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BUREAUCRATIC STRUCTURES AND ECONOMIC PERFORMANCE IN LESS DEVELOPED COUNTRIES

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Final report

BUREAUCRATIC STRUCTURES AND ECONOMIC PERFORMANCE
IN LESS DEVELOPED COUNTRIES

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Recent work in the sociology of economic development has emphasized the establishment of a professional government bureaucracy in place of political appointees as an important component of the institutional environment in which private enterprise can flourish. We investigate both theoretically and empirically the possibility that policies such as internal promotion and meritocratic recruitment will tend to restrain the “predatory” tendencies of the state bureaucracy and cause government goods and services to be supplied more effectively. We collected data on these personnel practices for the core economic agencies of twenty-six less developed countries. Regression analysis shows that our measures of bureaucratic structure are statistically significant determinants of four out of six privately produced measures of bureaucratic performance, controlling for country income and human capital. The internal promotion and broader career-building elements of bureaucratic structure proved to be most important for better performance on corruption, as predicted by our theory, while for better performance regarding bureaucratic delay and red tape the meritocratic recruitment and salary elements also proved to be important. It appears that bureaucratic structure affects economic performance through bureaucratic performance rather than through some independent channel. Finally, our only disappointing result was our failure to **find** any effect of bureaucratic structure on the ability of the government to engage in long-term planning as proxied by the investment share of government expenditure excluding the military and education.

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I. Introduction

Recent analyses of economic policy-making in less developed countries (LDCs) have stressed that the individuals who make up the state apparatuses can to some extent act independently, rather than responding passively to voters or interest groups as in much of the political economy literature. Such a state might be expected to exhibit the “predatory” behavior predicted by writers such as Lal (1988), as each state functionary seeks to implement regulations on private sector economic activity that will maximize the bribes he can extract. Indeed, we do observe such purely rent-seeking states in LDCs. A good example is Zaire, of which President Mobutu has stated “holding any slice of public power constitutes a veritable exchanged instrument, convertible into illicit acquisition of money or other goods” (Young 1978, p. 172). What is remarkable is that some LDC governments do not act as predators. In East Asia, for example, the Korean and Taiwanese states have worked hand in glove with the private sector to promote investment and enhance the capacity of private firms to enter international markets (Amsden 1989, Wade 1990), earning these governments the moniker “developmental states”.

In his comparative analysis of the role of the state in the development of several LDCs, Evans (1992) argues that professionalization of the state bureaucracy is a necessary (though not sufficient) condition for a state to be “developmental”. The key institutional characteristics of what he calls “Weberian” bureaucracy include meritocratic recruitment through genuinely competitive examinations, Civil Service procedures for hiring and firing rather than political appointments and dismissals, and filling higher levels of the hierarchy through internal promotion. In previous work, Rauch (forthcoming) studied the potential impact that bureaucratic professionalism could have on the positive role that the state can play in economic development by providing complementary inputs for the private sector. Specifically, he hypothesized that establishment of a professional bureaucracy in place of political appointees will lengthen the period that public decision makers are willing to wait to realize the benefits of expenditures, leading to allocation of a greater proportion of

government resources to long-gestation period projects such as infrastructure. He also hypothesized that this increased government investment in inputs complementary to private capital will increase the rate of economic growth. These hypotheses were tested using data generated by a “natural experiment” in the early part of this century, when a wave of municipal reform transformed the governments of many U. S. cities. Controlling for city and time effects, adoption of Civil Service was found to increase the share of total municipal expenditure allocated to road and sewer investment. This share in turn was found to have a positive effect on growth in city manufacturing employment.

We (Evans and Rauch) now wish to turn to the impact of “Weberianism” on the negative effect the state can have on economic development through corruption or “predation”. Investigation here is hampered on two fronts: empirical and theoretical. On the empirical front, the problem is that corruption is hard to measure. On the theoretical front, the problem is that we really do not know how the various elements that add up to professional bureaucracy restrain predatory behavior (assuming they in fact do so) and thus do not know what to expect when not all of these elements are present, as might typically be the case.

Some progress is being made on the empirical front. Keefer and Knack (1993) and Mauro (1993) have both collected privately produced measures of bureaucratic performance and related them-in cross-country, regressions to-economic growth. Keefer and Knack use ratings by the International Country Risk Guide (ICRG) and by Business and Environmental Risk Intelligence (BERI) of “corruption in government” and “bureaucratic delays”, respectively, while Mauro uses ratings by Business International (BI) of “corruption” and “bureaucracy and red tape”. Keefer and Knack (Table 5) find that better performance on both of their variables is positively and significantly associated with growth, and Mauro (Table 8) finds that better performance on both of his variables is positively and significantly associated with the private investment share of GDP.

Unfortunately, while this evidence reinforces the idea that differential governmental

performance may have an impact on economic growth, it tells us little about what kind of institutional characteristics are associated with lower levels of corruption or red tape. If the findings of Keefer and Knack and Mauro are meaningful, it is worth identifying which characteristics of government bureaucracies lead to good ratings from the ICRG, BERI, and BI on the variables cited above. But in order to know what to look for we need some additional theoretical guidance. Our efforts in this direction are described in the next section.

II. Theoretical approach

Bureaucratic corruption is typically addressed using a principal-agent model (see, e.g., Klitgaard 1988), but the standard assumption of such work is that the principal **himself is not corrupt, which misses the entire problem of the predatory state. If we are to** retain the utility of the principal-agent model without being irrelevant we must therefore model corruption on the part of the principal. This could mean grafting a model of the entire political process onto a model of bureaucratic corruption. We feel, however, that at the present time this would be attempting to do too much. Instead, we abstract from the political process by identifying the state with the bureaucracy. In doing so we are inspired by the example of Soskice, Bates, and Epstein (1992). We also borrow from this paper the assumption of a hierarchical division of labor within the bureaucracy, where decisions can be made only at the top and implemented only at the bottom, and the assumption that individuals may enjoy leadership for its own sake. We believe the identification of the bureaucracy with the state is less restrictive than it seems at first. There exist one-party states where the bureaucracy is very closely identified with the party,¹ military dictatorships where the bureaucracy is the military hierarchy, and plenty of executive

¹It is worth noting that, for example, Mexico is essentially a one-party state, and that the current and former Presidents of Mexico at the time of writing (Ernesto Zedillo and Carlos Salinas de Gortari) never ran for elected office before they were selected to run for President.

bureaucracies in various countries with substantial autonomy from political control (in which case the model below would be interpreted to apply only to those aspects of economic affairs over which this bureaucracy has power). In empirical application this modeling strategy amounts to seeing what can be explained by the structure of the bureaucracy, taking the political process as exogenous. One might argue that the political process can negate any incipient effects that bureaucratic structure might generate, but the work of Rauch cited above offers some hope that this is not always the case.

Our model, presented formally in Rauch (1995), contains two key elements. First, individuals are assumed to differ in their desire to exercise effective power, by which we mean their desire to impose their preferences over collective goods on the public.² We call the level of this desire power-hunger or *ph* for short.³ One can only exercise effective power when one can choose the mix of collective goods the state will supply (or at least the mix of the subset of goods supplied by one's "insulated" bureaucracy), so one's *ph* can only be satisfied at the top of the bureaucratic hierarchy. Second, there exist different opportunities for corruption at the different levels of the bureaucracy. At the bottom one can engage in "petty corruption", which is defined as stealing tax revenues intended for provision of public goods. An example would be taking kickbacks as a percentage of the value of contracts awarded to collect garbage or build a road. At the top one can engage in "large-scale corruption", which is defined as the use of state regulatory powers to create rents. An example would be establishment of a state trading monopoly in which one has a stake directly or through relatives.

To see how these two elements interact we need to specify some more details of the model. The government consists of one *chief* and a small number of *deputies*. We make

²For simplicity we assume that all individuals in the society are identical in the extent to which they care about income (but see footnote 11 in Rauch 1995).

³The parallel concept in Soskice et al. (1992) is "ambition". However, they do not allow ambition to vary across individuals, nor can they clearly distinguish it from the rate at which individuals discount the future. The latter limitation is related to the fact that the government in their model does not do anything with the revenue it collects (other than consume it).

the realistic assumption that the chief needs the deputies to carry out their tasks in order for the government to supply goods and services, but that he can pursue corruption on his own (or with the help of relatives and friends). The deputies allocate their time between their assigned tasks and (petty) corruption. The chief allocates his time between monitoring the deputies and (large-scale) corruption. A high ph chief will closely supervise his deputies to force them to implement his will by using the tax revenue under their control to supply the mix of public goods he has chosen, leaving him little time for corrupt pursuits. A low ph chief is not interested in imposing his preferences over collective goods and hence spends little time supervising his deputies, instead concentrating on creating and appropriating rents while they rob the public till.

Now suppose we institute a rule of internal promotion (the component of Weberian bureaucracy emphasized by Soskice et al.), **so that the next chief can be chosen only from** the current deputies rather than from the entire population. This means that deputies have more than a negligible chance of becoming chief and exercising power. We argue that this will generate an important kind of self-selection among deputies. Any deputy wants to enjoy petty corruption and also wants to be promoted and enjoy large-scale corruption. A high ph deputy, however, wants to be promoted more because he will also enjoy exercise of effective power. It follows that if there is any effective supervision a high ph deputy would respond by reducing his petty corruption more than would a low ph deputy.⁴ Since deputies who care about effective power are more likely to become chief, chiefs are more

⁴The reader might reasonably ask why the deputies do not use tax revenue to bribe the dictator and thus render supervision ineffective. The answer is that the dictator's comparative advantage in large-scale corruption leads him to satisfy his desire for income through this channel and satisfy his desire to exercise effective power using tax revenue. Obviously this answer only works if the dictator's ph is sufficiently high. If it is not, the deputies use all tax revenue under their control either for personal consumption or to bribe the dictator and government supply of collective goods is zero. (See also the discussion in Rauch 1995, section III, p. 15.) I would venture to guess, however, that in real-world bureaucracies where this outcome is observed the proximate cause is not low ph but rather the monopolization of opportunities for large-scale corruption and/or exercise of effective power by politicians, making the ph of the "dictator" (the top-level bureaucrat) irrelevant. Thus the worst possible outcome in terms of provision of collective goods occurs when bureaucrats are both unsupervised by politicians and powerless.

likely to care about effective power. A chief who values exercise of effective power highly will in turn spend more time supervising his deputies to insure that they are carrying out their tasks and less time looking for ways to line his own pockets. Thus internal promotion is a self-reinforcing system that increases the expected ph of chiefs, tending to increase the extent to which the bureaucracy as a whole carries out its assigned tasks of public goods provision and decrease the extent to which it implicitly taxes the private sector through large-scale corruption.

Within this overall framework it is also possible to investigate the effects of bureaucratic compensation levels and meritocratic recruitment of deputies. Not surprisingly, Rauch (1995) is able to establish a presumption that increasing deputies' compensation will reduce petty corruption. In the absence of internal promotion, the only presumption he is able to establish for the effects of meritocratic recruitment on bureaucratic performance is that whatever funds are actually allocated to provision of public goods will be used more efficiently. With internal promotion, however, the possibility of a qualitative change in the analysis arises if some high ability individuals earn so much in the private sector that they might prefer not to be deputies. Among this set of individuals, those with higher ph are more likely to choose a career in government service in the hope that they will be promoted to a position in which they can exercise effective power. Restriction of recruitment to this set of agents might thus act to select for what one would conventionally call "idealism" in the deputies, and this selection would then complement the selection for high ph that we have already shown occurs with internal promotion.

III. Data collection

Our goal is, for the core economic agencies (e.g., the Ministry of Finance) in each country in our sample, to obtain information on the level of (1) meritocratic recruitment, (2) career-building within each agency, and (3) socioeconomic status of employees. Our

target sample (see Appendix A) is the “semi-industrialized” countries of Chenery (1980).⁵ The data will be collected through the intermediation of at least two experts for each country (for purposes of cross-validation) using the questionnaire reproduced as Appendix B. Where possible the data collected from these experts using the questionnaire will be checked against the secondary literature, much of which is surveyed in Klitgaard (1988) and Evans (1992). Data from secondary sources have already been collected for Brazil, India, Korea, and Mexico.

To date we have mailed out 120 questionnaires covering all the countries in Appendix A plus Haiti, Nigeria, Pakistan, Sri Lanka, and Zaire. We have received 55 responses, covering Haiti, Pakistan, Sri Lanka, and Zaire plus all of the countries in Appendix A except Colombia, Dominican Republic, Greece, Guatemala, Ivory Coast, Peru, Spain, and Uruguay, for a total of 26 countries. We have multiple responses for 16 of these 26 countries.

Why focus on the core economic agencies? As a practical matter, we need to limit the scope of our investigation in order to make data collection feasible for a broad set of countries and to maintain data quality. There are also several theoretical reasons. An obvious one is that, since many of the outcome variables we wish to examine concern economic performance and government finances, we should look at the agencies that are responsible for-determining these outcomes. A related reason is that corruption -and incompetence in the core economic agencies can lead to policies that generate failures at the macroeconomic level and are thus much more costly than, say, bribes taken by customs officials. A final, more subtle reason is that the opportunities for employees of the core economic agencies to enhance their salaries legally through the kind of budget-maximizing behavior predicted by Niskansen (1971) are limited by the fact that there is much less they

⁵This sample was chosen on the basis of industrial output per capita and the share of industrial production in GDP. It excludes the major oil-exporting countries. It has been analyzed by Feder (1983) and Esfahani (1991).

can do compared to other agencies to justify a receiving a bigger *share* of overall budget expenditure. Put differently, **the (legitimate) goals of the core economic agencies are more encompassing than those of the other agencies in the sense of Olson (1982).**⁶

Let us consider the rationale for our survey questions in numerical order. Questions 1-3 seek to identify the core economic agencies and gauge their importance for policy-making. Questions 4-5 address the extent to which recruitment is meritocratic at **the entry level**. Questions 6-11 all attempt to measure the importance of career-building. Question 8, and to a lesser extent questions 6, 7, and 11, measure the extent of internal promotion. Questions 6 and 7, and to a lesser extent question 9, also help to distinguish rule-based from clientelistic government (as do questions 4 and 5). The importance of question 9 for the capacity of the state to engage in long-range planning is suggested by the findings of Rauch (forthcoming) cited above. Question 10 may also be relevant for this capacity, as well as for the possibility of developing “*esprit de corps*” within the core economic agencies. Questions 12-13 do not measure the “Weberian” qualities of the state but rather the “blurring” of public/private boundaries that is one gauge of the extent to which the state is “embedded” in society (for the importance of embeddedness see Evans 1992). Questions 14-16 obviously pertain to the issue of bureaucratic compensation and, by extension, socioeconomic status. Questions 17-18 attempt to measure the extent to which recruitment is meritocratic for the-bureaucracy as a whole.- Finally, questions 19-20 attempt to measure socioeconomic status for the bureaucracy as a whole.

⁶Using our data on the bureaucratic structure of core economic agencies to explain the privately produced measures of bureaucratic performance cited in the Introduction creates a problem if these agencies are, for example, “pockets of efficiency” with bureaucratic structures that are more “Weberian” than is typical of the rest of the state bureaucracy. Since these measures of bureaucratic performance are intended to serve the needs of transnational investors, this problem may be somewhat mitigated if these investors mainly deal with officials **who are** employed by (or heavily influenced by) the core economic agencies.

IV. Data analysis

The answers to the survey questions were coded according to Appendix C. Questions 11 and 17 have been left out. Many respondents provided multiple answers for question 11. We plan to recode this question so it can be properly translated into a quantitative value. Most answers to question 17 were general approximations. We will work out a scale (e.g., pre-1900, pre-World War II, post-World War II, post-1980) and recode.

At this preliminary stage a number of refinements in the data analysis were not attempted. First, where there were multiple questionnaires returned for a given country, these were not used for cross-validation. Instead, the answers were simply averaged together to obtain the values for the country in question. Second, the secondary literature was not consulted to check the questionnaire responses. Third, where respondents indicated that there had been changes in one or more elements of bureaucratic structure during the sample period, only their answers pertaining to the most recent period were used.

Table 1 gives descriptive statistics for the questionnaire responses. The median and the mode are reported to help identify a "typical" response in cases where any response can be said to be "typical". N refers to the number of countries for which at least one response was received; not to the total number of responses.

The answers to questions 2 and 3, pertaining to the policy-making power of the core economic agencies, clearly indicate that the typical core economic agencies are quite powerful: they originate many/some economic policies, which are quite likely to prevail even in the face of opposition from other parts of the bureaucracy, as long as the chief executive is neutral or supportive. Of the questions pertaining to entry-level recruitment, question 4 does not yield a typical response, but question 5 clearly indicates that the overwhelming **majority** of higher officials have university or post-graduate degrees. Question 18 does not yield a clearly typical response, but does indicate that pass rates on

the higher civil service exams usually exceed ten percent. The sense that one gets from these three questions is that university or post-graduate education rather than civil service examination is the predominant source of “quality control” for officials in the core economic agencies of the countries in our sample.

Turning to the questions pertaining to career-building within the core economic agencies, question 6 clearly indicates that agency chiefs and vice-chiefs are typically political appointees. Question 7 yields scattered responses, similar to the other questions involving civil service. Question 8 also yields no typical response, but there are no cases in which over ninety percent of those promoted to the top two or three levels come from within the agency itself. The responses to question 9 indicate that it is typically the case that incumbents of the top positions in these agencies are sometimes moved to positions of lesser importance when political leadership changes, though “rarely” moved was also a very common response. Finally, although the responses to question 10 are somewhat spread out, the modal number of years spent by a typical higher level official in one of the core economic agencies during his career is concentrated in the range five to twenty. Considering questions 6-10 together gives the impression of the typical core economic agencies as being moderately insulated from political pressure.

The last questions of importance for the analysis below concern salary. The responses to question 14 indicate that legal compensation of officials in these agencies tends to be no more than eighty percent of that of comparable private sector managers, with only Singapore officials having *higher* salaries. Question 15 indicates that extra-legal income adds significantly to officials’ total compensation on average, though the mean is still below the private sector level, and from question 16 it is clear that these officials’ legal income typically declined dramatically relative to the private sector during the period 1970-1990.

Questions 12 and 13 ask about the degree of crossing over from public to private sectors. From Table 1 we see that answers to question 12, while scattered, make it clear that it is unusual in our sample for it to be normal for higher officials in the core economic

agencies to spend substantial proportions of their careers in the private sector. The answers to question 13 indicate that in the typical case higher officials frequently have significant post-retirement careers in the private sector, though this is not standard behavior. The answers to the last questions, pertaining to prestige of government service in general, clearly indicate that both among graduates of a country's most elite university(ies) and among members of the educated middle class in general a public sector career is typically considered to be the best option only for those who are risk averse. This finding is consistent with our findings mentioned above on salaries in the public relative to the private sector.

We will relate our survey data to three different kinds of outcome variables: (A) privately produced measures of bureaucratic performance, some of which were cited in the Introduction, (B) three measures of economic performance used by Barro (1991): economic growth, the investment share of GDP, and the private investment share of GDP, and (C) the investment share of government expenditure, intended as a proxy for the government's ability to engage in long-term planning. Some of the data we have collected will not be integrated into this analysis. Questions 17-20 will be omitted because they relate to the higher civil service more broadly rather than only to the core economic agencies and thus are not directly comparable to the other questions. Questions 12-13 will be omitted because we have not derived clear theoretical predictions concerning their effects on the outcome variables we will examine. Question 15 will be omitted because the answers, while interesting, are considered too unreliable at this stage, and question 16 will be omitted because it concerns changes over time while our analysis will be purely cross-sectional. Finally, Syria will be omitted from our analysis because it is both the only country lacking a response to question 9 and the only country missing from the Barro/Wolf data set that is the source of the human capital variables in subsection A below and the dependent variables in subsections B and C below.

A. *Bureaucratic structure and bureaucratic performance*

Six measures of bureaucratic performance are available to us from privately produced data sets. They are listed in the order in which we will use them as dependent variables in cross-sectional regressions. Where these indicators are available for multiple years, their means for the period 1970-1990 will be used.

1. CorruptI: supplied by ICRG. Available for all countries in our sample. Available in 1982 only. Lower scores indicate “high government officials are likely to demand special payments” and “illegal payments are generally expected throughout lower levels of government” in the form of “bribes connected with import and export licenses, exchange controls, tax assessment, police protection, or loans” (definition quoted from Keefer and Knack 1993). Scored 0-6.
2. CorruptB: supplied by BI. Not available for Costa Rica, Syria, and Tunisia. Available for the period 1981-1989 for most of the remaining countries but only for certain years within that period for a few. Measures “the degree to which business transactions involve corruption or questionable payments” (definition quoted from Mauro 1993); lower scores indicate greater levels of corruption. Scored 0-10. It should be noted that unlike CorruptI, CorruptB is not necessarily an indicator of bureaucratic performance: it is not clear whether the “corruption or questionable payments” in the definition are made to government-officials or to private ~~sector managers such as~~ purchasing agents.
3. BurQual: supplied by ICRG. Available for all countries in our sample. Available in 1982 only. High scores indicate “autonomy from political pressure” and “strength and expertise to govern without drastic changes in policy or interruptions in government services”; also existence of an “established mechanism for recruiting and training” (definition quoted from Keefer and Knack 1993). Scored 0-6.
4. BurDelay: supplied by BERI. Not available for Costa Rica, Haiti, Hong Kong, Sri Lanka, Syria, and Tunisia. Available for period 1972-1994 (only to 1991 for a few countries). Higher scores indicate greater “speed and efficiency of the civil service

including processing customs clearances, foreign exchange remittances and similar applications” (definition quoted from Keefer and Knack 1993). Scored 1-4.

5. RedTape: supplied by BI. Not available for Costa Rica, Syria, and Tunisia. Available for the period 1981-1989 for most of the remaining countries but only for certain years within that period for a few. Measures “the regulatory environment foreign firms must face when seeking approvals and permits; the degree to which government represents an obstacle to business” (definition quoted from Mauro 1993); lower scores indicate greater levels of regulation and/or government obstruction. Scored 0-10.

6. GovPlcy: supplied by BI. Not available for Costa Rica, Haiti, Kenya, Morocco, Pakistan, Sri Lanka, Syria, Tunisia, and Zaire. Available for the period 1982-1989. Measures “the ability of the government to formulate policies and strategies and to implement them.” Scored 0-10, with 0 indicating “no rational, systematic socioeconomic goals, policies, or implementation plans,” and 10 indicating “consistent setting and implementation of socioeconomic targets and policies” (definition quoted from Mauro 1993).

In attempting to explain these measures of bureaucratic performance, the question arises as to what control variables to include along with our measures of bureaucratic structure. While there are no generally accepted theories that tell us which socioeconomic variables should predict bureaucratic performance, two obvious candidates are income and education. Insofar as bureaucratic performance is a “luxury good” it will be more demanded by societies with higher incomes, and in any case casual empiricism clearly indicates that bureaucratic performance improves with the level of development. Our income measure will be real GDP per capita (RGDP) corrected for differences in purchasing power across countries, as computed by Summers and Heston (1991). Education should enable the population to better monitor the state bureaucracy, and may also help on the supply side by improving the pool of applicants for the officialdom. Our education measures are the primary and secondary school enrollment rates in 1960

(PRIM60 and SEC60, respectively). These have been shown to be very effective predictors of *economic* performance by Barro (1991) and others. (We experimented with the average years of schooling in the population over age 25, as compiled by Barro and Lee (1993), but neither the 1970 nor the 1980 values were ever statistically significant explanatory variables for our measures of bureaucratic performance.)

For each measure of bureaucratic performance we first examine which control variables should be included in the final regressions. We begin with a measure of bureaucratic structure that is available for all countries, add in the value of RGDP for the first year for which the dependent variable is available, and then add in PRIM60 or SEC60 or both. The best of these five potential specifications is then used for more comprehensive measures of bureaucratic structure that require one or two countries to be dropped from the sample. It should be noted that for the preliminary analysis of this report we employ ordinary least squares regression despite the quasi-limited nature of our dependent variables.

CorruptI. In the specification regressions reported in Table 2a, we use both question 8, the question that addresses internal promotion most directly, and questions 6 and 8-10 ($Q6Q8-10 = 5 \cdot q6 + q8 + q9 + q10$, where $q_x =$ the coded value for question x), which are all the questions that are available for all 25 countries. Clearly the best specification includes RGDP and PRIM60 as control variables (regressions not reported show that SEC60 should not be included). Two other points should be made about the results shown in Table 2a. First, the fact that the measures of bureaucratic structure are only significantly associated with CorruptI when the control variables are included, a finding that recurs for all the measures of bureaucratic performance for which significant associations are found, clearly shows that bureaucratic structure and bureaucratic performance are being measured independently. In other words, we do not find statistically significant effects of bureaucratic structure on bureaucratic performance simply because our respondents are answering our survey with performance in mind rather than with

knowledge of what the question really asks. Second, the addition of questions 6, 9, and 10 clearly improves the explanatory power of the bureaucratic structure variable for corruption. This could be because, contrary to our theory, "Weberianism" in general rather than internal promotion in particular is important for explaining lack of bureaucratic corruption, or it could be because internal promotion is more effective when, say, one retains the position to which one is promoted when political leadership changes (question 9). Table **2b** is intended in part to distinguish between these two hypotheses. Columns (1) - (3) show that there is a dramatic increase in the explanatory power of the regression for *Corrupt1* as measured by the R^2 when question 7, pertaining indirectly to internal promotion, is added to obtain the variable *CAREER* ($\equiv 5 - q6 + q7 + q8 + q9 + q10$), but only a negligible increase in R^2 when question 14, pertaining to salary, is added to obtain the variable *Q6-10Q14* ($\equiv 5 - q6 + q7 + q8 + q9 + q10 + q14$). Columns (4) - (5) show only a marginal increase in R^2 from the addition of questions 4 and 5, pertaining to meritocratic recruitment, to obtain the variable *Q4-6Q8-10* ($\equiv q4 + q5 + 5 - q6 + q8 + q9 + q10$). Finally, columns (6) - (8) clearly show the inferiority of the noncareer variable *NOCAREER* ($\equiv q4 + q5 + q14$) to *CAREER*; in fact, addition of the noncareer questions to *CAREER* to obtain the variable *Q4-10Q14* ($\equiv q4 + q5 + 5 - q6 + q7 + q8 + q9 + q10 + q14$) actually causes a negligible decrease in R^2 .

CorruptB. The specification-regressions for *CorruptB* indicated that inclusion of *RGDP* and *SEC60* was warranted. All of the same regressions shown in Table 2b were then run using *CorruptB* as the dependent variable, but in no case was any measure of bureaucratic structure significant at the ten percent level. The following equation, reported for the measure of bureaucratic structure that was most successful for *CorruptI*, is representative of the results obtained:

$$\text{CorruptB} = 1.854 + 0.056 \text{ CAREER} + 0.00030 \text{ RGDP} + 10.990 \text{ SEC60},$$

$$(1,629) \quad (0.129) \quad (0.00017) \quad (3.833)$$

$n = 22, R^2 = 0.6199, \hat{\sigma} = 1.556$. As mentioned above, it is possible that this negative

result is due to the fact that **CorruptB** does not actually measure bureaucratic corruption.

BurQual measure of bureaucratic performance we do not have any priors concerning which aspects of Weberian bureaucratic structure are most important, so we simply start with Q6Q8-10 which is available for all countries and then proceed to more comprehensive measures of bureaucratic structure while remaining aware of the changes in sample this requires. Table 3a shows that inclusion of RGDP and PRIM60 is warranted, as it was for the other ICRG variable; again regressions not reported show that SEC60 should not be included. Columns (1) and (2) of Table 3b show that addition of question 7 to complete the set of career-related questions causes virtually no increase in explanatory power, unlike for **CorruptI**. Column (3), however, shows that the further addition of question 14, pertaining to salary, also causes almost no increase in R^2 . Most unexpected are the findings in columns (4) - (7), which indicate that additions of questions 4 and 5, pertaining to meritocratic recruitment, actually reduce R^2 , as does additions of questions 4, 5, 7, and 14 together. This is a puzzle that does not recur for **BurDelay** or **RedTape**, as we shall see next.

BurDelay. Here we proceed exactly as for **BurQual**, except we skip use of the variable CAREER that facilitated comparison of the results for **BurQual** with the results for **CorruptI**. Table 4a shows that RGDP in 1972 and PRIM60 are highly collinear in this sample so that inclusion of the latter makes both insignificant. Inclusion of both RGDP and PRIM60 seems warranted in this instance; again regressions not reported show that SEC60 should not be included. Columns (1) - (4) of Table 4b show that addition of questions 7 and 14 on the one hand and questions 4 and 5 on the other cause almost exactly equal increases in R^2 , and addition of all four questions to give the broadest measure of bureaucratic structure causes the largest increase in R^2 . We note that, unlike for **CorruptI** and **BurQual**, only measures of bureaucratic structure that include questions covering either meritocratic recruitment or salary are significant at conventional levels.

RedTape. Here we proceed exactly as for **BurDelay**. Table 5a shows that inclusion

of SEC60, which outperforms PRIM60 in regressions not shown, is not warranted, so RGDP is the only control variable included in the regressions of Table 5b. This table shows that only measures of bureaucratic structure that include questions covering meritocratic recruitment attain significance at conventional levels. As with BurDelay, addition of all four questions (4, 5, 7, and 14) to give the broadest measure of bureaucratic structure causes the largest increase in R^2 .

GovPlcy. The specification regressions for *GovPlcy* indicated that inclusion of RGDP only was warranted. None of our measures of bureaucratic structure was significant at the ten percent level for this dependent variable, though the coefficients on all of them were positive. We also created a variable to measure the power of the core economic agencies in order to test the hypothesis that where these agencies were more powerful, government policy might appear more coherent. This variable, given by $4 - q_2 + q_3$, was positive but not significant at the ten percent level.

B. Bureaucratic Structure and Economic Performance

We have now seen that our measures of bureaucratic structure influence most available measures of bureaucratic performance, which in turn are already known to be associated with better economic performance according to the studies cited in the Introduction. It is also possible that our measures of bureaucratic structure influence economic performance in ways that are not captured by available measures of bureaucratic performance. We have chosen to test for this possibility in a quite stringent way. We ask whether our measures of bureaucratic structure can have statistically significant effects on the measures of economic performance used by Barro (1991) and listed above, after including the BERI or ICRG index of institutional performance used by Keefer and Knack (1993) in the Barro regressions. These indices include the BERI and ICRG measures of bureaucratic performance used above plus factors such as risk of expropriation/nationalization.

More specifically, we reestimated the Barro regressions for growth of GDP per

capita, investment share of GDP, and private investment share of GDP for the period 1970-1985 for our sample of 25 countries (recall that Syria is missing from the Barro/Wolf data set).⁷ We then added the BERI or ICRG index, and deleted wrong-signed and/or statistically insignificant variables until the BERI or ICRG index became statistically significant. In all cases this procedure was successful in establishing baseline regressions where all Barro variables had the correct signs and the BERI or ICRG index was positive and significant at the ten percent level or better. We then individually added to these baseline regressions the various summary measures of bureaucratic structure used in subsection A above. This procedure never yielded statistically significant coefficients on the bureaucratic structure variables.

One possible reason for this negative result is that our measures of bureaucratic structure influence economic performance independently of the BERI or ICRG index only when the core economic agencies are especially powerful. We therefore tried using the interaction (product) of our summary measures with our measure of the power of the core economic agencies ($q_2 + q_3$) in the procedure described in the preceding paragraph. This yielded positive and significant coefficients on some of the more comprehensive summary measures of bureaucratic structure in the equations for growth of per capita GDP that included the BERI index. No similar results were obtained for other dependent variables or for any equations, that included the ICRG index. Given these findings, it seems safest to conclude that our measures of bureaucratic structure influence economic outcomes through bureaucratic performance (as measured by private agencies) rather than through any independent channels.

C. Bureaucratic Structure and the Allocation of Government Expenditure

To construct the dependent variable for this subsection, we first took the difference between two of the dependent variables from the previous subsection (the investment share

⁷In future work we plan to update the Barro/Wolf data set so that we can cover the entire period 1970-1990.

of GDP and the private investment share of GDP) to obtain the government investment share of GDP for the period 1970-1985. We then divided this variable by itself plus the government consumption share of GDP (excluding education and military spending), used as one of the independent variables in the analysis of the previous subsection, to get the investment share of central government expenditure excluding education and the military for the period 1970-1985. The Barro (1991) set of explanatory variables used in subsection B (excluding the government consumption share of GDP, of course) proved to have no explanatory power at all for this new dependent variable. Unfortunately, neither did our measures of bureaucratic structure, be they question 9 alone or the measures used in subsection A or any of these interacted with our measure of the power of the core economic agencies.

V. Conclusions

Our preliminary data analysis has shown that our measures of bureaucratic structure are statistically significant determinants of four out of six privately produced measures of bureaucratic performance, controlling for country income and human capital. The internal promotion and broader career-building elements of bureaucratic structure proved to be most important for better performance on corruption, as predicted by our theory of section II, while for better performance regarding bureaucratic delay and red tape the meritocratic recruitment and salary elements ~~also proved to be~~ important. It appears that bureaucratic structure affects economic performance through bureaucratic performance rather than through some independent channel. Finally, our only disappointing result was our failure to find any effect of bureaucratic structure on the ability of the government to engage in long-term planning as proxied by the investment share of government expenditure excluding ~~the~~ military and ~~education~~.

Responses to our survey are continuing to come in. Eventually these will allow us not only to complete coverage of the country sample in Appendix A, but also to use

multiple questionnaires for cross-validation and to allow for changes in bureaucratic structure during the period 1970-1990 when such changes are indicated by multiple respondents. We have also received a large amount of narrative discussion that is complementary to the coded questionnaire responses. We expect this to be a rich source of more nuanced insight in the future.

APPENDIX A

Sample of 30 semi-industrialized countries (Chenery 1980):

Africa and the Middle East: Egypt, Israel, Ivory Coast, Kenya, Morocco, Syria, Tunisia, and Turkey

Asia: Hong Kong, India, Korea, Malaysia, Philippines, Singapore, Thailand, Taiwan

Europe: Greece, Portugal, and Spain

Latin America: Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Mexico, Peru, and Uruguay

APPENDIX B

ANALYZING ECONOMIC BUREAUCRACY

Overview:

Narrative and Standard Answers: In order to make comparisons across countries more feasible we have provided some standard alternative answers to each question, but we are well aware that these standard answers can't capture the full complexities of real bureaucratic structures. Therefore, we hope that in addition to indicating which standard alternative comes closest to describing your case, you will offer a separate, complementary narrative discussion of how the state bureaucracies you are describing look with regard to these issues.

Time Period: We are interested primarily in what these bureaucracies looked like in the recent past roughly 1970 - 1990. If there have been important changes within this period, or between this period and the present please indicate the sub-period to which your answers apply. We would also appreciate any commentary you could add on changes over time in your narrative responses.

Core Economic Agencies:

- 1.** List the four most important **agencies in the central state** bureaucracy **order of their power** to shape overall economic policy. (e.g. Ministry of Finance, Ministry of Industry and/or Trade and/or Commerce, Planning Board, agency or Ministry)?

1. _____

2. _____

4. _____

2. 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 and they are important "filters" for policy ideas that come from political parties, private elites and the chief executive, often reshaping these ideas in the process.
 3. they rarely originate new policies, but are important in turning policies that originate in the political arena into programs that can be implemented.
3. How likely are ideas and policies initiated by these agencies to prevail?
 1. no more likely than ideas coming out of other parts of the state bureaucracy.
 - 2.** quite likely, even in the face of opposition from other parts of the bureaucracy, as long as the chief executive is neutral or supportive.
 3. under the circumstances above and also sometimes even in the face of opposition from the chief executive.

Recruitment and Careers:

[In answering the following questions, assume that “higher officials”, refers to those who hold roughly the top 500 positions in the core economic agencies you have discussed above.]

4. Approximately what proportion of the higher officials in these agencies enter the civil service via a formal examination system?

less than 30% 30 - 60% 60% -90% more than 90%

5. Of those that do not enter via examinations, what proportion have university or post-graduate degrees.

less than 30% 30 - 60% 60% -90% more than 90%

6. **Roughly how many of the top levels in these agencies are political appointees (e.g. appointed by the President or Chief Executive)**

1. none.
2. **just agency chiefs.**
3. agency chiefs and vice-chiefs.
4. all of top 2 or 3 levels.

7. Of political appointees to these positions, what proportion are likely to already be members of the higher civil service?

less than 30% 30 - 70% more than 70%

8. Of those promoted to the top 2 or 3 levels in these agencies (whether or not they are political appointees), what proportion come from within the agency itself or (its associated ministry(ies) if the agency is not itself a ministry)?

less than 50% 50 - 70% 70% - 90% over 90%

9. Are the incumbents of these top positions likely to be moved to positions of lesser **importance when political leadership changes?**

almost always usually sometimes rarely

10. What is roughly the modal number of years spent by a typical higher level official in one of these agencies during his career?

1-5 years 5-10 years 10 -20 years entire career

11. 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 but no more.
2. in most cases, will move up three or four levels, but unlikely to reach the level just below political appointees.
3. if performance is superior, moving up several levels to the level just below political appointees is not an unreasonable expectation.
4. in at least a few cases, could expect to move up several levels within the civil service and then move up to the very top of the agency on the basis of political appointments.

12. 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?

normal frequent but not modal unusual almost never

13. How common is it for higher officials in these agencies to have significant post-retirement careers in the private sector?

normal frequent but not model unusual almost never

Salaries:

14. 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?

less than 50% 50 - 80% 80% - 90% Comparable Higher

15. If bribes and other extra-legal perquisites are included what would the proportion be?

less than 50% 50 - 80% 80% - 90% Comparable Higher

16. 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. maintained the same position.
2. declined slightly.
3. declined dramatically.
4. improved their position.

Civil Service Exams:

[NB: These questions refer to the higher Civil Service more broadly, not just to the top 500 officials in the core agencies.]

17. Since roughly what date have civil service examinations been in place? _____

18. Roughly what proportion of those who take the higher civil service exam pass?

<2% 2-5% 6-10% 10% -30% 30-40% >50%

19. Among graduates of the country's most elite university(ies), is a public sector career considered:

1. the best possible career option.
2. the best possible option for those whose families are not already owners of substantial private enterprises.
3. the best option for those who are risk averse.
4. definitely a second best option relative to a private sector career.

20. Among members of the educated middle class who are not in a position to attend the most elite universities is a public sector career considered:

1. the best possible career option.
2. the best possible option for those whose families are not already owners of substantial private enterprises.
3. the best option for those who are risk averse.
4. definitely a second best option relative to a private sector career.

21. Can you suggest two or three other experts (either scholars or practitioners) that you consider particularly knowledgeable with regard to these issues of bureaucratic structure in (Please add addresses and FAX or tel. #s if you have them.)

1. Name: _____

Address: _____

FAX or tel. # _____

2. Name: _____

Address: _____

FAX or tel. # _____

3. Name: _____

Address: _____

FAX or tel. # _____

22. What do you consider the two or three best published sources of information on . . .'s bureaucracy?

APPENDIX C

ANALYZING ECONOMIC BUREAUCRACY: CODE SHEET

Q2. 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 and they are important “filters” for policy ideas that come from political parties, private elites and the chief executive, **often** reshaping these ideas in the process.
3. they rarely originate new policies, but are important in turning policies that originate in the political arena into programs that can be implemented.

Q3. How likely are ideas and policies initiated by these agencies to prevail?

1. no more likely than ideas coming out of other parts of the state bureaucracy.
2. quite likely, even in the face of opposition from other parts of the bureaucracy, as long as the chief executive is neutral or supportive.
3. under the circumstances above and also sometimes even in the face of opposition from the chief executive.

Q4. 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%

Q5. Of those that do *not* enter via examinations, what proportion have university or post-graduate degrees.

1. less than 30%
- 2.30 - 60%
- 3.60% -90%
4. more than 90%

Q6. Roughly how many of the top levels in these agencies are political appointees (e.g. appointed by the President or Chief Executive)?

1. none.
2. just agency chiefs
3. agency chiefs and vice-chiefs.
4. all of top 2 or 3 levels.

Q7. Of political appointees to these positions, what proportion are likely to already be members of the higher civil service?

1. less than 30%
- 2.30 - 70%
3. more than 70%

Q8. Of those promoted to the top 2 or 3 levels in these agencies (whether or not they are political appointees), what proportion come from within the agency *itself* or (its associated *ministry(ies)* if the agency is not *itself* a ministry)?

1. less than 50%
2. so - 70%
- 3.70% - 90%
4. over 90%

Q9. Are the incumbents of these top positions likely to be moved to positions of lesser importance when political leadership changes?

1. almost always
2. usually
3. **sometimes**
4. rarely

Q10. 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

Q12. 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

Q13. How common is it for higher **officials** in these agencies to have significant post-retirement careers in the private sector?

1. normal
2. frequent but not modal
3. unusual
4. almost never

Q14. 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

Q15. 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

Q16. 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. maintained the same position.
2. declined slightly.
3. declined dramatically.
4. improved their position.

Q18. Roughly what proportion of those who take the higher civil service exam pass?

1. <2%
2. 2-5%
3. **6-10%**
4. 10-30%
5. 30-50%
6. >50%

Q19. Among graduates of the country's most elite **university(ies)**, is a public sector career considered:

1. the best possible career option.
2. **the best possible option for those whose families are not already owners of substantial private enterprises**
3. the best option for those who are risk averse.
4. definitely a second best option relative to a private sector career.

Q20. Among members of the educated middle class who are not in a position to attend the most elite universities is a public sector career considered:

1. the best possible career option.
2. the best possible option for those whose families are not already owners of substantial private enterprises.
3. the best option for those who are risk averse.
4. **definitely a second best option relative to a private sector career.**

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Table 1: Descriptive Statistics for Questionnaire Responses

<u>Question</u>	<u>N</u>	<u>Mean</u>	<u>St. Dev.</u>	<u>Median</u>	<u>Mode</u>
2.	25	1.6	0.6	1.5	1
3.	26	1.9	0.3	2.0	2
4.	25	2.4	1.1	2.5	1
5.	25	3.5	0.8	3.8	4
6.	26	3.0	0.7	3.0	3
7.	25	2.1	0.8	2.3	1
8.	26	2.1	0.8	2.0	1
9.	25	3.1	0.9	3.0	3
10.	26	2.4	1.0	2.6	3
12.	26	2.8	1.0	2.9	2
13.	25	2.1	0.7	2.0	2
14.	25	1.9	0.9	1.5	1
15.	22	2.8	1.2	2.6	2
16.	25	2.8	0.6	3.0	3
18.	16	4.1	1.1	4.0	5
19.	25	2.8	0.9	3.0	3
20.	25	2.7	1.0	3.0	3

Table 2a: Specification Regressions for CorruptI

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	2.517 (0.976)	0.466 (0.807)	-1.413 (1.284)	0.779 (1.714)	-1.230 (1.234)	-3.400 (1.537)
Q8	0.274 (0.441)	0.397 (0.313)	0.555 ^c (0.310)			
Q6Q8-10				0.240 (0.175)	0.263 ['] (0.120)	0.320 ^b (0.114)
RCDP (1082)		0.00050 ^a (0.00010)	0.00037 ^a (0.00012)		0.00051 ^a (0.00010)	0.00036 ['] (0.00011)
PRIM60			2.486 ['] (1.362)			2.613 ^b (1.233)
n	25	25	25	25	25	25
R ²	0.0165	0.5299	0.5943	0.0757	0.5863	0.6591
$\hat{\sigma}$	1.824	1.290	1.226	1.769	1.210	1.124

Standard errors in parentheses.

^aSignificant at one percent level.

^bSignificant at five percent level.

^cSignificant at ten percent level.

Table 2b: Find Regressions for Corrupt1

Variable	(1)	(2)	(3)	(4)	(5)
Intercept	-3.214 (1.581)	-4.043 (1.401)	-4.499 (1.470)	-3.180 (1.461)	-3.305 (1.412)
Q6Q8-10	0.333 ^b (0.117)			0.307 ^b (0.109)	
CAREER		0.334 ^a (0.084)			
Q6-10Q14			0.321 [*] (0.080)		
Q4-6Q8-10					0.214 ^{**} (0.070)
RGDP (1982)	0.00037 ^a (0.00011)	0.00035 ^a (0.00010)	0.00027 [*] (0.00011)	0.00035 ^a (0.00011)	0.00034 ^a (0.00011)
PRIM60	2.248 (1.361)	2.499 ^c (1.211)	2.802 [*] (1.212)	2.436 [*] (1.172)	2.192 ^c (1.127)
n	24 ^d	24 ^d	24 ^d	24 ^e	24 ^e
R ²	0.6463	0.7218	0.7265	0.6714	0.6857
$\hat{\sigma}$	1.139	1.010	1.001	1.064	1.041

Standard errors in parentheses.

^{*}Significant at one percent level. ^bSignificant at five percent level. ^{*}Significant at ten percent level.

^dPakistan omitted from sample. ^eMalaysia omitted from sample.

Table 2b: Final Regressions for Corrupt1 (continued)

Variable	(6)	(7)	(8)
Intercept	-3.732 (1.581)	-3.443 (1.303)	-1.549 (1.309)
CAREER	0.315 ^a (0.081)		
Q4-10Q14		0.221 ^a (0.058)	
NOCAREER			0.314 ^b (0.139)
RGDP (1982)	0.00034 ^a (0.00010)	0.00034 ^a (0.00010)	0.00029 ^b (0.00012)
PRIM60	2.322 ^c (1.161)	1.761 (1.140)	1.378 (1.358)
n	23 ^f	23 ^f	23 ^f
R ²	0.7280	0.7254	0.6158
$\hat{\sigma}$	0.964	0.969	1.146

Standard errors in parentheses.

^aSignificant at one percent level. ^bSignificant at five percent level. ^cSignificant at ten percent level.

^fMalaysia and Pakistan omitted from sample.

Table 3a: Specification Regressions for BurQual

Variable	(1)	(2)	(3)
Intercept	1.818 (1.691)	-0.167 (1.216)	-3.419 (1.284)
Q6Q8-10	0.132 (0.173)	0.154 (0.118)	0.240 ^b (0.096)
RGDP (1982)		0.00050 ^a (0.00010)	0.00028 ^c (0.00009)
PRIM60			3.918 ^a (1.031)
n	25	25	25
R ²	0.0247	0.5647	0.7421
\bar{u}	1.745	1.192	0.939

Standard errors in parentheses.

^aSignificant at one percent level.

^bSignificant at five percent level.

^cSignificant at ten percent level.

Table 3b: Final Regressions for BurQual

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept	-3.427 (1.336)	-3.443 (1.331)	-3.696 (1.407)	-3.320 (1.292)	-2.922 (1.324)	-3.327 (1.346)	-2.820 (1.351)
Q6Q8-10	0.239 ^b (0.099)			0.234 ['] (0.096)		0.233 ^b (0.010)	
CAREER		0.195 ^b (0.080)					
Q6-10Q14			0.187 ^b (0.076)				
Q4-6Q8-10					0.134 ^c (0.066)		
Q4-10Q14							0.113 ^c (0.060)
RGDP (1982)	0.00028 ^a (0.00010)	0.00027 ^b (0.00010)	0.00023 ^b (0.00010)	0.00028 ^a (0.00009)	0.00027 ^b (0.00010)	0.00028 ^b (0.00010)	0.00027 ^b (0.00010)
PRIM60	3.932 ^a (1.150)	4.003 ^a (1.152)	4.176 ['] (1.163)	3.837 ^a (1.037)	3.577 ^a (1.057)	3.852 ^a (1.157)	3.570 ^a (1.192)
n	24 ^d	24 ^d	24 ^d	24 ^e	24 ^e	23 ^f	23 ^f
R ²	0.7249	0.7262	0.7272	0.7393	0.7196	0.7222	0.6992
$\hat{\sigma}$	0.962	0.960	0.958	0.942	0.976	0.966	1.005

Standard errors in parentheses.

^aSignificant at one percent level. ^bSignificant at five percent level. [']Significant at ten percent level.^dPakistan omitted from sample. ^eMalaysia omitted from sample. ^fMalaysia and Pakistan omitted from sample.

Table 4a: Specification Regressions for **BurDelay**

Variable	(1)	(2)	(3)
Intercept	1.585 (0.514)	0.791 (0.505)	0.190 (0.004)
Q6Q8-10	0.012 (0.052)	0.050 (0.045)	0.063 (0.044)
RGDP (1972)		0.00016 ^a (0.00005)	0.00010 (0.00006)
PRIM60			0.775 (0.470)
n	20	20	20
R ²	0.0031	0.3448	0.4400
$\hat{\sigma}$	0.489	0.408	0.388

Standard errors in parentheses.

^aSignificant at one percent level.

^bSignificant at five percent level.

^cSignificant at ten percent level.

Table 4b: Final Regressions for **BurDelay**

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	0.245 (0.638)	-0.226 (0.603)	0.214 (0.623)	-0.334 (0.580)	0.271 (0.660)	-0.319 (0.577)
Q6Q8-10	0.065 (0.045)		0.062 (0.045)		0.064 (0.046)	
Q6-10Q14		0.074 ^b (0.030)				
Q4-6Q8-10				0.071 ^b (0.028)		
Q4-10Q14						0.068 ^b (0.024)
RGDP (1972)	0.00010 (0.00007)	0.00009 (0.00006)	0.00010 (0.00006)	0.00010 (0.00006)	0.00010 (0.00007)	0.00010 (0.00006)
PRIM60	0.679 (0.545)	0.833 (0.498)	0.738 (0.490)	0.777 ^c (0.433)	0.640 (0.569)	0.683 (0.483)
n	19 ^d	19 ^d	19 ^e	19 ^e	18 ^f	18 ^f
R ²	0.4014	0.5133	0.4361	0.5535	0.3991	0.5652
$\hat{\sigma}$	0.399	0.360	0.399	0.355	0.411	0.349

Standard errors in parentheses.

^aSignificant at one percent level. ^bSignificant at five percent level. ^cSignificant at ten percent level.

^dPakistan omitted from sample. ^eMalaysia omitted from sample. ^fMalaysia and Pakistan omitted from sample.

Table 5a: Specification Regressions for RedTape

Variable	(1)	(2)	(3)
Intercept	4.090 (2.112)	1.535 (1.531)	1.133 (1.553)
Q6Q8-10	0.136 (0.214)	0.181 (0.146)	0.184 (0.145)
RGDP (1981)		0.00059 ^a (0.00012)	0.00048 ^c (0.00015)
SEC60			4.169 (3.514)
n	23	23	23
R ²	0.0188	0.5636	0.5937
$\hat{\sigma}$	2.112	1.443	1.429

Standard errors in parentheses.

^aSignificant at one percent level.

^bSignificant at five percent level.

^cSignificant at ten percent level

Table 5b: Final Regressions for RedTape

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	1.478 (1.580)	1.187 (1.529)	1.531 (1.571)	0.512 (1.537)	1.472 (1.623)	0.416 (1.516)
Q6Q8-10	0.192 (0.154)		0.182 (0.150)		0.193 (0.158)	
Q6-10Q14		0.167 (0.112)				
Q4-6Q8-10				0.184' (0.095)		
Q4-10Q14						0.174^c (0.085)
RGDP (1981)	0.00059 ^a (0.00012)	0.00055^a (0.00012)	0.00059 ^a (0.00012)	0.00057^a (0.00012)	0.00059^a (0.00013)	0.00056 ^a (0.00012)
n	22 ^d	22 ^d	22 ^e	22 ^e	21 ^f	21 ^f
R ²	0.5561	0.5702	0.5622	0.6061	0.5550	0.6094
$\hat{\sigma}$	1.477	1.453	1.480	1.404	1.517	1.421

Standard errors in parentheses.

^aSignificant at one percent level. ^bSignificant at five percent level. ^cSignificant at ten percent level.

^dPakistan omitted from sample. ^eMalaysia omitted from sample. ^fMalaysia and Pakistan omitted from sample.