of growth if systematic evidence on state structures were gathered from



a larger sample of countries. Weberianness is a potential sociological addition to the small set of robust predictors of growth that have been identified by economists in recent cross-national studies.

Despite the promising character of these results, we stress that the research we present here is only a beginning. Several avenues for further work are obvious. Gathering data on bureaucratic structures for a larger sample of countries is the first step toward a better test of the robustness of the relationship found here.<sup>25</sup> The success of the initial effort we report here argues that the returns from gathering more and better evidence on cross-national variations in the structural characteristics of state bureaucracies would more than justify the effort required.

A more ambitious goal is extending the longitudinal coverage of data collection by looking at changes in the character of public bureaucracies in the 1990s. This task is relevant to understanding the roots of the current economic problems in East Asia. Previous case studies emphasized that it might be difficult to sustain the Weberian character of East Asian bureaucracies (Amsden 1989; Evans 1995). Recent commentators have suggested that the declining integrity of public bureaucracies has played an important role in the deterioration of East Asian financial systems (e.g., Chang, Park, and Yoo 1998).

Finally, it would be illuminating to examine the relationship between Weberianness and a range of other political, social, and economic variables that have been shown to be related to growth. Political regimes (Alvarez et al. 1996) and the policy outputs commonly used in cross-country regressions (e.g., black market premium, fiscal surplus, price distortions) are two examples.<sup>26</sup>

<sup>25</sup> A project is currently in the planning stages at the United Nations University that would extend coverage of the data to an additional 15 or 20 countries in Sub-Saharan Africa. So far, however, most efforts to interest funding agencies in support for building the necessary data infrastructure have had disappointing results.

<sup>26</sup> In another paper (Rauch and Evans forthcoming), we examine of the relationship between Weberianness and some commonly used bureaucratic performance variables.

Although much remains to be done, one incontrovertible conclusion transcends the exploratory character of our study: The “Weberian-state hypothesis” deserves more attention from sociologists and other social scientists, both empirically and analytically.

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#### Appendix A. The “Weberianness” Scale

The Weberianness Scale was created from 10 items in the original questionnaire. The items (with fixed response alternatives abbreviated) are shown below. The full questionnaire and the recoding used in compiling the scale are available at <[weber.ucsd.edu/~jrauch/webstate](http://weber.ucsd.edu/~jrauch/webstate)>.

The individual responses to the 10 questions (except question 9) were aggregated to create a country-level data set, in which each country's score was the average of the responses of all experts answering each question for that country. (Country ratings on question 9 were based on the investigators' assessment of combined country expert responses to two questions regarding initiation and selectivity of civil service exams.) Country averages for each of the 10 questions were recoded into two or three categories in such a way as to obtain as equal a distribution of countries over the categories as possible. The 10 questions were then combined to form a scale.

1. Which of the following descriptions best fits the role of these agencies in the formulation of economic policy.
  - (1) Many new economic policies originate inside them.
  - (2) Some new policies originate inside them.
  - (3) They rarely originate new policies.
2. Approximately what proportion of the higher officials in these agencies enter the civil service via a formal examination system?
  - (1) Less than 30%
  - (2) 30–60%
  - (3) 60%–90%
  - (4) More than 90%
3. What is roughly the modal number of years spent by a typical higher level official in one of these agencies during his career?
  - (1) 1–5 years
  - (2) 5–10 years
  - (3) 10–20 years
  - (4) Entire career
4. What prospects for promotion can someone who enters one of these agencies through a higher civil service examination early in his/her career reasonably expect? Assuming that there are at least a half dozen steps or levels between an entry-level position and the head of the agency, how would you characterize the possibilities for moving up in the agency? [NB. more than one may apply.]
  - (1) In most cases, will move up one or two levels.
  - (2) In most cases, will move up three or four levels.
  - (3) Will move up several levels to the level just below top political appointees.
  - (4) In at least a few cases, will move up to the very top.
5. How common is it for higher officials in these agencies to spend substantial proportions of their careers in the private sector, interspersing private and public sector activity?
  - (1) Normal
  - (2) Frequent but not modal
  - (3) Unusual
  - (4) Almost never
6. How would you estimate the salaries (and perquisites, not including bribes or other extra-legal sources of income) of higher officials in these agencies relative to those of private sector managers with roughly comparable training and responsibilities?
  - (1) Less than 50%
  - (2) 50–80%
  - (3) 80%–90%
  - (4) Comparable
  - (5) Higher
7. If bribes and other extra-legal perquisites are included what would the proportion be?
  - (1) Less than 50%
  - (2) 50–80%
  - (3) 80%–90%
  - (4) Comparable
  - (5) Higher
8. Over the period in question (roughly 1970–1990) what was the movement of legal income in these agencies relative to salaries in the private sector?
  - (1) Declined dramatically.
  - (2) Declined slightly.
  - (3) Maintained the same position.
  - (4) Improved their position.
9. This variable was created from the combined responses of all experts for each country, based on an assessment of the importance of civil service examinations for entry into the bureaucracy.
  - (0) No civil service exams, or exams are of trivial importance.
  - (1) Ambiguous based on experts' responses.
  - (2) Civil service exams are an important component of entry to the bureaucracy.
10. Among graduates of the country's most elite university(ies), is a public sector career considered:
  - (1) The best possible option.
  - (2, 3) Depends on circumstances.
  - (4) A second best option.

## Appendix B. Variable Definitions and Data Sources

Variable	Definition	Source
Total percent growth in GDP per capita 1970–1990	Total percentage growth of real GDP per capita from 1970 to 1990.	Penn World Tables (Mark 5.5) (see Summers and Heston 1991)
Domestic investment, 1985–1990	Average of the annual ratio of real domestic investment (private plus public) to real GDP over the period 1965 to 1970.	Penn World Tables (Mark 5.5) Taken from updated data set from Barro and Lee (1993)
Domestic investment, 1965–1970	Average of the annual ratio of real domestic investment (private plus public) to real GDP over the period 1965 to 1970.	Penn World Tables (Mark 5.5) Taken from updated data set from Barro and Lee (1993)

(Continued on next page)

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Variable	Definition	Source
Average years of schooling, 1965 <sup>a</sup>	Average schooling years in the total population over age 25, 1965.	Updated data set from Barro and Lee (1993)
Government consumption, 1970–1985	Average of the annual ratio of real government consumption expenditure net of spending on defense and on education to real GDP over the period 1970 to 1985.	Updated data set from Barro and Lee (1993)
Average revolutions, 1970–1985	Average of the number of revolutions per year from 1970 to 1985.	Updated data set from Barro and Lee (1993)
Africa	A dummy variable for the Sub-Saharan African countries: Côte d'Ivoire, Kenya, Nigeria and Zaire.	
East Asia	A dummy variable for the four "East Asian Tigers": Hong Kong, Korea, Singapore, and Taiwan.	
Latin America	A dummy variable for the Latin American countries: Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Haiti, Mexico, Peru, and Uruguay.	

<sup>a</sup> Data for Average years of schooling, 1965 was unavailable for Egypt, Côte d'Ivoire, Morocco and Nigeria. Observations for these four countries were estimated using data on total educational attainment from Nehru, Swanson, and Ashutosh (1995). The Pearson correlation coefficient between these two variables was .80 ( $p < .001$ ).

### Appendix C. Weberianness Scale Scores for 35 Developing Countries

Country	Weberianness Scale Score	Country	Weberianness Scale Score
Argentina	3.80	Mexico	8.50
Brazil	7.60	Morocco	7.00
Chile	5.00	Nigeria	3.00
Colombia	8.50	Pakistan	11.00
Costa Rica	9.00	Peru	5.00
Côte d'Ivoire	8.00	Philippines	6.00
Dominican Republic	2.00	Portugal	5.00
Ecuador	4.00	Singapore	13.50
Egypt	7.80	Spain	10.00
Greece	10.00	Sri Lanka	8.00
Guatemala	3.00	Syria	3.80
Haiti	4.00	Taiwan	12.00
Hong Kong	11.00	Thailand	8.00
India	10.00	Tunisia	9.00
Israel	7.00	Turkey	7.00
Kenya	1.00	Uruguay	4.50
Korea	13.00	Zaire	4.00
Malaysia	10.50		

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