

Bureaucratic Selection and Economic Development: Theory and Evidence from 98 Countries

Siddharth George*

Nicholas Kuipers[†]

Abstract

We study how economic development shapes bureaucratic selection. We present three stylized facts: (i) bureaucrats are more educated than the average citizen but become less positively selected as countries develop; (ii) bureaucrats tend to be more pro-social than other citizens, and this gap widens with economic development; (iii) bureaucracies become more representative as countries get richer. We propose a simple theory to explain these patterns. Individuals value the stability of salaried work, which is scarce in poor countries. Thus, the most educated hoard government jobs in poor countries. Private sector salaried work expands as economies develop, offering wage premia to credentialed citizens, leaving only intrinsically motivated citizens sort into the bureaucracy. And intrinsic motivation, but not credentials, is distributed uniformly across groups in a population, leading to superior descriptive representation.

* Assistant Professor and Presidential Young Professor, Department of Economics, National University of Singapore

[†] Assistant Professor, Department of Politics, Princeton University

1 Introduction

The aim of every political constitution is, or ought to be, first to obtain for rulers men who possess most wisdom to discern, and most virtue to pursue, the common good of the society — James Madison

At the heart of state capacity is a corps of capable and honest bureaucrats (Evans & Rauch 1999). Governments that recruit talented, public-spirited citizens often achieve more rapid economic development and greater public satisfaction with governance (Cornell, Knutsen & Teorell 2020; Johnson 1982*b*). But scholars and policymakers alike have long worried that governments may be unable to simultaneously maximize these traits in the bureaucracy (c.f. Ashraf et al. 2020). A career in public office may attract capable but, say, avaricious individuals. Benjamin Franklin warned as much in 1787, arguing, “there are two passions which have a powerful influence in the affairs of men. These are ambition and avarice ... Place before the eyes of such men a post of honor, that shall, at the same time, be a place of profit, and they will move heaven and earth to obtain it.” Yet, longstanding intuition aside, there is little evidence that avarice correlates with the sorts of psychometric evaluations used to gauge “competence” among prospective bureaucrats (Han et al. 2012).

In this paper, we argue that the challenges associated with recruiting a simultaneously capable and benevolent bureaucracy stem from the availability of salaried outside options in a given labor market—not from psychological constraints that bind at the individual level. To make our case, we investigate patterns in bureaucratic selection as a function of economic development. The key ingredient of our theory is the observation that individuals value salaried employment, chiefly owing to its stability. In poor countries, where the bureaucracy is one of the few options for salaried work, the most capable citizens sort into the public sector. These citizens may not be highly pro-social or motivated by a desire to service the public, but may simply be in search of the best available job. As countries develop, and overall levels of educational attainment increase, an employment transition occurs whereby individuals increasingly turn away from casual work or self-employment and join salaried employment (Jensen 2022). The availability of salaried jobs in rich countries means that individuals do not necessarily have to join the government to have one. The implication is that individuals instead sort into the public sector based on an intrinsic orientation towards public

service.

In short, our model predicts that as countries develop, bureaucrats become less competent (relative to the broader citizenry) but more pro-social. To evaluate this argument, we draw on evidence from two main sources of data. First, as a measure of competence, we draw on census microdata in 98 countries, spanning 352 censuses over the period 1960-2017 and comprising 370 million individual observations. To proxy for competence, we examine the average level of education obtained.¹ Second, to capture the degree of pro-sociality, we turn our attention to a variety of survey modules included in the World Values Survey, which, over its seven waves, and which includes 450,869 respondents spread across 112 countries and quizzed over 312 unique surveys. Using these two main sources of data, we compare both the level of competence and pro-sociality across bureaucrats and the broader populations they serve. Combined with measures of economic development, these data enable a detailed analysis of the patterns shaping bureaucratic appointments worldwide.

We present three stylized facts consistent with our model. First, we document that bureaucrats are positively selected relative to the citizenry at large in all countries. In every country, for every year in our sample, bureaucrats are better educated than the populations they serve. However, this educational advantage is larger in poor countries than in rich countries and declines as countries become more economically developed. For countries in the bottom quartile of the world income distribution, bureaucrats are over 2 SD more educated than the average citizen. However, for countries in the top quartile of the income distribution, bureaucrats are less than 0.5 SD more educated than the average citizen. This relationship is robust to a variety of econometric techniques, including the inclusion of controls, country-, year-, and/or cohort-fixed effects, as well as shifting the unit of analysis to second-tier administrative units within a country.

Second, we show that bureaucrats tend to be relatively more pro-social than the average citizen in rich countries. We measure pro-sociality using data from the World Values Survey. We construct measures of ethnic and religious tolerance based on inter-group attitudes and preferences for neighbors of different religions and ethnicities. We observe that bureaucrats tend to be more tolerant than citizens in most countries, but this gap increases in rich countries. Similarly, we see that bureaucrats in rich countries have higher levels of inter-personal trust than bureaucrats in poor

¹ While imprecise, education has been used as a proxy for the competence of leaders in other contexts (Dal Bó, Finan & Rossi 2013).

countries. We also see interesting patterns for preferences for redistribution. In poor countries, bureaucrats have weaker preferences for redistribution than the average citizen while in rich countries bureaucrats are more pro-redistribution than the average citizen. We see no clear pattern for trust in institutions. While our measures of pro-sociality are indirect we believe our results point in a consistent direction and gesture towards systematic transformations in the underlying attitudes of bureaucrats as a function of economic development.

The third stylized fact we establish relates to representation. Owing to widespread inequities in access to education, educational credentials are typically distributed unequally across constituent groups in a given society. But pro-sociality, being a psychological trait, is likely to be distributed more uniformly across groups. To the extent that our theory predicts that the level of development selects for the former trait over the latter, we expect that bureaucracies will become more representative of the populations they serve as they develop. To measure this possibility, we construct two measures that capture how similar bureaucrats are to the populations they represent. First, we show that bureaucrats come from high-SES families (their fathers have 0.12 SD more education than the average citizen's father), but as countries develop, going from the poorest country in the world to the richest, the relevance of parental education declines by 35%. Second, in terms of ascriptive traits (i.e., race, ethnicity, religion), our results are more mixed, but point in a consistent direction, indicating that bureaucrats are more representative of the populations they serve in rich countries than their poorer peers.

We probe our theoretical explanation for these diverse findings by conducting several additional tests to tease out the implications of our findings. Recall that our preferred explanation concerns the availability of strong compensation in private sector outside options. To prove the plausibility of this explanation, we examine bureaucrats' relative levels of education against the share of the labor force drawing a formal salary. We view this as the most direct test of our model. The results of this analysis indicate that the extent of positive educational selection is larger in countries with a less robust market for salaried work—a correlation that is robust to controlling for underlying levels of economic development. Bureaucrats are approximately 1.8 SDs more educated than the populations they serve in countries in which less than 25% of the workforce is salaried, compared to 0.3 SDs in places where more than 75% of the workforce is salaried.

We also consider the possibility that countries' economic geography may jointly affect levels of

development *and* the nature of bureaucratic selection. Consider, for instance, bureaucratic selection in highly-centralized states in which the promise of both stable salaried work and government employment may only exist in a faraway capital (e.g., France) compared to more decentralized polities in which economic opportunity is more evenly distributed (e.g., Germany). To bolster our preferred interpretation of the role of outside wage pressures, we re-run the above-analysis examining the relationship between share of a local economy that is salaried and the degree of positive selection into the bureaucracy at the level of first tier administrative units (GEOLEV1), finding our results to be robust. We interpret this as evidence in support of our claim that it is the availability of *immediate* and *proximate* salaried outside options that drive our findings. Qualified individuals are evidently often looking to trade up, but subject to geographic constraints.

As a final test of our preferred explanation, we leverage the observation that individuals' career choices are sticky, meaning they are unlikely to deviate from a career path chosen early in life. But countries often develop significantly over the course of a single lifetime. Thus, we expect a country's level of development at the outset of an individual's career to be more important than present level in estimating the degree of positive bureaucratic selection in a given context. To test this, we construct an individual-level variable that captures the level of development (in GDP per capita terms) when an observation was 25 years old.² Consistent with our expectation, this is indeed what we find: the level of GDP per capita and individual experienced at age 25 is much more decisive in predicting bureaucrats' level of educational overachievement compared to the average citizen they serve. Strikingly, this relationship holds even after controlling for present levels of development.

Taken together, the results of our analyses contribute to several ongoing debates in political economy and responds to recent calls in both economics and political science to engage questions around the "personnel economics of the state" (Brierley et al. 2023; Finan, Olken & Pande 2017). Perhaps most relevant to our paper is the work of Ashraf et al. (2020), who show that there is a tradeoff between competence and pro-sociality. But this exists only at low levels. Stringent screening of bureaucrats mitigates this tradeoff. Our framework is similar to theirs, but we study a different treatment. Our treatment is a change in the opportunity cost. Adopting their model also generates predictions consistent with our findings. We find that an increase in the opportunity cost

² This is an arbitrary decision, but our results are robust to the same exercise +/- 5 years.

of entering the public sector leads to less competent but more pro-social selection of bureaucrats.

A second contribution of our paper is to push beyond a focus on the incentives that structure entry into *political* office to consider selection and sorting into the bureaucracy, as well. Gulzar & Khan (2025), for instance, shows that appeals emphasizing pro-social motivations for seeking public office are more likely than those emphasizing personal returns to induce entry among potential candidates (c.f., Ravanilla 2020). But much of this research has examined the role of financial (rather than psychosocial) incentives, including among bureaucrats (Dal Bó et al. 2017). The results here are mixed: Fisman et al. (2015) looks at European members of parliament and finds that an increase in politician salaries led to a decrease in educational credentials, while Ferraz & Finan (2009) leverages a similar change in Brazil, finding an improvement in overall quality. The theory and evidence presented in this paper suggest a way to reconcile these findings in the context of bureaucratic selection by focusing on the variable labor market conditions associated with economic development.

2 A Model of Private-Sector Wage Competition

Attracting and retaining high-quality staff is central to building a capable state (Weber 1978; Evans & Rauch 1999; Rauch & Evans 2000; Johnson 1982a). At stake is a vast array of developmental outcomes ranging from the overall level of state capacity to the quality of frontline service delivery. Over the past century, governments have replaced patronage with meritocratic selection procedures that screen applicants on observable credentials in the hopes of achieving superior measures of service delivery. These reforms have been hugely successful in rooting out corruption and improving the quality of governance around the world. And, by reducing the extent to which politician can capture the state to their own whims, the entrenchment of autonomous bureaucracies have provided an important check on politicians.

These meritocratic reforms have been successful in *screening* or *filtering* applicants on the basis of certain *a priori* desirable traits (Kuipers 2024). But who *applies* for government jobs in the first place depends on a combination of both extrinsic incentives (e.g., pay, stability) and intrinsic motivations (public service ethos) (Bó, Finan & Rossi 2013; Gulzar & Khan 2025; Perry & Wise 1990; Honig 2021, 2024a). Here, scholars have shown a combination of extrinsic and intrinsic motivations to be influential. In an influential paper, Dal Bó, Finan & Rossi (2013), for instance, show that financial

incentives can be a powerful incentive in luring top talent to apply for—and accept—public sector employment opportunities. This uptick in capable bureaucrats leads, in turn, to gains in the quality of service delivery. Meanwhile, recent work has also shown that, at least in the context of elected officials, appealing to potential candidates’ sense of duty can be an effective appeal to an intrinsic sense of motivation that similarly attracts high quality candidates into public service (Gulzar & Khan 2025).

The premise of our paper is that effective bureaucratic performance is jointly determined by professional competence and pro-social motivation. Classic and modern theories of motivated agents suggest that mission-oriented individuals can substitute for strong monetary incentives, while intrinsic motivation also shapes how public servants implement policy on the ground (Besley & Ghatak 2005; Prendergast 2007; Perry & Wise 1990). The model we develop below adapts certain key insights from field experiments in which researchers have shown that both (i) compensation and also (ii) framing careers as pro-social influence who applies to public service (Bó, Finan & Rossi 2013; Ashraf et al. 2020). Our model then incorporates the idea that the attractiveness of private employment increases with economic development owing to the promise of higher and stable salaried wages, which complicates intuitions developed from the field experimental literature, as we describe below (Jensen 2022; Finan, Olken & Pande 2017).

To begin, we assume that individuals interested in public service differ along two privately known dimensions. First, some are more professionally competent than others. In practice, this dimension can be observed with some arbitrary precision through externally-validated credentials such as educational degrees. Second, some are more pro-social than others, meaning they value contributing to a public mission rather than simply engaging in activities that benefits oneself. The government offers a salary for civil service jobs and specifies a screening bar—for example, a minimum test score or credential requirement. People who meet the bar are *eligible* for selection. We further assume that working in government provides two sources of satisfaction: the paycheck and the intrinsic satisfaction of serving a public mission. By contrast, we assume that the private sector provides only the paycheck, providing little in the way of intrinsic satisfaction of serving a public mission.

Before continuing to the specific predictions of our model, it is worth emphasizing how we think about two distinct selection stages shape the bureaucracy, which we dub “sorting” and “screen-

ing,” akin to the distinction developed by Kuipers (2024). Before anyone sits for a civil service exam or presents credentials for inspection, an individual must decide whether to pursue a government job at all. That decision weighs three things: the government wage, the individual’s taste for public service, and, crucially, the attractiveness of private-sector alternatives. For any given level of competence, there is a minimum degree of pro-social motivation that makes a government position worthwhile. That minimum rises when private opportunities are richer and falls when government jobs pay more or are designed to make the mission more salient and rewarding (Ashraf et al. 2020; Honig 2021, 2024a).

Only after people choose to apply in the first place does screening matter. Here, we understand screening to be the process of evaluating whether an applicant meets the requirements for employment. Most scholars of civil service management have focused their attention on this stage, considering how to implement more effective screening techniques that eschew corrupt practices such as patronage or nepotism. Raising the screening bar raises the average competence among those who could be hired, but it does nothing to encourage people to apply in the first place. Policymakers therefore control who *passes* among applicants, but they influence who *applies* mainly through the pay, stability, and mission design of public jobs (Besley & Ghatak 2005; Prendergast 2007).

The contribution of our paper is to reflect on how changing levels of economic development affect the individual-level calculus described above, and to investigate how these decisions affect the composition of a country’s bureaucracy in the aggregate. Our main intuition stems from the observation that, as countries get richer, the availability of stable, salaried employment in the private sector increases (Jensen 2022). In poor countries, meanwhile, stable employment is typically only found in public sector work, which offers a credible path to a middle class lifestyle. Indeed, this is reflected in recent research that has revealed a consistent public sector wage premium in developing countries (Finan, Olken & Pande 2017). Holding constant the government’s pay and screening policy, development pushes the application calculus in systematic ways, which we enumerate below:

P1. Credentials fall relative to the population as countries grow richer. In richer economies, talented individuals are more likely to take private jobs; unless public wages track private

opportunities, the new cohorts of bureaucrats will have credentials closer to the population average (Finan, Olken & Pande 2017).

P2. Bureaucrats are more pro-social than the population in richer countries. Because better private options require stronger intrinsic motivation to make government attractive, the average public servant in high-development settings is more mission-driven than the average citizen. In poorer settings, the stability of government jobs draws in even those with weak intrinsic motivation, provided they are competent enough (Ashraf et al. 2020; Jensen 2022).

P3. A middle-income capacity trap is possible. If public compensation is slow to adjust while private opportunities expand, there can be a phase where the state’s fiscal capacity is growing but the talent entering the bureaucracy dips, shrinking the pipeline of highly capable entrants. Capacity recovers once compensation or job design catches up (Finan, Olken & Pande 2017).

We highlight several implications of our theoretical predictions. First, we develop the distinction between *screening* and *sorting*. As discussed above, screening refers to externally imposed selection mechanisms designed to identify preferred candidates based on observable attributes. In many canonical models of bureaucratic recruitment, the emphasis is placed on designing optimal screening devices that distinguish high-ability from low-ability candidates ex post (Miller 2000; Pierskalla et al. 2021). However, our model highlights that much of the selection actually occurs upstream, at the sorting stage, as potential applicants decide whether to enter the recruitment process at all. Sorting is inherently endogenous: individuals use private information about their own abilities, motivations, and outside options to make decisions about whether to select into seeking government employment in the first place. Crucially, while screening mechanisms are within policymakers’ direct control, sorting dynamics are not. Consequently, even a perfectly designed screening system can only act upon the pool of individuals who have already sorted into the application process. This distinction provides a vocabulary and intuition for understanding the scope governments possess for recruiting the desired mix of traits in their bureaucracy.

Second, our model offers new theoretical insights into the relationship between bureaucratic recruitment and social representation. Classic Weberian theories of bureaucracy emphasize neutrality and technical competence as paramount virtues (Weber 1922), while more recent scholarship stresses the normative importance of a bureaucracy that mirrors the diversity of the society it serves

(Meier & Jr. 2006). Our model suggests that economic development alters the basis of selection into public service in ways that have direct consequences for representativeness. Educational credentials, which are often used as key screening criteria, are typically distributed unequally across societal groups due to longstanding disparities in access to education. By contrast, pro-sociality—a psychological trait linked to intrinsic motivation—is likely to be distributed more uniformly across groups. Thus, to the extent that development shifts recruitment dynamics away from extrinsically motivated, highly credentialed individuals toward intrinsically motivated, pro-social applicants, we should expect bureaucracies to become more representative of the populations they serve over time.

Third, our model points towards a potentially paradoxical relationship between economic development, bureaucratic quality, and state capacity. Classic theories of development and modernization posit that economic development strengthens bureaucratic institutions by providing greater resources for professionalization and meritocracy (Dahlström & Lapuente 2017; Fukuyama 2017). However, our model suggests that development may also erode bureaucratic quality along certain dimensions, at least temporarily, by expanding outside opportunities for talented individuals whose motivations are primarily extrinsic. This introduces a tension: development can simultaneously enhance the state’s fiscal and organizational capacities while undermining its ability to attract the best candidates into public service. One interpretation of this dynamic is to posit a “middle-income capacity trap” wherein states struggle to sustain bureaucratic quality at intermediate levels of development.

3 Research Design and Data

3.1 IPUMS

To evaluate our argument, we join several distinct sources of data. The first source is the Integrated Public Use Microdata Series (IPUMS). IPUMS provides public access to an array of international censuses. In general, IPUMS provides access to a random sample of the anonymized census records of each participant country’s full count census—typically comprising less than 1% of the total data. For our analysis, we obtained access to the largest share of publicly-available census records. The data comes from 98 distinct countries, spanning 352 individual censuses conducted between 1960-

2017 and comprising a total sample size of approximately 373 million observations. We include the descriptive statistics for this data in Table A1.

Importantly, IPUMS has integrated variables across contexts to enable the sorts of comparisons we wish to make. As described below, our main independent variable draws on a standardized measure of an individual’s industry. This variable can take approximately twenty unique values. For our purposes, we are interested in individuals who indicate that their industry is “public administration and defense,” whom we classify as public sector employees. Our main outcome variable concerns level of education, which we proxy for using level of education. Here, we draw on two distinct variables in the IPUMS data, owing to country-level differences in the adoption of one measure or the other. First, we draw on an ordinal variable (EDATTAIN) which indicates whether an individual in the data obtained various levels of education: (1) less than primary school, (2) primary school, (3) secondary school, or (4) university level. Where available, our preferred variable captures the overall number of years a given individual spent in school (YRSCHOOL).

3.2 World Values Survey

Our second main source of data comes from the World Values Survey. We draw on all seven waves, which span the period 1981-2022, and include 312 surveys conducted in 108 countries, comprising 450,869 individuals. All surveys are conducted with local partners and are nationally representative of the countries in which they are conducted. Further details about the World Values Survey and its methodology can be found in Inglehart et al. (2000). Again, we include the descriptive statistics for this data in Table A1.

For our independent variable, the World Values Survey contains an occupational indicator analogous to our measure from the IPUMS dataset. Specifically, it asks respondents about the institution of their occupation—whether it is a public institution, a private business, or a non-profit. We categorize all respondents who indicate that they work for a “public institution” as a public sector employee. While this measure does not enable more fine-grained analysis that separates respondents according to, say, occupational status, it has the benefit of enabling us to relate employment to attitudinal measures. Moreover, Kuipers (2025) validates this public-opinion based measure of public-sector employment against other available indicators (e.g., World Bank and census data) showing it has strong reliability.

For our dependent variable of pro-sociality, we draw on a range of questions that capture four distinct outcome families: (1) trust in people, (2) trust in institutions, (3) support for redistribution, and (4) ethnoreligious tolerance. In addition, we also construct indices that collapse questions gauging (5) political participation and (6) political ideology. Each of these indices contains a suite of questions that we point in the same direction. We underscore that our measures are imperfect measures of pro-sociality; indeed, it is challenging to measure pro-sociality in the absence of convincing trade-offs that constrain individual action. But, on balance, we believe that our measures collectively point in the direction of what Kuipers (2024) labels “public spiritedness” on the part of bureaucrats, that is, “a willingness to engage in behavior that is intended to benefit others, rather than simply oneself.”

3.3 Economic Indicators

Our main right-hand side variables concern economic indicators. To begin, the main variable we construct is a measure of GDP per capita, which we use as a proxy for economic development. This presents at least two challenges worth discussing. First, this is an imprecise indicator of “development;” alternative measures may rely on median household income or Human Development Indices (HDI). These approaches have merit but suffer from comparability across time and space. HDI indicators were developed in the mid-1990s and, to our knowledge, do not extend to the periods in which accelerated economic growth took place (e.g., 1970s in Asia) where many of the transformations in which we are most interested took place. Second, our data truncates those states that were born out of the Soviet Union, as we do not observe their subnational GDP per capita prior to the dissolution of the USSR. Hence, we conduct additional robustness checks that limit our analyses to the period 1991-present. Shortcomings notwithstanding, we think this measure performs better to any of the available alternatives.

For our supplementary analyses, especially our tests probing the precise mechanisms of our results, we rely on additional indicators. For one, we construct measures of private sector competition. For this, we construct a measure based on the IPUMS sample, which is the share of employment in a given unit, for a given census wave, that reports being salaried in the private sector. For certain analyses, we construct these variables at lower levels of geographic aggregation (e.g., GEOLEV1), for which we rely on IPUMS provided labels. Second, we also examine sensitivity of

employment to economic shocks—especially those that took place when cohorts were in early days of their career. We again rely on GDP figures provided by the World Bank, constructing a measure of “recession” which we define as an aggregate economic contraction in a year-on-year measure of GDP. We discuss these measures further below.

3.4 Empirical strategy

Our data is structured as a repeating cross-section in which we collapse our data to the country-year level. For all of our outcome attitudinal variables, we construct indices that capture the standardized difference in the outcomes across public sector employees and the populations they serve. Specifically, we follow Kling, Ludwig & Katz (2005) in constructing the following index:

$$\bar{y}_i = \frac{1}{K} \sum_{k=1}^K \left(\frac{y_{i,k} - \mu_{0,k}}{\sigma_{0,k}} \right)$$

where μ_{0k} and σ_{0k} represent the average and standard deviations of a given outcome k among non-bureaucrats in a given country c . The resulting coefficients can thus be interpreted as non-bureaucrats’ attitudes SDs. For all other outcomes, we leave them generally untransformed such that we measure, for instance, years of schooling in its raw form.

Our preferred method of presentation is tabular results. In all of our tables, we include a range of fixed effects. In some instances, we introduce control variables, although we specify which and whether we do so. In general, we adopt the following benchmark regression specification:

$$Y_{i,c,t} = \beta_1 \cdot \text{Bureaucrat}_i + \beta_2 \cdot \text{GDP}_{c,t} + \beta_3 \cdot \text{Bureaucrat}_i \times \text{GDP}_{c,t} + \lambda_c + \epsilon_{i,c}$$

where $Y_{i,c,t}$ represents an outcome variable measurement for individual i in country c in year t . Our main explanatory variable of interest, Bureaucrat_i is an indicator capturing whether a given individual i is a bureaucrat or not. To capture the changing effects of being a bureaucrat on our outcomes of interest, we also interact this variable with the level of economic development, which is indicated by GDP_c and which reflects the level of development for country c in year t . We proxy for this variable flexibly, using several measurement strategies, which we discuss below. To demonstrate the robustness of our results, we include a variety of fixed effects, although our benchmark specification, described above, includes only country-level fixed effects as indicated by λ_c . We also

include year-wise, cohort-wise, provincial, and gender fixed effects, as well.

4 Main Results

4.1 Outcome #1: Educational Credentials

To start, how do bureaucrats compare to the populations they serve in terms of educational attainment? We start our analysis to this question by running a series of naive regressions in which we regress different measures of educational attainment on our individual-level bureaucrat indicator. We also include a wide variety of fixed effects. Our preferred specifications are in Table 1 and examines educational attainment in terms of total years spent in school by whether or not the given individual is a bureaucrat (or not). The first column includes no fixed effects and thus allows us to compare bureaucrats to non-bureaucrats in a cross-sectional global sample in terms of educational attainment. Here, we see that, on average, bureaucrats have approximately 4.2 more years of schooling than their non-bureaucrat peers, corresponding to an 0.8 SD increase. This selection premium shrinks to 3 years (reflecting a 0.6 SD increase) when we saturate the model controlling for other demographic characteristics, which we do not include in our tabular presentation of results. Our most restrictive model is in column (6) and includes both country-year and provincial-age-gender fixed effect terms. This model controls for a suite of time-, unit-, and group-invariant characteristics, allowing us to capture the role of public sector employment narrowly. Here, we observe a 3.15 increase in the number of years spent in school for bureaucrats compared to non-bureaucrats. Strikingly, this holds for individuals within their same age cohort. Recall our preferred specification is simply the inclusion of a country-level fixed effect term; we present these results in column (2), which reveals that bureaucrats have, on average, 3.35 years more schooling than their non-bureaucratic peers.

Table 1: Education Attainment of Bureaucrats

	Years of Education					
	(1)	(2)	(3)	(4)	(5)	(6)
Bureaucrat	4.21** (0.37)	3.35** (0.77)	3.34** (0.76)	3.38** (0.76)	3.16** (0.74)	3.15** (0.73)
N	200.4m	200.4m	200.4m	200.4m	194.9m	194.9m
Adj. R2	0.01	0.32	0.37	0.37	0.41	0.42
Country FE	✗	✓	✓	✓	✓	✓
Year FE	✗	✗	✓	✓	✓	✓
Country×Year FE	✗	✗	✗	✓	✓	✓
Region FE	✗	✗	✗	✗	✓	✓
Age FE	✗	✗	✗	✗	✗	✓
Region×Age×Female FE	✗	✗	✗	✗	✗	✓

Notes: This table presents the results of the analysis in which we draw on the IPUMS census sample to examine how bureaucrats compare to non-bureaucrats in educational attainment. The independent variable is an indicator capturing whether a respondent is a bureaucrat or not. The dependent variable is years of schooling. Fixed effects are denoted in the rows below the results by checkmarks. Robust standard errors clustered at the country level are reported in parentheses. * $p < 0.05$; ** $p < 0.01$.

In the Supplemental Appendix (SA), we probe the extent to which these results are robust to alternative measurement strategies in capturing educational attainment. Recall we draw our data from the IPUMS global census sample. While the majority of countries collect data on the years of schooling, the most common educational attainment variable collects the data on an ordinal scales indicating highest level achieved (e.g., primary, secondary, or tertiary education). Thus, in order to examine the largest possible cross-section of data, we turn to this particular variable. We present these results in SA Table A4, finding our results to be robust for all fixed effect combinations. The chief downside of this variable is that it assumes a linear relationship between ordinal values which may not accurately reflect the stepwise nature of the coding scheme. Thus, in SA Tables A5, A6, A7 and A8, we break down our analyses looking at each level of the ordinal variable as a dummy. Doing so enables us to better identify the levels of education in which bureaucrats hold a premium over average citizens. The results of this analysis suggest that our results are robust for all levels of education, and for all fixed effect combinations. But, importantly, as indicated in SA Table A7, bureaucrats hold the greatest educational advantage over their citizen peers in terms of secondary education degree attainment.

Our model predicts that the extent of educational positive selection for bureaucrats will decrease as a country becomes richer. To test this possibility, we interact our bureaucrat indicator

variable with different measures capturing level of economic development. Our main model interacts the individual-level bureaucrat indicator with a country-year measure of GDP per capita, which was natural logged to maintain a normal distribution. Note that, for columns (4)-(6) the models are not fully interacted to reflect the collinearity of our measure of yearly GDP per capita with the country-year fixed effect term. We present our benchmark results in Table 4. The least restrictive specification is in column (1) which includes no fixed effects. The first row of the table highlights that, in a hypothetically maximally poor country, i.e. one with the a GDP per capita of 0, bureaucrats have, on average, 16 more years of schooling than the average citizen. Our main interest is in the third row, which investigates how this premium changes as countries develop, revealing that each increase in the natural logged GDP per capita further up the income distribution would decrease the bureaucrats' educational attainment advantage by 1.37 years each step. For reference, the span of the distribution of GDP per capita in our sample, when natural logged, ranges from approximately 6 to 11.5, meaning the educational premium diminishes to approximately 0 in the richest countries in our sample. The other columns in Table 4 show these results to be robust to the inclusion of more restrictive and more saturated fixed effect models, including our preferred model in column (2).

Table 2: Education Attainment of Bureaucrats, by GDP per capita

	Years of Education					
	(1)	(2)	(3)	(4)	(5)	(6)
Bureaucrat	16.02** (1.70)	16.89** (1.42)	16.95** (1.57)	16.89** (1.63)	15.37** (1.63)	15.40** (1.66)
GDP (pc, log)	2.06** (0.19)	2.18** (0.35)	-0.92 (0.51)			
Bureaucrat x GDP	-1.37** (0.18)	-1.47** (0.14)	-1.46** (0.17)	-1.45** (0.17)	-1.32** (0.17)	-1.31** (0.18)
N	153.7m	153.7m	153.7m	153.7m	150.5m	150.5m
Adj. R2	0.22	0.29	0.30	0.30	0.37	0.35
Country FE	✗	✓	✓	✓	✓	✓
Year FE	✗	✗	✓	✓	✓	✓
Country×Year FE	✗	✗	✗	✓	✓	✓
Region FE	✗	✗	✗	✗	✓	✓
Age FE	✗	✗	✗	✗	✗	✓
Region×Age×Female FE	✗	✗	✗	✗	✗	✓

Notes: This table presents the results of the analysis in which we draw on the IPUMS census sample to examine how bureaucrats compare to non-bureaucrats in educational attainment according to level of development. The independent variable is an indicator capturing whether a respondent is a bureaucrat or not. The dependent variable is years of schooling. GDP (pc, log) is a measure of yearly GDP per capita that has been natural logged to maintain a normal distribution. Fixed effects are denoted in the rows below the results by checkmarks. Robust standard errors clustered at the country level are reported in parentheses. *p<0.05; **p<0.01.

As an additional probe of our results, we conduct an additional analysis that makes for easier interpretation of our results. Here, our specification proxies for level of economic development in terms of its global “rank” in percentile such that the poorest country-year observation, in terms of GDP per capita, is in the 0th percentile and the richest country-year observation is in the 100th percentile. We present our benchmark results in Table A2. Again, the least restrictive specification is in column (1) which includes no fixed effects. The first row of the table highlights that, in the poorest country, i.e. the one with the lowest rank, bureaucrats have, on average, 6.5 more years of schooling than the average citizen. The second row investigates how this premium changes as countries develop, revealing that moving from the lowest rank to the highest would decrease the bureaucrats’ educational attainment advantage to only 0.91 years, reflecting an 86% decline. The other columns in Table A2 show these results to be robust to the inclusion of more restrictive and more saturated fixed effect models.

4.2 Outcome #2: Pro-Sociality

Intrinsic motivation is a key tenet of an effective bureaucracy. Yet we know little about the extent to which bureaucrats are, indeed, more pro-social than the citizens they are tasked with serving. Thus, in our next analysis, we examine the extent to which bureaucrats are more pro-social than the average citizen. We draw on a series of questions from the World Values Survey (WVS) to measure public spiritedness which are then grouped into five areas of interest. We also include a sixth measure that captures political attitudes along a conventional liberal-conservative scale, in which respondents self-identified their own position on the scale.

We present the results of the regression analysis in Table 3, in which we regress our z-score capturing the extent to which bureaucrats hold certain attitudes, bench-marked against non-bureaucrats, on our dummy of whether a given respondent is a bureaucrat. Our first models include no fixed effects and are thus simple difference-in-means analyses. Columns (1) and (3) look at levels of ethnoreligious tolerance and trust in other people, respectively, finding that bureaucrats score, on average, 0.07 SDs higher than non-bureaucrats on both of these measures. Columns (4) and (5) look at the extent to which respondents feel a duty to their country and a sense of patriotism, respectively, again finding that bureaucrats score 0.03 and 0.03 SDs higher than the average citizen. Finally, in the last column (6), we look at respondents' level of political conservatism, finding that bureaucrats are, on average, 0.04 SDs less conservative than their citizen peers. We re-run all specifications using increasingly onerous fixed effect specifications, finding our results to be robust.

Table 3: Attitudes of Bureaucrats

	Tolerance	Redistribution	Trust	Duty	Patriotism	Conservatism
	(1)	(2)	(3)	(4)	(5)	(6)
Bureaucrat	0.07** (0.01)	0.00 (0.01)	0.07** (0.01)	0.03** (0.01)	0.03** (0.01)	-0.04** (0.01)
N	352.4k	419.6k	420.5k	219.9k	422.2k	305.2k
Adj. R2	0.05	0.03	0.06	0.08	0.05	0.03
Country FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Region FE	✓	✓	✓	✓	✓	✓

Notes: This table presents the results of the analysis in which we draw on the WVS survey waves to examine how bureaucrats compare to non-bureaucrats in terms of their attitudes. The independent variable is an indicator capturing whether a respondent is a bureaucrat or not. The dependent variable is years of schooling. Fixed effects are denoted in the rows below the results by checkmarks. * $p < 0.05$; ** $p < 0.01$.

Similar to our analysis of bureaucratic positive selection for educational credentials, we next turn our attention to how levels of pro-sociality vary for bureaucrats and non-bureaucrats according to underlying levels of economic development. This is our chief estimand of interest. Here, again, we proxy for levels of economic development using a natural log of country-year GDP per capita, although we show our results to be robust to our alternative measure of economic development that relies on the GDP percentile rank. We interact this natural logged GDP per capita variable with our individual-level bureaucrat indicator. Our preferred specification includes only country-wise fixed effects, which enable us to compare bureaucrats to non-bureaucrats, within the same country, for different levels of economic development. But, below, we present the more fully saturated models that include country-, year-, and region-fixed effects.

We present the results of this analysis in Table 6. As before, columns (1), (2) and (3) capture our outcomes most closely gauging pro-sociality and measure tolerance, support for redistribution, and the extent to which respondents trust people, respectively. Here, the third row reveals how these values vary according to level of development for bureaucrats and non-bureaucrats. Column (1) shows that moving from the poorest country to the richest leads to a 0.18 SD increase in ethnoreligious tolerance; column (2) shows that a similar move would lead to a 0.23 SD increase in support for redistribution; and column (3) shows an 0.18 SD increase along the same scale. Interestingly, we find that, as countries become richer, bureaucrats become less likely to feel a duty

to their country (column 4), although it is worth emphasizing that the top row indicates that in the poorest countries bureaucrats are much more likely than non-bureaucrats to report feeling a sense of duty. We detect no impacts on a measure of patriotism (column 5), although it is relatedly worth underscoring that the connotation of this question may not necessarily coincide with our understanding of public spiritedness. In general, these findings may reflect the decline observed in column (6) whereby bureaucrats in richer countries are less likely to identify as political conservative: moving from the poorest to the richest ranked country leads to a decline of 0.34 SD decline in conservative ideology among bureaucrats. This is broadly consistent with the movement observed in columns (1)-(4) whereby bureaucrats, compared to non-bureaucrats, become increasingly more likely to adopt typical “progressive” values as a country develops.

Table 4: Attitudes of Bureaucrats, by GDP per capita

	Tolerance	Redistribution	Trust	Duty	Patriotism	Conservatism
	(1)	(2)	(3)	(4)	(5)	(6)
Bureaucrat	-0.17** (0.06)	-0.25** (0.07)	-0.18* (0.08)	0.31** (0.09)	0.08 (0.07)	0.39** (0.09)
GDP (pc, log)	0.01 (0.02)	0.01 (0.03)	0.06 (0.05)	0.13 (0.12)	-0.06 (0.04)	0.04 (0.04)
Bureaucrat x GDP	0.02** (0.01)	0.03** (0.01)	0.03** (0.01)	-0.03** (0.01)	-0.00 (0.01)	-0.04** (0.01)
N	350.0k	417.2k	418.1k	218.8k	419.8k	303.5k
Adj. R2	0.05	0.03	0.06	0.08	0.05	0.03
Country FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Region FE	✓	✓	✓	✓	✓	✓

Notes: This table presents the results of the analysis in which we draw on the WVS survey waves to examine how bureaucrats compare to non-bureaucrats in terms of their attitudes according to level of development. The independent variable is an indicator capturing whether a respondent is a bureaucrat or not. The dependent variable is years of schooling. GDP (pc, log) is a measure of yearly GDP per capita that has been natural logged to maintain a normal distribution. Fixed effects are denoted in the rows below the results by checkmarks. *p<0.05; **p<0.01.

4.3 Outcome #3: An Implication About Representation

Until now, our results have established two tendencies in bureaucratic selection. First, as countries develop, the educational premium commanded by bureaucrats vis-a-vis non bureaucrats diminishes. Second, as countries develop, bureaucrats, compared to non-bureaucrats, exhibit attitudes more consistent with a sense of pro sociality. On the basis of these findings, we investigate a third

outcome in the extent to which bureaucrats are representative of the populations they serve. Our intuition is this: because of the tendency for wealthy groups to hoard opportunity, credentials are distributed unevenly across groups in stratified societies, which has consequences of bureaucratic representation (Kuipers 2025). But pro-sociality is a latent trait that, in theory, ought to be distributed uniformly across groups in society. In our view, there is no reason to expect that a desire to help others should be concentrated in specific religions, ethnicities, or classes. If true, therefore, as a country develops, to the extent that bureaucracies select less for credentials and more for pro-sociality, bureaucracies ought to improve in terms of their representativeness.

To capture this, we construct an index which is the summed absolute squared distance of groups' representation in the bureaucracy relative to their share of the populations they serve. We scale this index from 0-100 such that "0" represents a perfectly representative bureaucracy and "100" represents a perfectly unrepresentative bureaucracy (i.e., one captured entirely by one group). We construct this measure of representation for three axes of difference: (1) religion, (2) ethnicity, and (3) socioeconomic status. For the latter, (3) socioeconomic status, we rely on a proxy variable which is respondents' fathers' education. On its face, this would appear to be an instructive variable: in a truly representative bureaucracy, there ought to be employees from the full range of economic backgrounds (Krislov 1974).

Table 5: Bureaucratic Representation, by GDP per capita

	Religious Rep.			Ethnic Rep.			SES Rep.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
GDP (pc, log)	-8.05** (1.24)	-38.50** (2.82)	0.21 (1.12)	-8.60** (1.50)	-37.63** (2.62)	-0.71 (1.94)	-1.45* (0.63)
N	284	284	284	198	198	198	59
Adj. R2	0.12	0.59	0.94	0.16	0.64	0.95	0.08
Country FE	✗	✓	✓	✗	✓	✓	✗
Year FE	✗	✗	✓	✗	✗	✓	✗

Notes: This table presents the results of the analysis in which we draw on the WVS survey waves to examine how bureaucrats compare to non-bureaucrats in terms of the representativeness according to level of development. The independent variable is GDP (pc, log) is a measure of yearly GDP per capita that has been natural logged to maintain a normal distribution. The dependent variable is an index that captures the extent to which bureaucrats are representative (or not) of the populations they serve. A value of 100 denotes a perfectly unrepresentative bureaucracy; a value of 0 denotes a perfectly representative bureaucracy. Columns (1)-(3) focus on ethnicity, columns (4)-(6) focus on religion, column (7) looks at respondents' fathers' education as an indicator of SES representation. Because we only observe fathers' education for one wave of the survey, there is no time variation, rendering fixed effect models collinear. Fixed effects are denoted in the rows below the results by checkmarks. *p<0.05; **p<0.01.

We present the results in Table 5. Note that, for column (7), in which we examine representativeness of the bureaucracy according to fathers' educations, we are unable to saturate the model with the full range of fixed effect terms because we only have this data for one wave of the World Values Survey. Thus, we only present the naive regression. On balance, the results are mixed, but point in a consistent direction: as countries become more economically developed, the scale of representation in the bureaucracy improves. Columns (2) and (5) present our preferred models, which include country-level fixed effect terms. Here, we see that a 1 unit increase in the logged GDP per capita corresponds with a 38.5 and 37.6 point drop in our representation index, indicating greater representation of the bureaucracy on these margins. Albeit without any controls or fixed effect terms, we find a similar decline in our index along SES representation in column (7), suggesting that as countries develop their bureaucracies become more socioeconomically representative of the populations they serve.

5 Indirect Tests of The Mechanisms

What explains these results? In this section, we conduct a series of tests probing possible explanations. Our preferred interpretation draws on our model of private sector wage pressures. As countries develop, the comparative abundance of stable and salaried private sector jobs increases and lures away top talent from the public sector. This transformation leaves only the intrinsically motivated to seek out government work, hence revealing a pro-sociality premium among public sector employees. Below, we conduct several indirect tests of this theory, leveraging additional available data from the IPUMS sample. We also probe potential alternative explanations.

5.1 Private Sector Wage Pressures

To start, as a direct test, we examine whether our results are robust to the inclusion of a variable measuring the availability of "salaried work." To examine this, we draw on a measure available in the IPUMS sample asking respondents to indicate whether they are employed in formal salaried work or informal nonsalaried work. We construct two variables based on this information, including the share of respondents in a given country-year who are salaried, as well as the share of respondents in a given country-year who are salaried *in the private sector*. We then examine level of

educational attainment for bureaucrats compared to non-bureaucrats, interacted with these variables capturing the availability of outside salaried options. Because we are interested in the role of salaried employment, rather than economic development, *per se*, we also control for our proxy of GDP per capita rank. This specification enables us to more narrowly isolate the impact of outside options in driving the observed tendency for bureaucrats in relatively poor countries to possess stronger educational credentials than the populations they serve vis-a-vis bureaucrats in rich countries.

We present the results in Table 6. The results show, consistent with our expectations, that the bureaucratic educational premium declines as the share of private sector employment that is salaried increases. Column (2) contains our preferred specification and shows that moving from a country with no salaried employment, to one in which all private sector employment is salaried, would result in a 14.3 year decline in the educational premium commanded by bureaucrats. What makes this relationship especially striking is that it holds even after controlling for a given country's level of economic development, proxied by logged GDP per capita. We interpret this as evidence in support of our theoretical model: private sector wage pressures are the proximate cause of the bureaucratic educational premium above and beyond levels of economic development.

Table 6: Education Attainment of Bureaucrats, by Share of Private Employment Salaried

	Years of Education					
	(1)	(2)	(3)	(4)	(5)	(6)
Bureaucrat	8.16** (0.64)	10.01** (0.68)	10.03** (0.70)	10.02** (0.70)	9.15** (0.71)	9.27** (0.60)
Salaried Share	11.85 (6.06)	1.37 (2.42)	-10.76** (0.81)			
Bureaucrat x Salaried Share	-11.31** (1.25)	-14.32** (1.04)	-14.32** (1.08)	-14.31** (1.08)	-12.95** (1.17)	-13.14** (1.00)
GDP (pc, log)	0.69 (0.86)	1.60** (0.40)	1.18** (0.14)			
N	44.1m	44.1m	44.1m	44.1m	43.5m	43.5m
Adj. R2	0.37	0.47	0.47	0.47	0.51	0.51
Country FE	✗	✓	✓	✓	✓	✓
Year FE	✗	✗	✓	✓	✓	✓
Country×Year FE	✗	✗	✗	✓	✓	✓
Region FE	✗	✗	✗	✗	✓	✓
Age FE	✗	✗	✗	✗	✗	✓
Region×Age×Female FE	✗	✗	✗	✗	✗	✓

Notes: This table presents the results of the analysis in which we draw on the IPUMS census sample to examine how bureaucrats compare to non-bureaucrats in educational attainment according to level of development. The independent variable is an indicator capturing whether a respondent is a bureaucrat or not. The dependent variable is years of schooling. Salaried Share is the share of private sector employees in a given country, in a given year, who are salaried. GDP (pc, log) is a measure of yearly GDP per capita that has been natural logged to maintain a normal distribution. Fixed effects are denoted in the rows below the results by checkmarks. Robust standard errors clustered at the country level are reported in parentheses. * $p < 0.05$; ** $p < 0.01$.

5.2 Cohort Effects

Next, we conduct an analysis that allows our measure of economic development to vary flexibly across time. Our model suggests that individuals make decisions on whether to select into public sector work or not, based on the availability of salaried and stable outside options. Importantly, career choices are sticky, meaning individuals are unlikely to deviate from a career chosen early in their trajectory. So, using a variant of the identification strategies in “Human Side of Structural Transformation” by Porzio, Rossi & Santangelo (2022), we examine whether the level of economic development (and hence availability of outside options) at the outset of an individuals’ career matters more than the present level. To do so, we construct a variable that reflects the level of GDP per capita an individual respondent experienced at age 25, and conduct our benchmark analysis with this variable.

Table 7: Education Attainment of Bureaucrats, by GDP at Age 25

	Years of Education					
	(1)	(2)	(3)	(4)	(5)	(6)
Bureaucrat	13.38** (1.17)	14.54** (0.92)	14.54** (1.06)	14.20** (1.09)	13.15** (1.13)	13.08** (1.17)
GDP (pc, log, $A_i = 25$)	1.03 (1.09)	2.63** (0.59)	2.45** (0.44)	2.54** (0.48)	0.07 (0.27)	1.91** (0.32)
Bureaucrat x GDP ($A_i = 25$)	-1.16** (0.14)	-1.30** (0.10)	-1.29** (0.12)	-1.25** (0.12)	-1.15** (0.13)	-1.14** (0.13)
GDP (pc, log)	0.71 (1.10)	0.90 (0.46)	-2.51** (0.70)			0.67 (182751.82)
N	172.5m	172.5m	172.5m	172.5m	167.7m	167.7m
Adj. R2	0.21	0.33	0.35	0.35	0.40	0.39
Country FE	✗	✓	✓	✓	✓	✓
Year FE	✗	✗	✓	✓	✓	✓
Country×Year FE	✗	✗	✗	✓	✓	✓
Region FE	✗	✗	✗	✗	✓	✓
Age FE	✗	✗	✗	✗	✗	✓
Region×Age×Female FE	✗	✗	✗	✗	✗	✓

Notes: This table presents the results of the analysis in which we draw on the IPUMS census sample to examine how bureaucrats compare to non-bureaucrats in educational attainment according to level of development. The independent variable is an indicator capturing whether a respondent is a bureaucrat or not. The dependent variable is years of schooling. GDP (pc, log, $A_i = 25$) is a measure of yearly GDP per capita when respondent i was 25 years old that has been natural logged to maintain a normal distribution. Fixed effects are denoted in the rows below the results by checkmarks. Robust standard errors clustered at the country level are reported in parentheses. * $p < 0.05$; ** $p < 0.01$.

We present the results in Table 7. To peg our results to our initial findings, we also include a control variable of contemporaneous levels of GDP per capita. The results show that, for all outcome measurement strategies, and for all fixed effect combinations, the level of GDP per capita an individual experienced at age 25 is much more decisive in predicting bureaucrats' educational overachievement compared to the average citizen they serve—above and beyond contemporaneous levels of economic development. To take one example, in column (2) of Table 7, which includes a country-level fixed effect term, we find that a one unit increase in the logged GDP per capita experienced at age 25 corresponds to a 1.30 year decline in the educational premium commanded by bureaucrats vis-a-vis non-bureaucrats, even after controlling for contemporaneous level of economic development. We interpret these findings as evidence that individuals' career decisions made in their youth are sticky and reflect the incentives they experience at the outset of their lifetime, consistent with our general model of private sector wage pressures.

6 Conclusion

Our analysis shows that who becomes a bureaucrat depends on the structure and availability of private sector outside options. Across 98 countries and multiple decades of census and survey data, we document three regularities consistent with this argument. First, bureaucrats are consistently more educated than the average citizen, but this educational gap shrinks markedly as countries develop. Second, the attitudinal profile of public servants becomes more pro-social as economies grow richer: relative to the citizens they serve, bureaucrats in wealthier countries report greater interpersonal trust, higher tolerance of out-groups, and stronger support for redistribution. We interpret these outcomes as indicative of higher pro-sociality. Third, descriptively, in richer countries, bureaucracies look more like the societies they serve—especially along socioeconomic lines—consistent with the idea that credentials are unequally distributed across groups in society while intrinsic motivation is uniform. We conducted tests of our preferred interpretation by leveraging variation in (i) the prevalence of salaried private employment and (ii) variation in cohorts' exposure to high- or low-development conditions at the beginning of their careers. These tests support a sorting mechanism: as the number of formal private jobs expands, capable but extrinsically motivated workers exit the search for government employment, leaving a pool increasingly selected on mission orientation.

These patterns reposition long-standing debates about meritocracy and motivation and speak to recent work in political science (Honig 2024*b*; Mangla 2024; McDonnell 2020). Improving the mechanisms by which governments screen applicants can raise average competence among applicants, but our results indicate that the upstream sorting margin is much more decisive—and it shifts predictably with a country's development trajectory. This implies a potential middle-income capacity trap: if public compensation fails to keep pace with rising private opportunities, the state's pipeline of highly credentialed entrants can disappear precisely as policy complexity and fiscal resources expand. Although it's beyond the scope of this paper to evaluate, we believe there are sensible policy levers that follow directly from this implication. Competitive, skills-differentiated pay and credible promotion paths matter most where the private salaried sector is becoming most competitive. Where budgets bind, governments can partly offset wage gaps by designing roles that heighten mission salience, autonomy, and professional esteem, and by recruiting explicitly on pub-

lic service motivation. Because labor markets are local, these tools should be targeted geographically (and by cadre) to where private formal jobs provide the most robust external competition.

Several limitations in the present research point towards potential for future work. Education is an imperfect proxy for competence, and the World Values Survey items upon which we draw are noisy measures of pro-sociality. Future work may profit from pairing administrative exam scores, performance evaluations, and behavioral tasks with longitudinal applicant data. Our occupation measures also cannot fully disaggregate frontline implementers from, say, back office policy analysts or politically appointed roles, suggesting future scope for more refined analyses. Finally, the purpose of our paper has been chiefly descriptive, and we are thus unable to resolve endogeneity between reforms and labor markets. So, future research may benefit from implementing research designs that exploit sharp changes in private labor demand, civil service pay reforms, or sector-specific shocks. Critiques notwithstanding, the core takeaway of our paper is robust: economic development reconfigures the market for public service, and effective state building requires leaders to be attuned to applicants' tendency to sort in (or out) of government service over a given country's development trajectory.

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A Descriptive Statistics

Table A1: Summary statistics (WVS & IPUMS).

Measure	N	Mean	St. Dev.	Min.	Median	Max.
<u>WVS</u>						
Age	446066	41.36	16.29	13	39	103
Female	445989	0.52	0.50	0	1	1
Public-sector worker	448459	0.11	0.32	0	0	1
Religion (code)	436250	2.79	2.43	0	2	9
Father's education (code)	80709	2.24	1.98	0	2	8
Education (code)	412614	2.01	0.75	1	2	3
Tolerance toward ethnic/religious outgroups	359788	-0.05	0.69	-8	0	4
Support for income redistribution	441704	0.03	0.69	-10	0	8
Generalized trust	443590	0.09	0.68	-10	0	6
Duty to country	223804	-0.03	0.69	-6	0	3
Patriotism	446098	-0.12	0.67	-9	0	5
Political ideology (left–right)	322875	0.01	0.69	-5	0	3
<u>IPUMS</u>						
Age	373271438	39.54	9.81	25	39	59
Female	373271438	0.51	0.50	0	1	1
Years of schooling	201165406	6.85	5.04	0	6	18
Education attainment (1–4)	366901491	2.16	1.00	1	2	4
Occupation: Bureaucrat	372171383	0.02	0.15	0	0	1
Occupation: White-collar (strict)	372903931	0.01	0.09	0	0	1
Occupation: White-collar (excl. bureaucrats)	366895223	0.01	0.09	0	0	1

B Additional Analyses

B.1 GDP Rank Tables

Table A2: Education Attainment of Bureaucrats, by GDP Rank

	Years of Education					
	(1)	(2)	(3)	(4)	(5)	(6)
Bureaucrat	6.59** (0.55)	6.80** (0.47)	6.88** (0.48)	6.88** (0.49)	6.33** (0.48)	6.36** (0.49)
GDP rank	0.09** (0.01)	0.09** (0.01)	0.01 (0.02)			
Bureaucrat x Rank	-0.06** (0.01)	-0.06** (0.01)	-0.06** (0.01)	-0.06** (0.01)	-0.06** (0.01)	-0.06** (0.01)
N	153.7m	153.7m	153.7m	153.7m	150.5m	150.5m
Adj. R2	0.21	0.29	0.30	0.30	0.37	0.35
Country FE	✗	✓	✓	✓	✓	✓
Year FE	✗	✗	✓	✓	✓	✓
Country×Year FE	✗	✗	✗	✓	✓	✓
Region FE	✗	✗	✗	✗	✓	✓
Age FE	✗	✗	✗	✗	✗	✓
Region×Age×Female FE	✗	✗	✗	✗	✗	✓

Table A3: Attitudes of Bureaucrats, by GDP rank

	Tolerance	Redistribution	Trust	Duty	Patriotism	Conservatism
	(1)	(2)	(3)	(4)	(5)	(6)
Bureaucrat	-0.00 (0.02)	-0.08** (0.02)	-0.01 (0.02)	0.12** (0.03)	0.05* (0.02)	0.09** (0.03)
GDP rank	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)
Bureaucrat x Rank	0.00** (0.00)	0.00** (0.00)	0.00** (0.00)	-0.00** (0.00)	-0.00 (0.00)	-0.00** (0.00)
N	350.0k	417.2k	418.1k	218.8k	419.8k	303.5k
Adj. R2	0.05	0.03	0.06	0.08	0.05	0.03
Country FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Region FE	✓	✓	✓	✓	✓	✓

B.2 Educational Recoding Tables

Table A4: Education Attainment of Bureaucrats (Ordinal), by GDP per capita

	Years of Education					
	(1)	(2)	(3)	(4)	(5)	(6)
Bureaucrat	2.40** (0.48)	2.96** (0.50)	3.03** (0.49)	3.08** (0.47)	2.85** (0.50)	2.79** (0.47)
GDP (pc, log)	0.40** (0.05)	0.37** (0.04)	0.06 (0.06)			
Bureaucrat x GDP	-0.19** (0.06)	-0.25** (0.06)	-0.26** (0.06)	-0.26** (0.05)	-0.24** (0.06)	-0.23** (0.05)
N	287.2m	287.2m	287.2m	287.2m	283.1m	283.1m
Adj. R2	0.21	0.31	0.32	0.32	0.37	0.36
Country FE	✗	✓	✓	✓	✓	✓
Year FE	✗	✗	✓	✓	✓	✓
Country×Year FE	✗	✗	✗	✓	✓	✓
Region FE	✗	✗	✗	✗	✓	✓
Age FE	✗	✗	✗	✗	✗	✓
Region×Age×Female FE	✗	✗	✗	✗	✗	✓

Table A5: Education Attainment of Bureaucrats (Less Than Primary School), by GDP per capita

	Education: Less Than Primary					
	(1)	(2)	(3)	(4)	(5)	(6)
Bureaucrat	-1.20** (0.15)	-1.30** (0.16)	-1.32** (0.17)	-1.31** (0.17)	-1.16** (0.17)	-1.13** (0.16)
GDP (pc, log)	-0.15** (0.02)	-0.15** (0.03)	-0.08 (0.05)			
Bureaucrat x GDP	0.11** (0.02)	0.12** (0.02)	0.12** (0.02)	0.12** (0.02)	0.11** (0.02)	0.10** (0.02)
N	287.2m	287.2m	287.2m	287.2m	283.1m	283.1m
Adj. R2	0.13	0.26	0.26	0.27	0.33	0.32
Country FE	✗	✓	✓	✓	✓	✓
Year FE	✗	✗	✓	✓	✓	✓
Country×Year FE	✗	✗	✗	✓	✓	✓
Region FE	✗	✗	✗	✗	✓	✓
Age FE	✗	✗	✗	✗	✗	✓
Region×Age×Female FE	✗	✗	✗	✗	✗	✓

Table A6: Education Attainment of Bureaucrats (Primary School), by GDP per capita

	Education: Primary					
	(1)	(2)	(3)	(4)	(5)	(6)
Bureaucrat	0.14 (0.28)	-0.05 (0.27)	-0.06 (0.28)	-0.08 (0.27)	-0.15 (0.25)	-0.17 (0.26)
GDP (pc, log)	-0.03 (0.03)	0.01 (0.03)	0.11* (0.05)			
Bureaucrat x GDP	-0.03 (0.03)	-0.01 (0.03)	-0.01 (0.03)	-0.00 (0.03)	0.00 (0.03)	0.00 (0.03)
N	287.2m	287.2m	287.2m	287.2m	283.1m	283.1m
Adj. R2	0.01	0.14	0.14	0.15	0.16	0.17
Country FE	✗	✓	✓	✓	✓	✓
Year FE	✗	✗	✓	✓	✓	✓
Country×Year FE	✗	✗	✗	✓	✓	✓
Region FE	✗	✗	✗	✗	✓	✓
Age FE	✗	✗	✗	✗	✗	✓
Region×Age×Female FE	✗	✗	✗	✗	✗	✓

Table A7: Education Attainment of Bureaucrats (Secondary School), by GDP per capita

	Education: Secondary					
	(1)	(2)	(3)	(4)	(5)	(6)
Bureaucrat	0.91** (0.22)	1.05** (0.14)	1.05** (0.14)	1.02** (0.14)	0.94** (0.15)	0.95** (0.14)
GDP (pc, log)	0.11** (0.02)	0.06** (0.02)	-0.03 (0.03)			
Bureaucrat x GDP	-0.08** (0.02)	-0.10** (0.01)	-0.10** (0.01)	-0.09** (0.01)	-0.09** (0.01)	-0.09** (0.01)
N	287.2m	287.2m	287.2m	287.2m	283.1m	283.1m
Adj. R2	0.07	0.16	0.16	0.17	0.19	0.18
Country FE	✗	✓	✓	✓	✓	✓
Year FE	✗	✗	✓	✓	✓	✓
Country×Year FE	✗	✗	✗	✓	✓	✓
Region FE	✗	✗	✗	✗	✓	✓
Age FE	✗	✗	✗	✗	✗	✓
Region×Age×Female FE	✗	✗	✗	✗	✗	✓

Table A8: Education Attainment of Bureaucrats (Tertiary School), by GDP per capita

	Education: Tertiary					
	(1)	(2)	(3)	(4)	(5)	(6)
Bureaucrat	0.15 (0.28)	0.31 (0.28)	0.34 (0.28)	0.37 (0.26)	0.37 (0.27)	0.36 (0.26)
GDP (pc, log)	0.07** (0.01)	0.08** (0.01)	0.00 (0.02)			
Bureaucrat x GDP	0.00 (0.03)	-0.02 (0.03)	-0.02 (0.03)	-0.02 (0.03)	-0.02 (0.03)	-0.02 (0.03)
N	287.2m	287.2m	287.2m	287.2m	283.1m	283.1m
Adj. R2	0.07	0.10	0.10	0.10	0.12	0.12
Country FE	✗	✓	✓	✓	✓	✓
Year FE	✗	✗	✓	✓	✓	✓
Country×Year FE	✗	✗	✗	✓	✓	✓
Region FE	✗	✗	✗	✗	✓	✓
Age FE	✗	✗	✗	✗	✗	✓
Region×Age×Female FE	✗	✗	✗	✗	✗	✓