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BUREAUCRATIC STRUCTURE, REGULATORY QUALITY AND ENTREPRENEURSHIP IN A COMPARATIVE PERSPECTIVE

Cross-Sectional and Panel Data Evidence

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ABSTRACT

This paper examines the effect of meritocratic recruitment and tenure protection in public bureaucracies on regulatory quality and business entry rates in a global sample. Utilizing a cross-country measure on the extent of meritocratic entry to bureaucracy and a time-series indicator of tenure protection, it subjects theoretical claims that these features improve the epistemic qualities of bureaucracies and also serve as a credible commitment device to empirical test. We find that, conditional on a number of economic, political and legal factors, countries where bureaucracies are more insulated from day-to-day oversight by individual political principals through the institutional features under consideration tend to have both better regulation, specifically business regulation, and higher rates of business entry. Our findings suggest that bureaucratic structure has an indirect effect on entrepreneurship rates through better regulatory quality, but also exert a direct independent effect.

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Introduction

The idea that high quality of government has the utmost importance for sustained positive social outcomes has been widely accepted by both the academic community and practitioners for more than a decade (Rothstein 2011, World Bank 1997; United Nations 2000). However, the big question of what constitutes government that enhances welfare for all members of society remains largely open (Fukuyama 2013). In this debate most attention has been paid either to the overarching properties of government, for instance impartiality (Rothstein and Teorell 2008), or the institutions on the 'input side' of the political system, most notably to the impact of political regime on both wider social outcomes such as growth and public goods provision (Acemoglu at al 2014, Henisz 2000, Knutsen 2013) and generic government outputs such as corruption, bureaucratic quality or government effectiveness (Bäck and Hadenius 2008, Charron and Lapuente 2010, Keefer 2007, Persson et al 2003).

The study of public bureaucracy's impact on wider social outcomes has so far attracted much less attention than that of the input side. From an organizational structure point of view the literature distinguishes three broad categories of public administration: neo-patrimonial, civil service (Weberian, or merit system) and New Public Management (NPM), including post-NPM hybrid forms. The proponents of the NPM school of thought and principal-agent theory would in all expectation argue that a politically responsive and operationally flexible state apparatus is best for advancing efficient social order under contemporary conditions (Osborne and Gaebler 1992).[1] At the same time, some scholars continue to stand by the classical civil service, which features merit-based recruitment and long-term job tenure, putting the case for its positive impact on outcomes such as economic growth, poverty reduction, population health, aid effectiveness, conflict resolution and corruption in both theoretical and empirical terms (Cingolani et al 2013, Cho et al 2013, Cornell 2014, Dahlström et al 2012, Evans and Rauch 1999, Henderson et al 2007, Knott and Miller 2006, 2008, Lapuente and Rothstein 2013, Miller 2000, Knott 2012, Rauch 1995, Rauch and Evans 2000). In addition, there is neo-patrimonial public administration (where bureaucratic offices are filled through patronage or clientelistic and family networks), which is, by most accounts, associated with suboptimal public goods provision and high levels of corruption, but continues to flourish in Latin America, South and East Asia, the Middle East, Africa and Central and Eastern Europe (Blunt et al

[1] However, recognition that a civil service system is laden with problems pertaining to efficiency is certainly not a feature exclusive to NPM scholarship (Elling and Thompson 2006, Maranto 1998, 2002).

2012, Cammack 2007, Emrich-Bakenova 2009, Grindle 2010, Iyer and Mani 2012, Meyer-Sahling 2006, Sinadi and Thornberry 2013). The literature on the impact of bureaucratic structures on valued social outcomes is dominated by case studies and a few case comparisons, and researchers have rarely resorted to large-N comparative empirical investigation, mainly due to the lack of comparative observational data on bureaucratic structures, especially of a time-series character.

This paper engages with this debate by investigating the welfare-enhancing effect of a civil service type of public administration. We discuss the core tenets of the existing theoretical arguments, further elaborate some of them, and then empirically test the impact of merit-based selection of public managers and their protection from politically motivated dismissal on regulatory quality and business entry rates. We argue that politically-insulated bureaucracy serves as a solution, albeit partial, to the problem of the rulers' credible commitment, which is recognized as the root cause of underdevelopment. When public administrators are visibly not the agents of individual politicians, investors and entrepreneurs are assured that return on their investment will not be the subject of the politicians' re-election or rent-seeking motivations. In a series of cross-sectional and panel regressions we show that the greater institutionalization of merit-based selection of public managers and protection from politically motivated dismissals exert a robust positive effect on both the quality of business regulation and actual entrepreneurship rates.

With this research we make some important contributions to the literature. First, by examining the "bureaucratic structure – entrepreneurship rates" link, we illuminate one of the micro-level causal mechanisms that link institutions and development. Bureaucratic structure defines an important characteristic of government, which in turn plays an important role in entrepreneurs' complex calculations on the expected long-term utility from business venturing. Furthermore, we examine the impact of bureaucratic structure on both bureaucratic output (regulatory quality) and a wider social outcome (entrepreneurship rates) that are closely connected to each other, which, to the best of our knowledge, has not been attempted in the field so far.[2] Finally, we close an important empirical gap by examining the welfare-enhancing effect of de-politicized bureaucracies over-time.

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[2] The empirical literature on organizational design of bureaucracy considers two types of dependent variables. The first one is related to immediate bureaucratic outputs such as specific agency performance indicators (Chong et al 2012, Krause et al 2006, Lewis 2007, Shleifer et al 2012), policy choices (Feiock et al 2003) or corruption (Dahlstrom et al 2011, Rauch and Evans 2000, Rubin and Whitford 2008). The second type is concerned with wider societal outcomes such as growth, poverty reduction, population health, child mortality, tuberculosis prevalence (Cingolani et al 2013, Evans and Rauch 1999, Henderson et al 2007). The overwhelming majority of the studies focus either on outputs or outcomes. For example Feiock et al (2003) analyze the impact of bureaucratic structure on the choice of economic

The rest of the paper is organized as follows. First, we present the theoretical argument and derive a set of testable propositions. Then, we subject our hypotheses to two cross-country empirical tests: one cross-sectional and another of a time-series nature. In the final section we discuss our findings and the limitations of the analysis and conclude with policy suggestions and avenues for further research.

Theoretical Argument

The underlying logic of present-day thinking about economic development is that it takes place when economic agents are certain that the return from the effort and resources they invest is not subject to expropriation by powerful political actors (rulers). In other words, the degree of political contingency of wealth creation matters for development. Growth-enabling institutions are those that "…allow and encourage participation by the great mass of people in economic activities… but also provide a level playing field that gives them the opportunity to do so." (Acemoglu and Robinson 2012, 74, 76). A level playing field where entrepreneurs compete on the basis of the market demand for their goods and services rather than political connections or bribery would encourage a greater mass of people to enter economic activity and consequently produce growth. Indeed a recent study across 172 European regions finds that polities where governments are perceived by their citizens as impartial and free from corruption have on average significantly more small and medium size enterprises (Nistotskaya et al forthcoming). As Douglass North repeatedly argued, the credible commitment of the rulers and their allies (to secure property rights and unbiased contract enforcement) is 'overwhelmingly the most pressing issue' for development both throughout history and in the present ailing economies (1981, 25; 1993, 14).

The problem of credible commitment has three major variants. The time inconsistency (e. g. Kydland and Prescott 1977) and political instability[3] (e.g. Alesina et al 1996) variants of the commitment problem have been around for about 40 years, with applications in economics, political science and public administration. The new-institutionalists (North 1981, North and Weingast

policies in US municipalities, but fall short of also linking this to the actual levels of economic development. The only exception to this pattern is the seminal research by Evans and Rauch in which they examine the effect of Weberian state structures on both corruption (2000) and economic growth (1999), but in two separate publications.

[3] Time-inconsistency implies that at time point two governments can renege on promises made at time point one; and political instability implies that government B which succeeded government A can renege on promises made by government A.

1989, Weingast 1993, 1995) advanced the third variant of the credible commitment problem – *political moral hazard*.

The fundamental idea of political moral hazard is that due to their position in the process of public goods production, political elites have access to the surplus (or the residual profits) generated by this process (Knott 2012, Knott and Miller 2006, 2008, Miller and Hammond 1994, Miller 2000, Miller and Whitford 2007). To put it simply, governments regulate and license economic activity, but government is run by politicians. This structural condition creates strong incentives for political elites to use the stream of resources associated with the regulation of economy (to appropriate the residual) in the interests of their key constituencies (thereafter narrow interests) and/or for self-dealing (Knott 2012, 82; Knott and Miller 2008, 388, Miller 2000, 290).[4] If unconstrained, political elites will use political power to pursue their short-term or otherwise morally hazardous interests and claim the residual at the expense of the welfare of the society as a whole. Moreover, "in every political system, those with political power are pressured by lobbyists with ideas about how they can use political power to make money to benefit themselves while often harming the broader welfare of society and ignoring growth in the economy" (Knott and Miller 2008, 388). In other words, "there is a mutually reinforcing public and private interest in rent seeking that leads to inefficiencies in many sectors of the economy" (Knott and Miller 2006, 231).

Political elites more often than not act upon private interest ideas. Discussing the structural problems behind the current economic crisis in the US, the New York Times' columnist David Brooks writes, "Over the decades, companies and other entities have implanted a growing number of special-interest deals into the tax and regulatory codes, making it harder for politically unconnected, new competitors, making the economy less dynamic" (2012). A recent example from Russia is another case in point: contracts for football stadia and other infrastructure projects related to the 2018 FIFA World Cup in Russia (totaling about US$3.3 bln of public funding) were awarded by the Russian government to a handful of businesses with close ties to the political elites in Moscow and the regions (Novaya Gazeta 2014). The welfare-undermining effect of such decisions is that "other entrepreneurs may not find it worth their while to invest in their own construction business" (Knott and Miller 2006, 231). In other words, political contingency of wealth creation demotivates

[4] This argument is congruent with that developed by corruption scholars that "the ultimate source of rent-seeking is the availability of rents" (Mauro 1998, 11).

would-be entrepreneurs from becoming economic agents and acting entrepreneurs from expanding their business, which ultimately impedes economic development.

If credible commitment is the major stumbling block of economic development, then the fundamental problem is how can rulers be constrained (or constrain themselves) not to pursue their time-inconsistent and morally hazardous incentives? The literature offers two major solutions to the problem of credible commitment.[5] The dominant prescription, following North and Weingast (1989), is the diffusion of power among several actors who check each other and prevent a government from an arbitrary change in policy (Tsebelis 1995, Weingast 1993, 1995). Separation of power is also seen as a means of preventing a cohesive faction, such as that of Victor Yanukovich in Ukraine, which allegedly embezzled US$ 37 bln during their stint in power (Reuters 2014), from a predatory use of the state, and hence encouraging investment and growth (Falachetti and Miller 2001, Persson et al 1997). These claims were evaluated empirically (Frye 2004; Henisz 2000, 2002). For example, using survey data from Russia, Frye (2004) finds that business managers with greater confidence in the ability of courts to protect their commercial interests in disputes with local/regional governments invest at higher rates.

The other prevalent solution is the delegation of relevant political powers to an actor, who is insulated from political instability and/or has time-consistent incentives. The classic example of this prescription is central bank independence (CBI). By delegating policy-making in the monetary sphere to a banker with policy preferences that are different to those of politicians, monetary policy is shielded from both politicians' re-election concerns (the source of time-inconsistency in the classical CBI literature, but also of moral hazard) and alterations to policy choices as a result of alternation of government (the source of political instability). The CBI solution has evolved from a prescription to have a "conservative" (i.e. more inflation-averse than the government) and "independent" central banker (Rogoff 1985) to the endowment of central bankers with long-term employment contracts as a structural pre-requisite that would enable such qualities to be sustained (Walsh 1995). CBI thus functions as an institutional device that denies political actors the opportunity to pursue their preferences, thereby enabling governments to overcome the expectation of investors that monetary policy will follow electoral or partisan preferences, therefore encouraging investment and growth (Arnone and Romelli 2013, Franzese 1999).

[5] Among other solutions are elections in electoral setting (Barro 1973, Ferejohn 1986) and binding legislatures (Wright 2008), ruling-parties (Gehlbach and Keefer 2011) or both (Gandhi and Przeworski 2006) in autocracies.

The case of CBI is an instance of delegation to a nonmajoritarian institution (Majone 2011) as a solution to the problem of credible commitment that "protects the public from the dangerous impulses of elected officials" (Miller 2011, 489). In the spirit of this argument, recently several scholars have advanced the thesis that political insulation of the core of the state bureaucratic apparatus can also alleviate the credible commitment problem (Dahlstrom et al 2012; Feiock et al 2003; Knott 2012, Knott and Miller 2006, 2008; Miller 2000). Similar to the case with CBI, the goal is to create an agent (bureaucracy) with preferences visibly different to those of the principal (politicians), which would make the agent non-responsive to narrow, short-time or the openly rent-seeking interests of individual principals, yet sufficiently disciplined to follow democratically agreed public policies. Entrepreneurs and investors would interpret this reduced responsiveness of administrators to politicians as an assurance that there will not be sudden changes in the rules of the game to their detriment and their investment will not be expropriated. This goal is thought achievable primarily through personnel policies that limit politicians' powers over making and breaking bureaucratic careers, such as meritocratic recruitment and protection from politically motivated dismissal – the core elements of civil service.

The advocates of such reduced bureaucratic responsiveness do not argue against the overarching control of politicians over the public administration, but against the day-to-day oversight of bureaucracy by individual politicians or narrow factions. Efficient social order is not threatened when politicians exercise their control as a collective actor and ensure that the bureaucracy carries out public policies that reflect broad-based social objectives. Social welfare is, however, endangered when politicians push for narrow or purely self-enriching interests to be part of the state's actions; and that is precisely what merit systems guard against by providing 'an enormous and beneficial shield for bureaucratic decision-making, protecting it from much of the day-to-day political influence…' (Miller 2000, 316).

It should be noted that the adoption and use of civil service in most developed countries is consensually seen by both scholars and practitioners as a conscious effort to withdraw public administration from the "proper sphere of politics" (Wilson 1887, 210; see also Civil Service Assembly 1942, Johnson and Libecap 1994, Knott and Miller 1987, Skowronek 1982). However, the need for this has been primarily explained in terms of bureaucratic efficiency, that is, how well the agency discharges 'the administrative and operational functions pursuant to the mission' (Rainey and Steibauer 1999, 13), and not as a solution to political moral hazard. In the case of the Pendleton Act in the

USA (1883), meritocratic recruitment and tenure protection were seen as means for achieving the target of "neutral competence" of bureaucracy, which is "the ability to do the work expertly… according to explicit, objective standards rather than to personal or party or other obligations and loyalties" (Kaufman 1956, 1060, see also Wilson 1989). While meritocratic recruitment was meant to ensure the selection of better qualified individuals, tenure protection was thought to enable learning-by-doing (by creating an incentive for bureaucrats to invest more effort into their job-specific assets) and induce administrators to internalize the goals of their organization, thereby ensuring efficient government output. Even when civil service was seen as a constraining device on politicians, the main thrust was still in bureaucracy's superior epistemic qualities that would protect societies from "poorly thought-out reforms" (Maranto 1998, 625). Today the idea that merit-based selection and long-term employment contracts improve bureaucratic output through the improved epistemic qualities of bureaucracy and organizational commitment retains its explanatory power both theoretically (Eggertsson and Le Borgne 2010, Gailmard and Patty 2007, 2013) and empirically (Carpenter 2001, 2010, Gallo and Lewis 2012, Lewis 2007, Krause et al 2006, 2007, Rauch 1995, Rauch and Evans 2000).

However, a more recent take on the separation of careers argument (Knott and Miller 2006, 2008, Miller 2000) emphasizes its other welfare-enhancing value: when personnel management in bureaucracy is not under the control of individual politicians, public managers are less "attuned" and less willing to act upon the dangerous impulses of their political superiors.[6] A good starting point to understand how meritocratic recruitment and tenure protection facilitate reduced bureaucratic responsiveness is to consider patronage or other types of 'at will' personnel systems, where political actors have their hands free with regard to hiring and firing administrators. Blunt et al (2012, 215) argue that one of the key characteristics of "at will" systems is that they set forth a dyadic relationship between the appointee and her superior from the very beginning of the former's career. Furthermore, since one person in such dyads is a job-giver and another is a job-receiver, their relationship is also remarkably asymmetrical in terms power. Thus the dyadic and asymmetrical structure of politico-administrative relations in patronage facilitates the high responsiveness of the bureaucratic employee to her political employer. Moreover, democracy does not alter this situation much. In

[6] Under these conditions bureaucrats also face reduced responsiveness to follow the legitimate orders of their political superiors: those that are aimed at promoting public interest. This has been widely acknowledged as one of the major limitations of civil service personnel arrangements (Johnson and Libecap 1994, Maranto 1998). However, this is a cost that the society may be willing to bear to permit transactions (e.g. new business ventures and new investments) to take place that otherwise would be impossible.

democratic "at will" systems, even in the presence of robust political competition, bureaucrats are found to be particularly sensitive to the politicians' re-elections needs, because of the direct dependence of their employment (and even livelihoods) on the political survival of their masters (De Zwart 1994, Geddes 1994, Golden 2003, Meyer-Sahling and Veer 2012). This mutual dependence enables the environment of high bureaucratic responsiveness.

The "flip side" of appointment is the power to remove. The idea that dismissal threats play an important role in eliciting high responsiveness from employees to the employer's preferences has a long tradition within economic analysis (Shapiro and Stiglitz 1984). In the public sector, the absence of tenure protection makes the threat of dismissal credible, which provides incentives for public managers to act upon her political master's preferences. If one works under a boss, like the former South Carolina Governor James Edwards (1975-79), who believed that "…I should be able to give you walking papers if I don't like the way you part you hair." (Center for Policy Research 1981, 92), then the agent's high responsiveness to the principal's preferences is almost certain. Hiring "at will" and lack of tenure protection provide public managers with 'high-powered incentives' (Frant 1996) to fully obey the political sponsors of their jobs. Indeed an ethnographic work on Russia's civil service reform in the 2000s documents that bureaucrats who were hired "at will" and had no tenure protection faced such incentives. As one of the interviewed administrators put it: "It is because of him [the elected official, the line manager of the interviewee – MN] that I am working here, and if I do not carry out his orders today I would not be working here tomorrow" (Nistotskaya 2009, 23).

In contrast to this, meritocratically recruited public managers with tenure protection face "reduced incentive intensity" (Frant 1996) to follow the instructions of individual politicians in day-to-day bureaucratic decision-making. Merit systems are often defined as those where recruitment is based on performance in competitive examinations (Colley et al 2012, Dahlström et al 2012, Sundell 2014). However, types of personnel policies have been also conceptualized through the lens of the delegation literature. Specifically, the authority in the allocation of personnel within public administration (appointments, promotions, demotions, transfers and dismissals) can be viewed as unilateral or shared with other actors (Meyer-Sahling 2006). From the 'controlling political moral hazard' point of view, this implies that when personnel decisions are made by a unitary political actor, as in patronage, the subsequent bureaucratic responsiveness to the person vested with appointing powers is the highest. However, when the appointment authority is shared between several actors, which can be not only political but also administrative officials, bureaucratic responsiveness to any individual member of the shared appointing authority is reduced (as compared to patronage). Under shared appointing authority, a politician, who wants to induce high responsiveness from her bureaucratic subordinates, cannot claim the credit for hiring the public manager, therefore, the dyadic character of politico-administrative relations, which is the key to high responsiveness and, arguably, suboptimal social welfare, is undermined. One can think of the appointing authority as a continuum – ranging from unitary political actor (through collective political actor, collective politico-administrative actor and autonomous body which is separated from a direct line of political subordination such as civil service commissions) to no formal residual decision-maker (as in the case with seniority-based promotions) – which induces different levels of bureaucratic responsiveness.[7] In civil service a politician, who wants to induce high responsiveness from her bureaucratic subordinates, can neither claim the credit for hiring the public manager, nor credibly threaten her with dismissal. Since the careers of civil servants are not directly dependent on the political survival and whims of their masters, the incentive intensity to act upon the individual politicians' preferences diminishes, thereby preventing the adverse effects of political moral hazard, time-inconsistency and political instability from trickling down freely from the top political echelon of the government to its lower administrative divisions.

Briefly stated, if 'at will' personnel systems ally the preferences of bureaucratic agents with those of their political principals, civil service makes public managers 'transparently *not* the agents of key political figures' (Knott and Miller 2006, 229). The presence of public bureaucracies that are insulated in their day-to-day operations from the interferences of individual politicians positively influences entrepreneurs' complex assessments of the opportunity and feasibility of a business venture, and their calculations on the expected long-term utility from business venturing, and as such 'is the sine qua non for credible commitment in the state' (Knott and Miller 2006, 229).[8]

To summarize, recently several scholars have come to view meritocratic bureaucracy as one of the solutions to the problem of credible commitment in general and political moral hazard in particular.

[7] Such a conceptualization helps to explain why high bureaucratic autonomy is maintained in both classical civil service (Denmark) and radical "market-like" recruitment systems (Sweden or New Zealand), where the appointing authority is shared (interview boards), but not in patronage systems (Indonesia) where the appointing authority is unitary.

[8] One should, of course, not discount the danger of opportunistic behavior on behalf of bureaucrats themselves. For instance Miller (2000) and Knott and Miller (2006) argue that bureaucratic behavior is adequately controlled through 1) other elements of merit systems (namely, deferred compensation and the threat of being banned from holding a bureaucratic office for a proven fact of bribery and other gross misconduct), 2) legal rules and procedures, 3) transparency and 4) the disciplining powers of professional norms and standards. Others (Dahlstrom et al 2012, Rauch and Evans 2000) highlight accountability to peers in the organization (*esprit de corps*).

They argue that civil service acts as a firewall to the dangerous (from a social welfare point of view) impulses of elected officials. When the economic role of the state is largely routinized in the hands of a public bureaucracy that is visibly not a private resource of politicians, investors and entrepreneurs are "assured that the rules of the game will not change tomorrow to their detriment" (Knott and Miller 2006, 229). The presence of public bureaucracies that are insulated from the pressure of individual politicians is valued by acting and would be entrepreneurs as a safeguard against instability and partial treatment. If this is the case, then we should be able to empirically observe a positive effect of civil service on business entry rates. Hence our first hypothesis is:

H1: all other things being equal, polities with higher levels of meritocratic recruitment and tenure protection in public bureaucracy experience higher business entry rates than polities where those features are institutionalized to a lesser extent.

In addition, a large literature, spanning over 200 years, considers that the merit-based selection of public employees and the "firmness of the tenure" (Hamilton 1788) have a positive effect on bureaucratic output through the increased expertise of administrators, their greater cohesion and commitment to the goals of their organizations. We contribute to this literature by empirically testing this proposition on a bureaucratic output, which is conducive to change in the levels of bureaucratic competence and commitment to policy goals, and also directly linked to the valued societal outcome under consideration. Specifically, we focus on regulatory quality (Bjørnskov and Foss 2008, Nyström 2008), and, in particular, the quality of market entry regulations (Klapper et al 2007, Stenholm et al 2013), which is found to be related to business entry rates. Therefore, our second hypothesis is:

H2: all other things being equal, the greater the extent of meritocratic recruitment and tenure protection in the country's public bureaucracy, the better the regulatory quality.

Furthermore, we expect to observe the *credible commitment* effect of civil service, which could plausibly be operating independently from its *epistemic* effect, that is:

H3: all other things being equal, when controlled for regulatory quality, meritocratic recruitment and tenure protection will exert a positive significant effect on entrepreneurship rates.

Cross-Country Analysis

Data and Model

To test our hypotheses we employ both cross-section and time-series designs. For the cross-country analysis the measure of the meritocratization of bureaucracy is taken from a large-scale online expert survey on the organizational structure of bureaucracies in 135 countries conducted in three waves between 2008 and 2011 by the Quality of Government (QoG) Institute at the University of Gothenburg (Dahlberg et al 2012). Carefully selected experts (primarily academics with a PhD degree and public administration practitioners) were asked to evaluate the following statement: "When recruiting public sector employees, the skills and merits of the applicants decide who gets the job" on a 7-point scale, ranging from 'Hardly ever' to 'Almost always'. The resulting MERIT variable is the average of the country experts' answers. Only those countries that are represented by at least 3 experts are included in the present analysis (107 countries). Besides obvious feasibility considerations, the QoG's approach to measurement reflects the current thinking that certain measures based on expert knowledge may achieve higher levels of validity than approaches that rely on "objective" indicators (Bowman et al 2005). The validity and reliability of this measure is firmly established within the academic community, and has been used in several high-profile publications (Chong et al 2013, Dahlström et al 2012, Rothstein and Teorell 2012, Sundell 2014).[9]

The main advantage of this indicator is that unlike other commonly used indicators of public bureaucracy that come too close to measures of bureaucratic output (such as International Country Risk Guide or Worldwide Governance Indicators), MERIT captures a structural characteristic of bureaucracy, which is conceptually divorced from the notion of government output (Fukuyama 2013, 355-356). The key problem with this measure is that the survey question it is derived from pertains to the public sector at large, without distinguishing between public bureaucracies as such and other state employees, different levels of government or geographical areas that may have their idiosyncrasies with regard to the recruitment process. This limitation of the data should be kept in mind when interpreting the results. Another serious limitation of the QoG expert survey is that it does not have an indicator capturing the concept of tenure protection (e.g. the absence of politically

[9] MERIT is highly negatively correlated with the QoG expert survey's indicator capturing the extent of the politicization of bureaucracy (r = -.84***, N = 107), highly positively correlated with Evans and Rauch (1999)'s indicator of merit (r = .68***, N = 26), and positively, however, weakly, correlated with Global Integrity's Measure of Civil Service institutionalization (r = 0.31***, N = 91).

motivated dismissals), which, together with the lack of alternative data, limits our cross-sectional analysis to only one indicator of civil service – MERIT.

We test the impact of MERIT on bureaucratic output, measured as regulatory quality (REGQ, 2010-2011, averaged) and the quality of business regulation (DB, 2012-2013 averaged), and a wider societal outcome – actual rates of entrepreneurial activity (NEWBIZ, years 2011-2012, averaged, logged). The Worldwide Governance Indicators' Regulatory Quality measures perceptions of the ability of government to formulate and implement sound policies and regulations that permit and promote private sector development. The indicator for the quality of business regulation comes from the World Bank's Doing Business survey, which is a set of 9,620 indicators about the ease with which local firms are able to "do business" in 189 countries across the world. Doing Business codes both the content of regulatory acts pertaining to business – many of which are made at the bureaucratic, i.e. rule-making stage of the policy process – and their implementation time. In our opinion, this makes DB a more suitable measure of bureaucratic output than REGQ. We employ the overall rating on the ease of doing business, with smaller DB's values standing for the regulatory environment, which is more conducive to the starting and operation of a local firm.[10] NEWBIZ is the World Bank's measure of the number of firms entering the market (per 1,000 working age population). Appendix A provides a detailed description and data sources for all variables. We explore the impact of MERIT on REGQ, DB and NEWBIZ in a series of OLS regressions conditional on a number of variables of an economic, political and legal character, informed by the relevant literature.

In the bureaucratic output analysis we control for the country's legal origin (LegorUK), the size of the government (GOVSIZE), the limits on the executive power (CHECKS) and several economic indicators (ECompex, GDP per capita and economic growth). The latter is our chief control variable as some may argue that better quality of business regulation is driven purely by market forces. In addition to more traditional measures of the level of economic development (such as GDP per capita and GDP growth) we use an innovative measure that captures the complexity of a country's economic structure (Hausmann et al 2008). EComplex captures an economy in terms of its product diversification and the depth of economic exchange. ECompex controls for the notion that a great-

[10] The Doing Business' indicators have been utilized in more than 1200 articles in peer-reviewed journals; and recently received a positive review by a group of leading economists, including support for the final ranking, which aggregates the multiple data points into a summary measure about a country's regulatory environment for business (Acemoglu et al 2013).

er depth of economic exchange drives a higher demand for better regulation. Furthermore, it is a more stable measure of economy compared to, for instance, GDP growth that could be of a speculative nature as in the US in the 2000s or driven by a single industry like gas and oil in Russia. In addition, we control for the levels of economic development back in the 1970s (logGDPpc1970) with the aim of tapping into economic factors that may not be captured by the EComplex. In line with the argument of scholars who recognize the separation of powers as a credible commitment device (North and Weingast 1989), we control for the extent of checks on the executive and the balance of power between different branches through two specifications. In the main specifications we use Database of Political Institutions' measure of the extent of institutional constraints on the decision-making powers of the chief executive (CHECKS). Considering the great impact that legal origin theory has made in the last decades (LaPorta et al 1999) and the relevance of this variable to the phenomenon under study, we control for common law legal tradition. Finally, we also control for the archrival of the quality of government argument – the quantity of government (GOVSIZE). In the debate about the size of government some scholars hold that 'a large government increases corruption and rent-seeking' (Alesina and Angeletos 2005, 1241) and is associated with intricate business regulation (Djankov et al 2002). More recently, this notion was counterbalanced by sound empirical evidence that larger bureaucracies provide a business-supportive institutional environment and are less corrupt (Brown et al 2009).

In the business entry analysis, we control for a number of factors that have been identified by the entrepreneurship literature: human capital, ethnic fractionalization, urban population density, unemployment, domestic credit to private sector, and levels of economic development and economic growth. Differences in personality traits, such as attitudes towards risk, locus of control, a personal need to excel (Bygrave 1989, Hatten 1997) and cognitive process (Baron 1998) have been long recognized as one of the foremost explanatory factors for entrepreneurship. In empirical studies these psychological/cognitive predispositions are often labeled as 'human capital' and proxied by the educational level of the population under study (Arenius and De Clercq 2005, Bates 1990, Davidsson and Honig 2003, Thompson et al 2010). We use a standard measure for education: the average number of schooling years of adults aged 25 and more (EDUC). In addition we control for the effects of ethnic fractionalization (FRACTION) which is found to be a powerful driver for entrepreneurship, especially its necessity-driven type (Ensing and Robinson 2011, Hechavarria and Reynolds 2009, Katila and Wahlbeck 2011). Further, since it has long been argued that the agglomeration effect of urban areas creates fertile conditions for business growth, we control for this factor in our analysis of business entry (URBAN). In addition, we control for the average levels of unemployment in 2006-2010 (UNEMPLOY), which is argued to be one of the major drivers into self-employment (Bjørnskov and Foss 2008) and volumes of domestic credit to private sector (Black and Strahan 2002). Moreover, the underlying demand and supply economic factors are controlled for through GDP per capita (1995, log) and recent rates of economic growth. Finally, DB is controlled for as suggested by an influential literature on entry regulation (Djankov et al 2002, Klapper et al 2006, Stel van et al 2007) and also to assess the independent effect of MERIT as a credible commitment device.

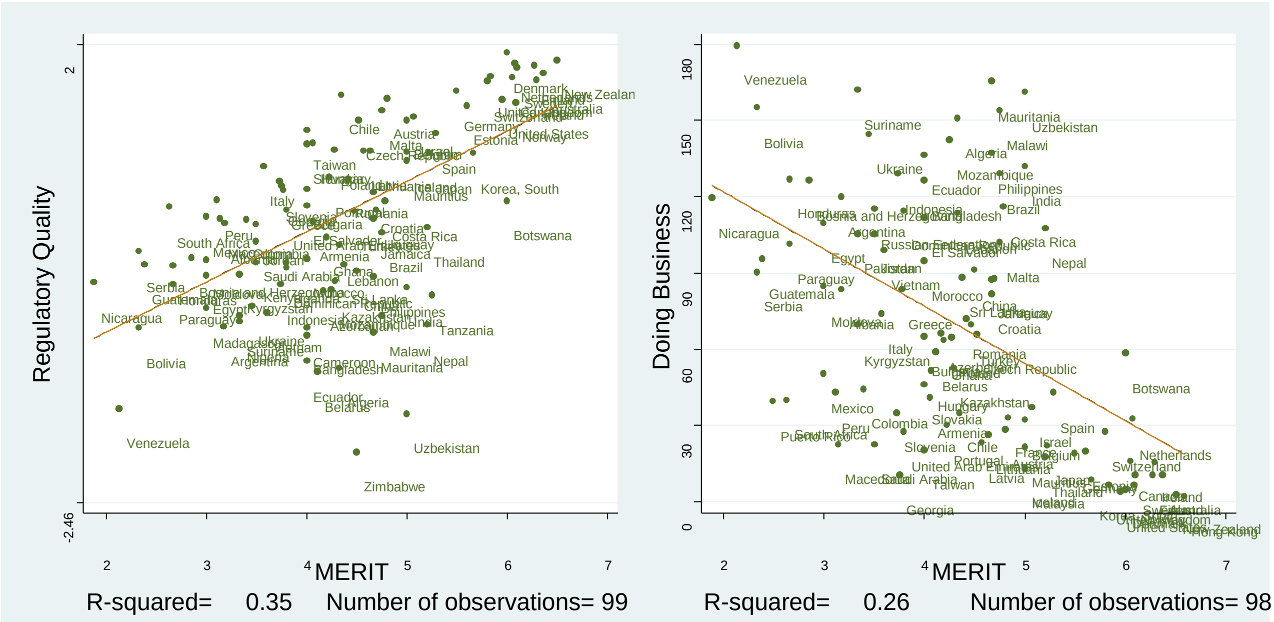
Results: Meritocratic Recruitment, Regulatory Quality and Doing Business

Figure 1 depicts a bivariate relationship between the extent of meritocratic recruitment and two measures of bureaucratic output. MERIT is strongly correlated with both Doing Business and Regulatory Quality ($r = -0.51$ and $r = 0.62$ correspondingly), providing solid initial support for the claim that merit-based bureaucracies produce better bureaucratic output. Moreover, MERIT alone explains 35 per cent in REGQ and about a quarter of the variation in DB.

Table 1 reports the results of different model specifications, showing that an indicator of meritocratic bureaucracies is consistently linked with both measures of regulatory quality. In the Regulatory Quality specifications (Models 1-3), the MERIT's coefficient is significant at the 99% level of confidence and positively signed as expected, suggesting that merit-based bureaucracies are on average associated with better regulatory quality. The level of complexity of the underlying economic structure and MERIT explain nearly two thirds of the total variation of the REGQ, with both variables being significant predictors for better regulatory quality (Model 1). MERIT remains highly robust to the liner inclusion of the political factors (checks and balances, legal origin and the size of government) in Model 2. However, the model's fit is only marginally improved compared to Model 1, and only CHECKS enters significant among the political factors. To control for the notion that some initial level of economic development could drive both meritocracy and regulatory quality, in Model 3 we further control for GDPpc from the 1970s, and also for more recent levels of economic growth. In the fully-specified model for REGQ, MERIT remains significant at the 99% level, although it is not the most potent explanatory factor. All economic factors are significant, with initial level of economic development being the strongest predictor of higher current levels of regulatory quality. The sign of the GROWTH's coefficient is opposite to that expected, but could be explained by considerable cross-country fluctuations in the levels of economic growth in the aftermath of the 2008 economic crisis. Model 3 explains about 83 per cent of the variation in REGQ.

Across all models of the Doing Business specification, the MERIT's coefficient is significant and negatively signed as expected, meaning that the greater institutionalization of meritocratic entry to bureaucracy, the higher a country's placement in the Doing Business rank. The level of complexity of the underlying economic structure and MERIT explain about half of the total variation of the dependent variable, with both variables being significant predictors for a higher placement in the Doing Business rating (Model 4). The introduction of the political factors (Model 5) only slightly improves the explained variance of DB, with LegorUK and GOVSIZE being significant, but CHECKS not. The effect of meritocratic recruitment remains also robust to the inclusion of the initial GDP per capita and growth rates (Model 6). The fully-specified model explains about three-quarters of the variation in DB, and only CHECKS and GROWTH are not significant. The effect of the British legal origin is as postulated: this legal tradition is associated with a higher placement in the Doing Business ranking, and its effect is robust to different model specifications. The impact of French, German and Scandinavian origins of the legal tradition is not significant (not reported). The larger size of government is robustly associated with worse business entry regulation, supporting the more traditional claim in the debate on the size of government.

FIGURE 1, MERIT-BASED BUREAUCRACIES AND BUREAUCRATIC OUTPUT



Overall, the data lends support to the proposition that links meritocratic recruitment with better bureaucratic output. This association is robust to different model specifications and alternative measures for a number of variables (Table 1 Appendix C) and to the exclusion of outliers (not reported).

TABLE 1. MERITOCRATIC ENTRY TO BUREAUCRACY AND REGULATORY QUALITY

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES		**REGQ**			**DB**	
MERIT	0.33***	0.30***	0.23***	-14.89***	-10.87***	-7.47*
	(0.06)	(0.06)	(0.05)	(3.46)	(3.83)	(4.00)
EComplex	0.50***	0.44***	0.30***	-25.49***	-23.82***	-18.07***
	(0.07)	(0.09)	(0.10)	(4.71)	(4.96)	(5.63)
CHECKS		0.08*	0.02		1.95	2.78
		(0.04)	(0.05)		(2.68)	(2.76)
LegorUK		0.13	0.16		-19.23**	-24.50***
		(0.15)	(0.11)		(9.20)	(8.30)
GOVSIZE		-0.01	-0.01		2.86**	2.41**
		(0.02)	(0.01)		(1.14)	(1.01)
logGDPpc70			0.82***			-47.79***
			(0.23)			(15.10)
GROWTH			-0.03			-0.05
			(0.02)			(1.36)
Constant	-1.20***	-1.24***	-3.09***	142.68***	98.00***	235.33***
	(0.23)	(0.32)	(0.68)	(14.56)	(19.97)	(42.11)
Observations	87	85	61	89	86	62
R-squared	0.64	0.64	0.83	0.47	0.52	0.74

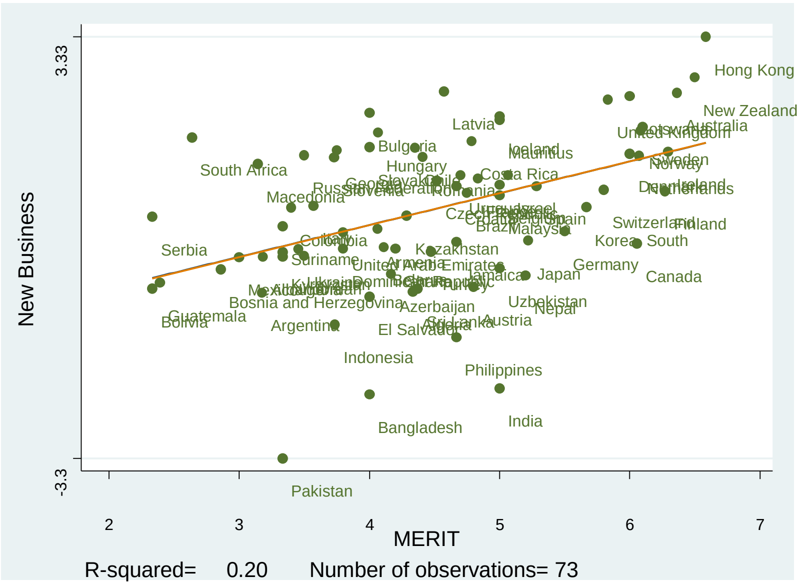
*Note: OLS estimates with robust standard errors in parentheses and p-values ***p<0.01 **p<0.05 *p<0.10. Dependent variable: Models 1-3 - Regulatory Quality (2010-2011, averaged), Models 4-6 - Doing Business (2012-2013, averaged)*

Results: Meritocratic Recruitment and Business Entry Rates

Figure 2 depicts a bivariate relationship between the extent of meritocratic recruitment and new business entry per capita. MERIT is strongly correlated with NEWBIZ (r = 0.44), providing initial support for the theory linking merit-based bureaucracies with increased entrepreneurship. MERIT alone explains 20 per cent of the NEWBIZ's variation in a sample of 73 countries.

Table 2 reports the estimates of different model specifications, showing a consistent positive and significant effect of meritocratic bureaucracies on new business rates. Controlling for the aggregate characteristics of the population, i.e. years of schooling, ethno-linguistic fractionalization and a share of urbanites (Model 1), MERIT is significant and the direction of its impact is as predicted, namely, the greater the institutionalization of merit-based entry to public administration the higher the levels of entrepreneurship. EDUC enters significant and remains such across all models as postulated by a large literature. At this point FRACTION is below the accepted threshold for significance, but becomes significant in Models 2-5, exerting impact in the hypothesized direction.

FIGURE 2, MERIT-BASED BUREAUCRACIES AND NEW BUSINESS ENTRY



Further introduction of UNEMPLOY, an indicator for the availability of domestic credit to the private sector and constraints on executive (Model 2) makes MERIT significant at the 99% level of confidence, and its quantitative significance also improves by about 25 per cent compared to Model 1. Next we introduce a measure of the quality of business regulation – the reverse of the overall Doing Business rating for the year 2011 (DB2011r). The chosen measure of the quality of bureaucratic output is significant as is MERIT, lending support to H3 about the independent effect of

MERIT on entrepreneurship. Understandably the qualitative significance of MERIT is reduced compared to previous models, since DB2011r is an important predictor for entrepreneurship both theoretically and empirically. In this model the quantitative significance of DB2011r is slightly higher than that of MERIT: beta = .32 and .26 (not reported). Model 3 explains about 60 percent of the total variation in NEWBIZ. In Model 4 we control for the overall level of economic development through GDP per capita taken before the 2008 crisis and recent growth rates. Here MERIT remains significant while DB2011r falls slightly below the accepted level of significance. Education, ethno-linguistic fractionalization and the levels of unemployment are significant in Model 4, and the nature of these associations is in the hypothesized direction. In the last model, we drop DB2011r to once again assess the independent effect of MERIT on the new business formation rates. As expected MERIT is significant at the 99% level of confidence and it regains its explanatory power, compared to Model 4, providing additional evidence in support for H3.

TABLE 2, MERITOCRATIC ENTRY TO BUREAUCRACY AND BUSINESS ENTRY RATES

	(1)	(2)	(3)	(4)	(5)
DV: NEWBIZ					
MERIT	0.31**	0.40***	0.28*	0.30**	0.37***
	(0.14)	(0.15)	(0.15)	(0.15)	(0.13)
EDUC	0.23***	0.16**	0.14**	0.13**	0.14**
	(0.07)	(0.07)	(0.06)	(0.06)	(0.07)
FRACTION	0.79	1.35**	1.23**	1.22*	1.42**
	(0.68)	(0.57)	(0.58)	(0.61)	(0.56)
URBAN	0.01*	0.01	0.00	0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
UNEMPLOY		0.05*	0.04*	0.04*	0.05**
		(0.02)	(0.02)	(0.02)	(0.02)
logCREDIT		0.30	0.18	0.03	0.08
		(0.19)	(0.19)	(0.25)	(0.24)
CHECKS		0.03	0.04	0.03	0.02
		(0.08)	(0.08)	(0.09)	(0.09)
DB2011r			0.01**	0.01	
			(0.00)	(0.00)	
logGDPpc2004				0.17	0.39
				(0.36)	(0.29)
GROWTH				-0.04	-0.05
				(0.05)	(0.05)
Constant	-4.01***	-5.45***	-4.84***	-5.38**	-7.02***
	(0.94)	(1.04)	(1.03)	(2.39)	(2.00)
Observations	57	52	51	50	50
R-squared	0.43	0.53	0.59	0.60	0.58

*Note: OLS estimates with robust standard errors in parentheses and p-values ***p<0.01 **p<0.05 *p<0.10.*

We re-ran all models with alternative specifications and measurements. That is, following the literature (Nistotskaya et al forthcoming, Norbäck et al 2014) we introduce an indicator for the underlying demand factor for entrepreneurship (economic globalization), omit variables that proved to be insignificant in the main analysis (urbanization, domestic lending and constraints on executive), and also employ earlier measures of GDPpc (1995) and economic growth (2008-2009 average). We also analyze the main and robustness checks models without outliers. We find that the association between MERIT and NEWBIZ is robust to these alterations (Table 2 Appendix C).

Overall, the proposition that merit-based recruitment is associated with better regulatory quality and higher rates of entrepreneurship (directly and indirectly as per H3) finds support in the data. However, the cross-sectional nature of our data limits our ability to control for dynamic factors that may greatly affect the directionality of the associations. We therefore expand our analysis to cross-sectional time-series (panel) data.

Time-Series Analysis

Data and Model

The panel data analysis of the impact of bureaucratic structure on regulatory quality and business entry rates requires that we replicate our cross-sectional variables of interest with valid measures available in a time-variant format. This challenge involves slightly altering, where needed, the previous specifications while still tackling the same key questions.

In the case of our main explanatory variable of interest, the lack of historical data on meritocratic recruitment makes us turn our attention to tenure protection. In order to capture this phenomenon we employ objective data on early termination of the contracts of central bankers in countries where such officials enjoy *de jure* fixed-term contracts. By focusing on the early terminations of contracts of central bankers we are able to capture the concept of tenure protection, which is the absence of politically motivated dismissals, because it stands to reason that such terminations for non-political reasons (such as insufficient competence or serious underperformance) are unlikely.

We employ an indicator from a comprehensive database compiled by Dreher et al (2010), which informs as to whether central bank governor turnovers are regular or irregular, in 158 territorial units (countries and banking unions) over the period 1970-2011. The regularity is defined in relation to their formal contracts, where rotations occurring before the date of expiry are considered irregular. Specifically, we utilize the Bureaucratic Autonomy Index (BAIndex), previously developed in Cingolani et al (2013):

$$BAIndex_{it} = \frac{\sum_{s=1}^{t} RegTOR_{is} - \sum_{s=1}^{t} IrregTOR_{is}}{1 + \sum_{s=1}^{t} RegTOR_{is} + \sum_{s=1}^{t} IrregTOR_{is}} \qquad (1)$$

BAIndex measures the annual cumulative ratio of irregular to regular turnovers over the preceding 20-year period, arising from data from as early as 1970 (the measure is therefore computed for the 1990-2010 period). The data is unbalanced and comprises an average of between 6 and 12-year periods in 87 to 116 countries around the world. While negative scores of BAIndex indicate that most of the turnovers have been irregular, positive scores stand for the opposite. The index, labeled in this study as TENURE, thus offers a straightforward measure of tenure protection for central bankers and, by extension, for the core of public bureaucracy.

The assumption that tenure protection of a country's central bankers is representative of the situation in the core of public bureaucracy is of course a rather strong one, but necessary given the lack of historical data on other regulatory agencies within national bureaucracies. However, there are good reasons to support the validity of this assumption. First, central banks enjoy a high degree of visibility within the international community and among investors, and also have attracted the greatest media and scholarly attention among regulatory agencies. The job of central bankers concerns "important and prestigious policy tasks" (Eggertsson and Le Borgne 2010, 648), and central bank governors 'make monthly rounds in the deadlines' and some of them, such as the head of the U.S. Fed or European Central Bank, even have celebrity status (Adolph 2013, 2). This applies not only to the developed countries, but also to developing where employment positions in the central banks command very high prestige (Jerven 2013, 91). If tenure protection and autonomy are compromised in such a highly visible area, then it is reasonable to expect that the probability of political intervention in less visible government offices is high as well.[11] Second, central banks have been the

[11] It is here assumed that whenever central banks are subject to political intervention, then other government offices are highly likely to be so too. However, it is still possible that when central banks are not subject to political interventions, other bureaucratic offices still are, precisely due to the high visibility of central banks. Because of this, the measure tenure protection used in this study underestimates de facto tenure protection in the core of bureaucracy. In economeric

most representative case of independent government agencies within the credible commitment literature that has highlighted various benefits of bureaucratic organizations that are deliberately made independent from political principals through a specific institutional design (Alesina and Summers 1993, Arnone and Romelli 2013, Gilardi 2002, 2011, Taylor 2013). Third, the scatterplots of Appendix D show positive and significant correlations between our measure of tenure protection and four alternative measures of bureaucratic structure and bureaucratic quality, offering empirical validation to the assumption.

Results: Tenure Protection, Regulatory Quality and Entrepreneurship Rates

Table 3 reports fixed effects panel data estimates for a series of economic and political variables on regulatory quality. Fixed effects models control for unobserved heterogeneity by using the "within" country variation of the dependent variable as subject to the "within" country variation of the relevant explanatory variables. Time invariant factors such as legal origin or ethnic, linguistic and religious fractionalization are therefore naturally absorbed as "fixed effects", and plausibly assumed to be correlated with the predictors. As a goodness-of-fit measure for fixed effects we report the F-statistic, testing the null hypothesis that all regressors are insignificant.

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terms this means that the impacts of tenure protection are in reality underestimated whenever they emerge as significant, making the case for the importance of tenure protection even stronger.

TABLE 3, TENURE PROTECTION AND REGULATORY QUALITY

DV: REGQ	(1)	(2)	(3)	(4)
TENURE	0.45	-0.30	0.93*	0.96*
	(0.36)	(0.42)	(0.54)	(0.54)
GDPpc		0.000***	0.000***	0.000***
		(0.000)	(0.000)	(0.000)
GOVSIZE			0.003	0.002
			(2.62)	(0.002)
CHECKS				0.002
				(0.000)
Countries	116	102	87	87
Years (av.)	11.3	8.6	6.6	6.6
Total N	1306	878	578	578
F-Stat	1.56	17.43	8.38	7.70
Prob > F	0.21	0.00	0.00	0.00

*Note: Fixed effects panel estimates. Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Constant values are omitted.*

Model 1 (Table 3), which includes only a measure of tenure protection, shows no significant univariate association of TENURE with regulatory quality. In Model 2 TENURE remains insignificant, although the overall indicator of economic maturity (GDPpc) is positive and significant. Model 3 adds government size (GOVSIZE) as a control variable that can potentially have an effect on both bureaucratic features and the level and quality of government regulation. After including GOVSIZE, both tenure protection and GDPpc result as positive and significant. Similarly to the cross-sectional analysis, we control for the extent of institutional constraints on the executive (CHECKS), which renders it insignificant, while the other variables maintain their sign and significance (Model 4). The F-statistic suggests that all models except the first represent a good fit for explaining the variance in REGQ. The fully specified model explains about two-thirds of the variance in regulatory quality ($R^2 = 0.67$). Overall, the data lends support to the proposition that causally links tenure protection with better bureaucratic output: on average, countries that offer sound tenure protection to their unelected officials in the bureaucratic core tend to have a better regulatory environment.

TABLE 4, TENURE PROTECTION AND BUSINESS ENTRY RATES

DV: NEWBIZ	(1)	(2)	(3)	(4)	(5)
TENURE	0.52	0.73	1.18**	1.26**	1.57***
	(0.53)	(0.50)	(0.54)	(0.55)	(0.54)
GDP pc		0.000***	0.000***	0.000***	0.000***
		(0.000)	(0.000)	(0.000)	(0.000)
GOVSIZE			0.014	0.022	0.002
			(0.022)	(0.022)	(0.022)
CHECKS				-0.009	0.04
				(0.119)	(0.114)
REGQ				-0.759	-0.859*
				(0.463)	(0.446)
CREDIT					0.017***
					(0.006)
URBAN					0.35**
					(0.14)
EDUC					-0.92*
					(0.59)
Countries	78	66	58	58	58
Years (av.)	6.9	4.6	4.3	4.3	4.2
Total N	536	301	249	249	246
F-Stat	0.97	19.54	11.82	7.66	7.86
Prob>F	0.32	0.00	0.00	0.00	0.00

*Note: Fixed effects panel estimates. Standard errors in parentheses. * p < 0.05, ** p < 0.01, *** p < 0.001. Constant values are omitted.*

Table 4 reports estimates of the effect of a vector of independent variables on entrepreneurship rates. Due to the more limited data of the dependent variable, the number of countries varies between 58 and 78, and the average time span varies between 4.2 and 6.9 years. The first model shows the univariate effect of tenure protection, which at this point is statistically insignificant. Model 2 adds GDPpc, which enters as positive and significant. The inclusion of the size of government (Model 3) renders TENURE positive and significant, while GDP per capita maintains its sign and significance. Model 4 adds the institutional constraints on the executive and the quality of regulation to test two common institutional features which together with TENURE might have an impact on business formation rates. Neither CHECKS nor REGQ are significant, while all other variables remain stable. In Model 5, three additional controls are included in order to reflect other determinants of entrepreneurship rates deemed as important by the relevant literature: domestic credit to the private sector, urbanization levels and schooling. In this case TENURE becomes significant at the 99% level of confidence. GDP per capita retains its importance and the quality of regulation enters as significant, although its sign suggests an inverse relationship with entrepreneurship. The three new controls are significant and with the expected sign, except for schooling. The F-statistic suggests that all models, except the first, represent a good fit for explaining the variance in entrepreneurship.

The data provides support to the theoretical claim under consideration: on average, countries where employees of public agencies are better protected from politically motivated dismissals tend to have higher rates of business venturing than those countries where tenure protection is poor. The impact of TENURE is significant even in the presence of REGQ (Models 4-5), suggesting that the credible commitment effect of tenure protection is independent from the epistemic effect. The opposite to expected sign of the REGQ's coefficient is not entirely surprising as the link between regulatory quality and entrepreneurship has recently been questioned (Stel et al 2007), calling for a separate investigation into the issue. Another finding that on average a higher number of schooling years leads to lower business entry rates is surprising, given common arguments and evidence in the literature about the positive association between these two factors. One possible explanation is that our panel data is somewhat skewed towards the post 2007-08 economic crisis period during which the sharpest drop in business entry rates was witnessed in countries with higher levels of schooling (high income and upper-middle income countries).

Discussion and Conclusion

A developing strand of the political economy theoretical literature argues that political moral hazard is detrimental to sustained economic development, but that this can be alleviated through the insulation of the core of public bureaucracy from day-to-day interference by individual political figures. Entrepreneurs and investors, the argument goes, interpret this reduced responsiveness of administrators to politicians as an assurance that there will not be sudden changes in the rules of the game to their detriment, which in turn affects their decision to engage in legal business venturing or not. We developed this argument further by showing how meritocratic recruitment and tenure protection break the dyadic and asymmetrical structure of politico-administrative relations inherent in patronage systems, thereby enabling pro-entrepreneurship levels of bureaucratic responsiveness. Furthermore, we provided an empirical test of the relationship between the specified bureaucratic structure and both bureaucratic output (regulatory quality) and a wider social outcome (entrepreneurship rates) that are closely connected to each other.

Specifically, we argued that de-politicized entry to the bureaucracy and tenure protection of public managers provide necessary assurances regarding stability and the fairness of the rules of the game for investors and entrepreneurs, thereby facilitating their calculus of the expected return on investment, which should be reflected in the comparative rates of business venturing (H1). At the same time, merit entry to the bureaucracy improves the epistemic qualities of the government staff, and tenure protection activates the "learning by doing" mechanism, both of which may positively affect the quality of the immediate bureaucratic output, such as regulatory quality (H2). Our third testable proposition suggests that bureaucratic structure impacts the rates of business incorporation directly through perceptions of government by entrepreneurs (both acting and would-be) and also through better regulatory quality. These propositions find support in the data: controlling for a set of theoretically-informed factors, cross-sectional analyses suggested that on average countries in which public bureaucracies are organized on the principles of meritocratic entry are associated with better business regulations and higher rates of entrepreneurship as compared to those countries where politicians have the upper hand in recruitment matters. A similar finding arises from the panel data estimates: more sound tenure protection in the bureaucratic core is systematically linked with subsequent improvements in regulatory quality and higher business entry rates. Results from both cross-sectional and time-series analyses suggest that in addition to a more standard epistemic effect of meritocratic recruitment and tenure protection, such bureaucratic structure exerts an independent effect, arguably through containing political moral hazard.

Several caveats need to be borne in mind when interpreting the empirical results and these lead directly to new research avenues. Theory-wise, we acknowledge the limitations of civil service as a credible commitment device. For instance, a legitimate question to ask is: in the absence of tight political oversight what constraints bureaucrats from rent-seeking? Although relevant literature points at several measures that have been successful in correcting the rent-seeking behavior of bureaucrats, including legal constrains, transparency, professional norms, public service motivation, improved civic control, the mass media and international organizations, the ultimate message of the theoretical argument is rather pessimistic. There is no perfect solution to the problem of moral hazard, no institutional design is a panacea, and we live in a world of second-best solutions in which meritocratic tenured bureaucracy plays an important, but far from perfect, welfare-enhancing role (Miller 2000, Knott and Miller 2006).

There are also several considerations concerning empirical analysis. First, due to the acute lack of observational data on bureaucratic structure we were unable to test the joint effect of the institutional features under consideration on the outcomes in question. Improved breadth and depth of data on bureaucratic structure would be the ideal strategy to overcome this limitation. Better data would also help utilize more tools to address potential endogeneity concerns and to check the consistency of the behavior of several predictors. The problem of omitted variable(s) is also potentially important, and the model should be further tested in different empirical settings and at the individual-level of analysis. Furthermore, we have so far not examined any interactive effects between bureaucratic features and other important variables that may affect entrepreneurial performance. Future research in this direction would expand and clarify our knowledge about the role of public bureaucracies in entrepreneurship growth. Testing our hypotheses in different sub-samples (for instance with regard to income level and more nuanced distinctions in political context) would further illuminate our insights and evaluate their robustness and generalizability.

The tentative message of our findings is that, as long as the responsiveness of bureaucrats to political elites remains high, the number of individuals turning to business will be below some natural limits determined by socio-economic and other factors. Our findings provide additional support to the existing policy recommendation that the main priority of administrative reform should be limiting the patronage systems (Knott and Miller 2006, 236), thereby preventing the adverse effects of political moral hazard, time-inconsistency and political instability from trickling down freely from the top political echelon of the government to the lower (administrative) divisions.

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Appendix A

Data Description and Data Sources

Cross Sectional Analysis

REGQ: Regulatory quality measures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Scores range from -2.5 (weak) to 2.5 (strong) regulatory quality. Years: 2010-2011, averaged. Source: Worldwide Governance Indicators. http://info.worldbank.org/governance/wgi/index.aspx#home

DB1213: Doing Business overall rank is the rank a country received for the overall ease of doing business for local firms in 189 countries. The index averages the country's percentile rankings on 10 topics, giving equal weight to each topic: starting a business, construction permits, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts and resolving insolvency. Economies are ranked on their ease of doing business from 1 to 189 where smaller values stand for the regulatory environment that is more conducive to the starting and operation of a local firm. Years: 2012-2013, averaged. Source: The World Bank, Doing Business: Measuring Business Regulations. www.doingbusiness.org

NEWBIZ: is the number of newly incorporated firms per 1,000 population. Years: 2011-2012, averaged, logged. Source: World Bank IFC Entrepreneurship Database.

MERIT is the extent to which skills, knowledge and experience decide who gets the job in a country's public employment sector. 'When recruiting public sector employees, the skills and merits of the applicants decide who gets the job?' A 7-point scale: 1 (hardly ever) to 7 (almost always). 2008-2011. Source: Dahlberg et al 2012.

CHECKS is the Data of Political Institutions' measure of constraint on executive power (number of veto players). Years: 2010 in the main analysis and 2009-2011 (averaged) in the robustness checks. Source: Beck et al 2001, the QoG standard dataset (dpi_checks).

CREDIT: volumes of domestic credit to the private sector (% GDP). Refers to financial resources provided to the private sector, such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment. For some countries these claims include credit to public enterprises. Year: 2010. Source: World Development Indicators.

EComplex: economic complexity is a measure of the depth of economic exchange in a country, expressed as a complex web of products and markets that underpin the productive structure of a country. Year: 2008. Source: Hausmann et all 2008.

EDUC is average number of years of education received by people ages 25 and older, converted from education attainment levels using official durations of each level. Year: 2010. Source: UNDP updates of Barro and Lee (2011) estimates based on UNESCO Institute for Statistics data on education attainment (2012) and Barro and Lee (2010) methodology.

FRACTION the probability that two randomly selected people from a given country will belong to different ethnic and ethno-religious groups (totaling 822 in 160 countries). The values range from 0 (perfectly homogenous) to 1 (highly fragmented). Year: early 1990s. Source: Fearon 2003, the QoG standard dataset (fe_etfra).

Globalization is actual flows of trade and investments, and by restrictions on trade and capital such as tariff rates. Year: 2009. Source: Dreher 2006, the QoG standard dataset (dr_eg).

GOVSIZE: the share of government spending as a percentage of GDP. Year: 2010 in the main analysis and 2005-2007 (averaged) in the robustness checks. Source: International Monetary Fund, the QoG standard dataset (pwt_gsg).

GROWTH is annual percentage growth rate of GDP per capita based on constant local currency. Year: 2010 in the main analysis and 2008-2009 (averaged) in the robustness checks. Source: World Bank, the QoG standard dataset (wdi_gdpcgr).

LegorUK Is a dummy variable that takes on a value of 1 if the legal origin of the country is common (English) law and "0" if otherwise. Source: La Porta et al 1999, the QoG standard dataset (lp_legor)

LogGDPpc70, LogGDPpc95, LogGDPpc2004 is real GDP per capita, logged. Year: 1970, 1995, 2004. Source: Penn World Table.

PATRONAGE is the extent to which political connections decide who get the job in a country's public bureaucracy. 'When recruiting public sector employees, the political connections of the applicant decide who gets the job?' A 7-point scale: 1 (hardly ever) to 7 (almost always). 2008-2011. Source: Dahlberg et al 2012.

UNEMPLOY is the share of the labor force that is without work but available for and seeking employment. Year: 2006-2010, averaged. Source: World Bank, the QoG standard dataset (wdi_ue).

URBAN is the share of a country's population living in urban areas. Year: 2010. Source: World Bank, the QoG standard dataset (wdi_urban)

Times-Series Analysis

REGQ: regulatory quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Source: Worldwide Governance Indicators.

NEWBIZ: see the cross-sectional analysis.

TENURE measures the frequency of irregular terminations of contracts of central bankers. Source Cingolani et al (2013) with data from Strum, Deher and deHaan (2010).

GDPpc: GDP per capita in 1990 International Geary Khamis dollars. Source: Maddison Historical Statistics, Groningen Growth and Development Centre.

GOVSIZE: see the cross-sectional analysis.

CHECKS: see the cross-sectional analysis.

CREDIT: Domestic credit to the private sector (% GDP). Refers to financial resources provided to the private sector, such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment. For some countries these claims include credit to public enterprises. Source: World Development Indicators.

URBAN: is the share of a country's population living in urban areas. Source: World Development Indicators.

EDUC: Mean years of education for population aged between 15 and 44. Source: Gakidou et al (2010).

Appendix B

Descriptive Statistics

TABLE 1, CROSS-SECTIONAL DATA (DOING BUSINESS, MAIN ANALYSIS)

VARIABLES	N	mean	sd	min	max
MERIT	107	4.277	1.088	1.882	6.583
LegorUK	106	0.255	0.438	0	1
GOVSIZE	105	8.718	4.423	3.388	26.26
GROWTH	103	3.099	3.099	-6.304	12.25
CHECKS	103	3.214	1.348	1	7
DB1213	98	69.56	48.36	2	179.5
EComplex	92	0.314	0.900	-1.907	2.316
logGDPpc70	72	3.087	0.407	2.253	3.768

TABLE 2, CROSS-SECTIONAL DATA (BUSINESS ENTRY, MAIN ANALYSIS)

VARIABLES	N	mean	sd	min	max
MERIT	107	4.277	1.088	1.882	6.583
GROWTH	103	3.099	3.099	-6.304	12.25
URBAN logGDPpc2004	104	61.68	20.99	15.04	97.46
	95	9.040	1.020	6.472	10.59
EDUC	90	8.791	2.579	1.203	13.27
NEWBIZ(log)	73	0.603	1.233	-3.352	3.335
FRACTION	94	0.425	0.253	0.00400	0.953
UNEMPLOY	87	8.786	5.542	1.200	32.20
logCREDIT	97	3.975	0.789	2.447	5.374

TABLE 3, PANEL DATA VARIABLES

VARIABLES	N	mean	sd	min	max
REG Q	107	-0.067	0.991	-2.675	2.247
NEWBIZ	103	3.092	4.51	0	44.13
TENURE	104	-0.39	0.41	-0.928	0.833
GDPpc	95	5011.9	5604.1	206.5	42916.2
GOVSIZE	90	26.1	11.843	0.179	209.853
CHECKS	73	0.493	17.038	-88	7
CREDIT	94	37.992	37.144	0.557	319.46
URBAN	87	48.526	24.767	2.141	100
EDUC	97	5.607	3.399	0.2	14.2

Appendix C

Merit Entry to Bureaucracy, Regulatory Quality and Business Entry Rates, Robustness Checks

TABLE 1, MERITOCRATIC ENTRY TO BUREAUCRACY AND REGULATORY QUALITY, ROBUSTNESS CHECK

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES		**REGQ1011**			**DB1213**	
MERIT	0.31***	0.25***		-13.83***	-9.60**	
	(0.05)	(0.05)		(4.23)	(4.13)	
PATRONAGE			-0.19***			7.52*
			(0.04)			(4.03)
Globalization	0.04***	0.03***	0.03***	-1.65***	-0.90**	-0.94**
	(0.00)	(0.00)	(0.00)	(0.30)	(0.41)	(0.40)
CHECKS	0.03	0.02	0.03	2.37*	3.12**	2.88**
	(0.03)	(0.02)	(0.03)	(1.40)	(1.25)	(1.28)
LegorUK	0.03	0.06	0.05	-14.42	-18.02**	-17.66**
	(0.13)	(0.12)	(0.12)	(9.09)	(7.05)	(7.59)
GOVSIZE	-0.00	0.01	0.01	0.09	-0.65	-0.60
	(0.01)	(0.01)	(0.01)	(0.71)	(0.73)	(0.77)
logGDPpc95		0.62***	0.61***		-40.83***	-40.17***
		(0.15)	(0.16)		(14.03)	(14.58)
GROWTH		0.00	0.00		0.76	0.71
		(0.01)	(0.01)		(1.00)	(1.00)
Constant	-3.43***	-4.99***	-3.15***	231.39***	330.09***	255.48***
	(0.24)	(0.37)	(0.61)	(22.75)	(39.44)	(61.42)
Observations	88	87	87	86	85	85
R-squared	0.80	0.84	0.83	0.52	0.59	0.58

*Note: OLS estimates with robust standard errors in parentheses and p-values ***p<0.01 **p<0.05 *p<0.10. Dependent variable is Regulatory Quality (2010-2011, averaged) in models 1-3 and Doing Business (2012-2013, averaged) in models 4-6.*

TABLE 2. MERITOCRATIC ENTRY TO BUREAUCRACY AND BUSINESS ENTRY RATES, ROBUSTNESS CHECK

DV: NEWBIZ	(1)	(2)	(3)	(4)	(5)
MERIT	0.33**	0.37***	0.25*	0.26*	0.35***
	(0.14)	(0.12)	(0.14)	(0.14)	(0.12)
EDUC	0.27***	0.09	0.07	0.06	0.08
	(0.07)	(0.07)	(0.06)	(0.07)	(0.07)
FRACTION	0.75	0.79	0.66	0.70	0.91
	(0.70)	(0.59)	(0.59)	(0.65)	(0.64)
UNEMPLOY		0.04*	0.04*	0.04	0.04*
		(0.02)	(0.02)	(0.02)	(0.02)
Globalization		0.03***	0.02**	0.02**	0.02**
		(0.01)	(0.01)	(0.01)	(0.01)
DB2011r			0.01*	0.01*	
			(0.00)	(0.00)	
logGDPpc95				0.05	0.28
				(0.42)	(0.40)
GROWTH				-0.02	-0.02
				(0.02)	(0.03)
Constant	-3.69***	-4.58***	-4.16***	-4.15**	-5.15***
	(0.94)	(0.89)	(0.90)	(1.68)	(1.60)
Observations	57	56	55	54	54
R-squared	0.40	0.53	0.57	0.57	0.55

*Note: OLS estimates with robust standard errors in parentheses and p-values ***p<0.01 **p<0.05 *p<0.10.*

Appendix D

FIGURE 1, TENURE PROTECTION, CIVIL SERVICE REGULATIONS (GII), MERITOCRATIC RECRUITMENT (EVANS AND RAUCH 1999), QUALITY OF PUBLIC ADMINISTRATION (ICRG AND CPIA), BIVARIATE CORRELATION