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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

The article 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 politicians 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.

> The merit system provided a remedy… to the obvious corruption and the oligarchical tendencies of the combination of business and politics into which the spoils system had developed.
>
> Van Riper (1958, 23)

INTRODUCTION

The idea that high quality of government has the utmost importance for sustained positive social outcomes is widely accepted by both the academic community and practitioners (La Porta et al. 1999; Rothstein and Teorell 2008; United Nations 2000; World Bank 1997). However, the big question of what constitutes government that enhances welfare for all members of society remains largely open. In this debate most attention has been paid to the impact of political regimes and, more specifically, the strength of political constraints on valued social outcomes such as economic growth

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and public goods provision (for an overview of the literature see Acemoglu et al. 2014). The impact of public bureaucracy on social outcomes has so far attracted much less attention, and the question as to what type of bureaucracy is welfare-enhancing remains largely open.

This article addresses this question by empirically investigating the relationship between the civil service, operationalized as merit-based recruitment and protection of tenure from politically motivated dismissals, and entrepreneurship. We hypothesize that there is a strong link between this organizational form of bureaucracy and new business entry rates. By providing a degree of control over "the dangerous impulses of elected officials" (Miller 2011, 489), such as rent-seeking or reelection motivations, the civil service facilitates confidence that the return from the effort and resources entrepreneurs invest in ventures will not fall a victim of these morally hazardous motivations. We test our hypothesis in a series of cross-sectional and panel regressions in broad samples and across a considerable time span, utilizing several original indicators for our main independent variable. The results lend support to the hypothesis, even when controlling for factors, which stand for alternative explanations, and are robust to alternative specifications.

This research makes important contributions to the public administration and entrepreneurship literatures. First, we close an important empirical gap by offering the first quantitative assessment of the welfare-enhancing effect of the civil service over time. Second, we introduce the bureaucratic structure variable to the entrepreneurship scholarship, which has so far been overlooked by this literature. Last, but not least, by examining the "bureaucratic structure-entrepreneurship rates" link, we illuminate one of the micro-level causal mechanisms that link institutions and development.

The article is organized as follows. First, we present the theoretical argument and derive 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 avenues for further research.

THEORETICAL ARGUMENT

It is a commonly held view that vibrant entrepreneurship lies at the root of economic development through employment creation, productivity growth, and innovation (Praag van and Versloot 2007; Shumpeter 1934). Both international organizations such as the World Bank and EU, and governments of all levels take actions to foster entrepreneurship (European Commission 2013; World Bank 2013). Yet, the data reveal striking differences across countries. According to the World Bank data on newly registered limited liability firms across the globe, in 2012 the difference between New Zealand and Pakistan was almost 400-fold (15.7 versus 0.04 per 1,000 working-age population).[1] A remarkable variation is observed among countries of the same income category and geographic regions. For example, within the OECD high-income

1 The complete database and sources are available at http://www.doingbusiness.org/data/exploretopics/entrepreneurship/research.

group New Zealand has roughly 30 times more newly incorporated business ventures than Austria and 130 times more than Japan, and the difference between the United Kingdom and Italy is almost six-fold. Similarly, in sub-Saharan Africa, Botswana (the regional top performer) has roughly 6 times more new start-ups than the regional average, and 246 times more than Madagascar. Despite periodic ups and downs in the actual number of newly incorporated firms, determined by such factors as, for example, economic crises, considerable cross-country disparities persist over time. What explains this variation in new business entry rates?

Recent reviews of the entrepreneurship literature showed that it is much focused on the characteristics of individuals, their networks of affiliation, and the resources they command (Terjesen, Hessels, and Li 2013). In addition to the psychology and sociology of entrepreneurship, there is an emerging institutional strand of the entrepreneurship research that examines the effects of a broad range of institutions, from the availability of capital to regulation of entry and corruption (Aidis, Estrin, and Mickiewicz 2008; Bjørnskov and Foss 2008; Klapper, Laeven, and Rajan 2007; Nyström 2008; Stenholm, Acs, and Wuebker 2013). What this literature has so far overlooked is the role of public bureaucracy. We argue that the extent of the institutionalization of the civil service form of public administration is an important factor explaining the observed variation in new business formation.

Our argument draws on the present-day thinking about economic development: it takes place when economic agents are certain that the return from the effort and resources they invest is not subject to expropriation or partial treatment by government (Acemoglu and Robinson 2012; North and Weingast 1989). Economic development takes place when governments "encourage participation by the great mass of people in economic activities that make the best use of their talent and skills" by providing "a level playing field that gives them the opportunity to do so" (Acemoglu and Robinson 2012, 74, 76). Implicit to this literature is the idea that the main danger to entrepreneurship and growth comes from politicians since governments regulate economic activity, but are run by politicians (Knott and Miller 2006; Miller and Hammond 1994; North 1981). This structural condition creates strong incentives for political elites to use the powers of the state and resources associated with the regulation of economy in the interests of their key constituencies (narrow interests) and/or for self-dealing. 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" (Knott and Miller 2006, 231).

If unconstrained, political elites use their powers to pursue morally hazardous interests with detrimental effect to entrepreneurship. "The more likely it is that the sovereign will alter property rights for his or her own benefit [through, for instance, government extortion or favoritism—MN], the lower the expected returns from investment and the lower in turn the incentive to invest" (North and Weigast 1989, 803). While any of dozens of examples would work equally well, the case of Putin's Russia illustrates the point in its entirety. Russia is known for, on the one hand, a high risk of political extortion of business[2] (Gans-Morse 2012) and as an "extreme version of crony capitalism" (Krugman 2014; see also Reuters 2014–2015; The Economist 2014) and, on the other hand, comparatively low levels of entrepreneurial activity (Aidis, Estrin, and Mickiewicz 2008; Global Entrepreneurship Monitoring [GEM] 2013, 24–25). When the lion's share of the large state procurement contracts belongs to a few "kings of state procurement" (Forbes 2015) and state funded projects—be it health care (Grey, Bush, and Anin 2014; Nemtsov 2014) or football stadia for the 2018 FIFA World Cup in Russia (Suhotin 2014)—are awarded to a handful of businesses with close ties to the political elites in Moscow and the regions, it is not difficult to understand why 90% of Russians (GEM 2015) do not see opportunities to develop businesses for themselves. Under such conditions individuals may simply find it is not worth their while to invest in their own business ventures. In other words, political contingency of wealth creation demotivates would-be entrepreneurs from becoming economic agents and acting entrepreneurs from expanding their ventures.

Our focus on public bureaucracy is based on the recognition that the "sovereigns" "have limited physical capacity to implement policy choices, including abuses" and rely on "administrators"—individuals and organizations that implement policies (Gonzales de Lara, Greif, and Jha 2008, 105). Observation of public bureaucracy often acting in the interests of politicians' friends, donors, or similar morally hazardous interests encourages entrepreneurial-minded individuals to evaluate the risk of political contingency of wealth creation as high and to reduce their entrepreneurial effort or even withdraw from entrepreneurial activity altogether. Recent examples from the public procurement sphere from Russia (see above), Spain (Kassam 2014; Pérez and Hernández 2014), and Hungary (Fazekas, Toth, and King 2013), where politicians often influence administrators to bend the procurement rules to the benefit of their preferred bidder, are particularly instructive in this respect, and such examples abound in the different regions of the world.

The fundamental question is then: "How can rulers be constrained not to pursue their morally hazardous incentives?" The literature offers two major solutions to what is known as the problem of credible commitment. The first one, following North and Weingast (1989), is the diffusion of power among several actors who check each other and prevent a cohesive faction from a predatory use of the state, therefore encouraging investment, enterprise, and exchange. This claim has found strong empirical support in research by Frye (2004), Henisz (2000), Jensen (2008), and Li (2009) among others.

The other prevalent solution is the delegation of relevant political powers to an actor, who is insulated from political instability and the time-inconsistent preferences of politicians. The classic example 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' reelection concerns (the source of time-inconsistency in the classical CBI literature, but often also of moral hazard) and alterations to policy choices as a result of alternation

2 This ranges from high-profiled cases such as the oil giants Yukos or Royal Dutch Shell, that faced retrospective tax claims and legal proceeding for violations of environmental regulations, to much less known cases such of Evroset (a mobile phone retailer which faced charges of illegally imported goods) and other businesses, whose "assets fell under the gaze of the authorities" (Gans-Morse 2012, 285).

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 prerequisite that would enable such qualities to be sustained (Walsh 1995). CBI thus functions as an institutional device that denies political actors the opportunity to easily 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 (Alesina and Summers 1993; Arnone and Romelli 2013; Bodea and Hicks 2015). The case of CBI is a *par excellence* instance of the insulation of bureaucratic policy-making from the problems of majoritarian politics with the aim of achieving the right kind of policies and as a protection from the moral hazard of elected officials (Majone 2001)

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 (Dahlström, Lapuente, and Teorell 2012; Evans and Rauch 1999; Feiock, Jeong, and Kim 2003; Knott and Miller 2006, 2008; Miller 2000; Mueller 2015). Similar to the CBI case, the goal is to create an agent with preferences evidently different to those of the principal, 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 agreed public policies. This goal is thought achievable primarily through limiting politicians' powers over making and breaking bureaucratic careers, specifically through such personnel management tools as meritocratic recruitment and protection from politically motivated dismissals (tenure protection), which are widely viewed as the essential elements of civil service (Berman et al. 2010, 113; Colley, McCourt, and Waterhouse 2012; Frant 1993; Ingraham 2006, Lewis 2007; Rauch and Evans 2000; Van Riper 1958 among others). The core of the argument is that when personnel management in a bureaucracy is beyond the control of individual politicians, the resultant misalignment between the preferences of politicians and those of the administrators (particularly as they relate to career incentives) makes public managers less attuned to the demands of their political superiors and also much less willing to act upon such politicians' dangerous impulses.[3]

[3] In addition to merit-based entry and job security provisions, conceptualization of the civil service as a tool for personnel management may also include rules for promotion and remuneration, including wages, pensions and other rewards, discipline policy and job duty standards (Dahlström, Lapuente, and Teorell 2012; Frant 1993; Miller 2000; Rauch and Evans 2000; Rubin and Whitford 2008). Civil service has also been conceptualized in terms other than personnel management systems (Bekke, Perry, and Toonen 1996), and related research has identified elements of the civil service (not related to staffing) that could also alleviate the credible commitment problem. For example, Gary Miller argues that legal routines like audits, budgeting procedures and standard operating procedures (SOPs) in policy formulation may help public managers to guard the publicly agreed content of policies from the "political pressures that come laterally and informally"(2000, 317). In addition to this, transparency and the "constraining and motivating power of professional norms" (Miller 2000, 320; see also Tonon 2008) are also relevant constraints on the morally hazardous preferences of politicians. We appreciate these important explanatory factors, yet limit our theoretical explanation to merit-based entry and tenure protection for two reasons. First, we consider these two features of the civil service design as the fundamental factors that determine reduced bureaucratic responsiveness to the preferences of individual politicians and hence there is a higher likelihood that such

We extend this argument by showing how exactly meritocratic recruitment and tenure protection attenuate bureaucratic responsiveness to the morally hazardous preferences of individual politicians and bridge it with the institutional strand of the entrepreneurship literature, which showed that people's assessment of their institutional environment (e.g., property rights protection, regulatory complexity, partiality, and corruptibility of government officials) is an important predictor of the level of entrepreneurial activity both at the individual (Lim et al. 2010) and aggregate levels (Grilo and Irigoyen 2006; Nistotskaya, Charron, and Lapuente 2015). Building on this synthesis, we argue that entrepreneurs and investors recognize the reduced responsiveness of administrators, induced by the civil service, and interpret it as a signal that the risk of political contingency of wealth creation is comparatively low.[4] This in turn will facilitate their complex assessment of the expected long-term utility from entrepreneurship and venture creation decisions.

A good starting point to understand how exactly meritocratic recruitment and tenure protection attenuates bureaucratic responsiveness to the morally hazardous preferences of individual politicians 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. One of the key characteristics of "at will" systems is that they set forth a dyadic relationship between the appointee and an individual with the appointing powers from the very beginning of the former's career (Bearfield 2009; Blunt et al. 2012). Furthermore, since one person in such dyads is a job-giver and another is a job-receiver, their relationship is also remarkably unequal in terms of power. The dyadic and asymmetrical character of principal-agent relations in "at will" systems facilitates the high sensitivity of the bureaucratic employee to the preferences, including morally hazardous ones, of the individual who is the political sponsor of her job.[5]

bureaucrats would not be used as a tool of political favoritism and expropriations. The welfare-enhancing potential of legal routines in merit-based bureaucracies, where administrators resort to SOPs to withstand the informal pressure of politicians, is indeed well-known. Consider a dramatic example from recent American history—the Keating scandal. By justifying their decisions through references to SOPs, four relatively low standing civil servants were able to resist the pressure of five powerful US senators, who demanded special treatment for the business of one of their major financial donors (Miller 2000; Tonon 2008). In patronage-based systems, the effectiveness of legal routines is diminished because of the bureaucrat's dependence on her political master and the lack of incentive to adhere to SOPs if they conflict with her master's voice. Similarly, although adherence of administrators to the standards of their professions is of paramount importance to a welfare-enhancing bureaucracy, the institutionalization of professional norms in a bureaucracy seems to be conditional on the merit-based mode of entry to public bureaucracy. Second, since the lack of observational data on bureaucratic structures remains a considerable problem of comparative bureaucracy research, the construction of a reliable measure that would capture all staffing and non-staffing aspects of civil service to test the theory is beyond the scope of a single article and indeed beyond the capacity of individual researchers.

4 The fact that the *International Country Risk Guide*, a best-selling consultancy product for international investors for over 35 years, includes the "Bureaucratic Quality" measure, which is understood as a tendency of a country's bureaucracy to be "somewhat autonomous from political pressure" (PRS 2015, 7), speaks volumes for the validity of such reasoning.

5 Democracy does not alter this situation much. In democratic "at will" systems, even in the presence of robust political competition, bureaucrats are found to be particularly sensitive to the politicians' reelection 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; Grindle 2012; Meyer-Sahling and Veen 2012).

The flip side of appointment is the power to dismiss. 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 (1975–1979), who believed that "…I should be able to give you walking papers if I don't like the way you part you hair." (National Governors Association 1981, 92), then the agent's willingness to act upon the principal's preferences is exceptionally high. Thus, hiring "at will" and lack of tenure protection provide public managers with "high-powered incentives" (Frant 1996) to be both sensitive to the preferences of the political sponsors of their jobs and willing to act upon those preferences by following the instructions of individual politicians in day-to-day bureaucratic decision-making.

A recent example from the United Kingdom is a case in point. Describing one of his special advisers, who are a typical example of "at will" appointment in public bureaucracies, then British culture secretary Jeremy Hunt said that "[Adam Smith] knows exactly what I would want to happen" (Addley 2012). Among other things, Mr Smith knew too well that the minister strongly favored Ruppert Murdoch's News Corporation bid to take full control of BSkyB, the United Kingdom's largest digital subscription television company, so he supported the bid in a variety of ways, including those that are at the boundary of legality, such as passing over commercially confident information (Wintour 2012). Although Jeremy Hunt insisted that he had been unaware of "the volume and tone" of Smith's contacts with New Corp, most observers maintain that this was not the case (Clark 2012).

In contrast to this, meritocratically recruited public managers with tenure protection face "reduced incentive intensity" to be perceptive to the preferences of individual politicians and to act upon them. Under merit systems 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, therefore the incentive intensity to act upon the lateral and informal instructions of individual politicians is lower compared to "at will" systems. By protecting bureaucratic decision-making from "much of the day-to-day political influence" (Miller 2000, 316), civil service reduces the risk of the political moral hazard trickling down freely from the top political echelon of the government to its lower administrative divisions.[6]

6 One should, of course, not discount the danger of opportunistic behavior on behalf of bureaucrats themselves. In this regards, some have argued that civil service have no effect on corruption (Rubin and Whitford 2008) and even can sometimes foster outcomes that undermine social welfare (Anechiarico and Jacobs 1996; Maranto 1998). Yet another scholars maintain that bureaucratic moral hazard is adequately controlled through (1) deferred compensation that induce long-term perspective; (2) legal rules and procedures that prescribe bureaucratic routines and therefore prevent abuses; (3) transparency requirements, and (4) the disciplining powers of professional norms and standards (Knott and Miller 2006; Miller 2000). Others highlight the importance of accountability to peers in the organization—*esprit de corps* (Dahlström et al. 2012, Rauch and Evans 2000), public service motivation, improved civic control, independent media, and international organizations.

To summarize, if "at will" personnel systems align 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 visibly not a private resource of politicians will be recognized by entrepreneurs and investors, and will positively influence their complex assessment of the opportunity for and feasibility of a business venture, and their calculations on the expected long-term utility from business venturing. 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 (*credible commitment effect*).

In addition, a large literature 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 (Carpenter 2001; Gailmard and Patty 2013; Gallo and Lewis 2012; Lewis 2007; Rauch and Evans 2000). 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. We focus on regulatory quality (Bjørnskov and Foss 2008; Nyström 2008) and the quality of market entry regulations (Klapper, Laeven, and Rajan 2007; Stenholm, Acs, and Wuebker 2013), which are 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 (*epistemic effect*).

Furthermore, we expect to observe the *credible commitment* effect of civil service 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.

It is important to note that civil service restrictions on personnel management may also attenuate the incentives of bureaucrats to the detriment of regulatory quality and entrepreneurship through low responsiveness to policy changes, poor productivity, excessive emphasis on the inputs and formalism of the process. For example a recent study argues that formal entry examinations—a hallmark of the traditional civil service systems—may not be the only way to increase epistemic qualities in modern public bureaucracies (Sundell 2014). Similarly, while meritocratic recruitment—understood as a system of admission to public bureaucracy, where important decisions about hiring are not under control of individual politicians, irrespective of whether it is done via formal exams or CV screenings, interviewers and other similar techniques—could be an efficient institutional means for reducing bureaucratic responsiveness to the dangerous impulses of politicians, it could also attenuate the incentives of bureaucrats to follow the legitimate orders of their political superiors (Johnson and Libecap 1994; Maranto 1998; Ujhelyi 2014). Having acknowledged that there are some contradictions inherent in civil service, we therefore argue for a general positive relationship between merit bureaucracies, regulatory quality, and entrepreneurship.

CROSS-COUNTRY ANALYSIS

Data and Method

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 public bureaucracies around the world administered by the Quality of Government (QoG) Institute, University of Gothenburg. The QoG survey is a replication of Evans and Rauch's (1999) research on a larger scale in terms of both geographical coverage and theoretically informed dimensions of bureaucratic structure. Carefully selected experts, primarily academics chosen for their country-specific publications, and also public administration practitioners, were asked to evaluate (on a 7-point scale, ranging from "Hardly ever" to "Almost always") a number of statements pertaining to *de facto* personnel management practices (as opposed to *de jure* rules) in the public sector.[7] The survey was conducted in three waves between 2008 and 2011 with the response rate ranging between 30% and 39%, depending on the wave. The evaluations of 1,053 experts were pooled together, providing the data for 135 countries with a mean of 7.8 respondents per country. More detail on the survey can be found in supplementary appendix A.

The survey's question of interest is: "When recruiting public sector employees, the skills and merits of the applicants decide who gets the job." The measure was designed to capture the notion of meritocratic recruitment—a system of admission to public bureaucracy, where important decisions about hiring are not under the control of individual politicians. The resulting MERIT variable is the average of the country experts' answers. Only those countries that were represented by at least three experts are included in the present analysis ($N = 107$). MERIT is highly negatively correlated ($r = -.84^{***}$) with the QoG expert survey's indicator capturing the extent of *de facto* politicization of entry.[8] In general, the validity and reliability of this measure is firmly established within the academic community, and has been used in several high-profile

7 This distinction is important as the mere passage of civil service legislation often involves no meaningful changes in the preexisting practices (Lapuente and Nistotskaya 2009; Meyer-Sahling 2006) or the subversion of the legal provisions by informal practices as it happened in, for instance, the Latin America (Grindle 2012), Greece (Sotiropoulos 2004), or India (De Zwart 1994). Therefore, measures capturing *de facto* practices seem more meaningful than those that reflect the mere presence of relevant laws.

8 MERIT is also highly positively correlated with Rauch and Evans's (2000) indicator of merit ($r = .68^{***}$, $N = 26$), and positively, however, weakly, correlated with Global Integrity's Measure of Civil Service institutionalization ($r = .31^{***}$, $N = 91$).

publications (Chong et al. 2014; Dahlström, Lapuente, and Teorell 2012; Norris 2015; Rothstein and Teorell 2008).

The main advantage of this indicator is that unlike other commonly used indicators (such as International Country Risk Guide or Worldwide Governance Indicators) that are too close to measures of bureaucratic output, MERIT captures a structural characteristic of bureaucracy, which is conceptually divorced from the notion of government output. 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 or different levels of government or geographical areas that may have their idiosyncrasies with regard to the recruitment process. Another 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 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, reverse), 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.[9] We employ the reverse of the overall rating on the ease of doing business, with larger DB's values standing for the regulatory environment, which is more conducive to the starting and operation of a local firm. NEWBIZ is the World Bank's measure of the number of legally incorporated firms entering the market (per 1,000 working-age population). We opted for a measure of formally registered business ventures largely due to its greater geographical and temporal coverage, compared to the alternative indicators from the GEM, which makes a useful conceptual distinction between informal and formal entrepreneurship, but has a much more restricted country-level data. Supplementary appendix B 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 ordinary least squares (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, the size of the government, the constraints on the executive power, and several economic indicators. 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 gross domestic

9 The Doing Business' indicators have been utilized in more than 1,200 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).

product per capita [GDPpc] and GDP growth) we use an innovative measure that captures the complexity of a country's economic structure (Hausmann et al. 2008). EcComp captures an economy in terms of its product diversification and the depth of economic exchange and controls for the notion that a greater depth of economic exchange drives a higher demand for better regulation. In addition, we control for the levels of economic development back in the 1970s (GDPpc) and recent levels of economic growth (GROWTH) with the aim of tapping into economic factors that may not be captured by the EcComp. In line with the argument of scholars who recognize the separation of powers as a credible commitment device, we control for the extent of institutional constraints on the executive (CHECKS). Considering the great impact that legal origin theory has made in the last decades (La Porta et al. 1999) and the relevance of this variable to the phenomenon under study, we control for the common law legal tradition (LegorUK). Finally, we control for the archrival of the quality of government argument—government size (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). However, recently this notion was counterpoised by sound empirical evidence that larger bureaucracies provide a business-supportive institutional environment and are less corrupt (Brown, Earle, and Gehlbach 2009).

In the business entry analysis, we control for a number of factors that have been identified by the entrepreneurship literature. First, differences in personality traits, such as attitudes toward risk, locus of control, and a personal need to excel have been long recognized as one of the foremost explanatory factors for entrepreneurship (Frese and Gielnik 2014). In country-level empirical studies, these psychological predispositions are often proxied by the educational level of the population under study (Misra et al. 2014; Nistotskaya, Charron, and Lapuente 2015; van Stel, Storey, and Thurik 2007). We use a standard measure for education: the average number of schooling years of adults (EDUC) from Gakidou et al. (2010). Second, we control for the effects of ethnic fractionalization (FRACTION), which is found to be a powerful driver for entrepreneurship (Ensing and Robinson 2011; Hechavarria and Reynolds 2009). Third, 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). We also 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 recent volumes of domestic credit to the private sector (Black and Strahan 2002). In addition, quality of business regulation (DB) is controlled for as suggested by an influential literature on entry regulation (Djankov et al. 2002, Klapper, Laeven, and Rajan 2007; van Stel, Storey, and Thurik 2007) and also to assess the independent effect of MERIT as a credible commitment device. In line with the argument about the separation of powers as a credible commitment device, we control for the extent of checks on the executive and the balance of power between different branches (CHECKS). Finally, the underlying demand and supply economic factors are controlled for through GDP per capita (2004, log) and recent rates of economic growth (GROWTH).

RESULTS: MERITOCRATIC RECRUITMENT, REGULATORY QUALITY, AND DOING BUSINESS

Table 1 reports the results of different model specifications, showing that the employed measure of meritocratic bureaucracy is consistently associated with both indicators 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. MERIT and the level of complexity of the underlying economic structure explain nearly two thirds of the total variation of the REGQ (Model 1). MERIT remains highly robust to the linear inclusion of the political factors (checks and balances, legal origin, and the size of government) in Model 2. The model's fit is only marginally improved compared to Model 1; and among the political factors only CHECKS enters significant. 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 1970; and also for recent levels of economic growth. Here MERIT remains significant at the 99% level, as are the initial levels of economic development and economic complexity. Model 3 explains about 80% of the variation in REGQ.

Across all models of the Doing Business specification, the MERIT's coefficient is significant and negatively signed as expected: the greater the institutionalization of meritocratic entry to bureaucracy, the higher a country's placement in the Doing

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***	7.51*
	(0.06)	(0.06)	(0.05)	(3.46)	(3.83)	(3.97)
EcComp	0.50***	0.44***	0.28***	25.49***	23.82***	18.09***
	(0.07)	(0.09)	(0.09)	(4.71)	(4.96)	(5.57)
CHECKS		0.08*	0.02		−1.95	−2.67
		(0.04)	(0.05)		(2.68)	(2.75)
Legor_UK		0.13	0.17		19.23**	24.42***
		(0.15)	(0.11)		(9.20)	(8.24)
GOVSIZE		−0.01	−0.01		−2.86**	−2.46**
		(0.02)	(0.01)		(1.14)	(1.01)
GDPpc			0.82***			46.18***
			(0.22)			(14.39)
GROWTH			−0.03			−0.24
			(0.02)			(1.23)
Constant	−1.20***	−1.24***	−3.07***	47.32***	92.00***	−39.18
	(0.23)	(0.32)	(0.68)	(14.56)	(19.97)	(40.70)
Observations	87	85	61	89	86	62
R^2	0.64	0.64	0.83	0.47	0.52	0.74

Note: OLS estimates with robust standard errors in parentheses and p-values.
$***p < .01$, $**p < .05$, $*p < .10$. Dependent variable: Models 1–3 Regulatory Quality (2010–2011, averaged); Models 4–6 Doing Business (2012–2013, averaged, reversed).

Business rank. MERIT and EcComp explain about half of the total variation of the dependent variable, with both variables being significant predictors (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 recent growth rates (Model 6). The fully specified model explains about three-quarters of the variation in DB. 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 legal tradition is not significant (not reported). The larger size of government is associated with worse business entry regulation, supporting the more traditional claim in the debate on the size of government.

Overall, the data lend support to the proposition that links meritocratic recruitment with better bureaucratic output. This association is robust to the exclusion of outliers (not reported) and to different model specifications and alternative measures for a number of variables (table 1 in supplementary appendix D).

RESULTS: MERITOCRATIC RECRUITMENT AND BUSINESS ENTRY RATES

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, that is, years of schooling, ethno-linguistic fractionalization, and a share of urbanites and unemployed (Model 1), MERIT is significant and the direction of its impact is as predicted. 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 2–4, exerting impact in the hypothesized direction. MERIT and the characteristics of the population explain 46% of the variation in NEWBIZ.

MERIT is robust to further introduction of indicators pertaining to the institutional environment, namely the availability of domestic credit to the private sector, constraints on executive and quality of business regulation (Model 2). Among the institutional controls only the latter is significant, as is MERIT, which lends support to H3 about the independent effect of MERIT on entrepreneurship. Understandably the qualitative significance of MERIT is reduced compared to Model 1, since DB is an important predictor for entrepreneurship in both theoretical and empirical terms. In this model the quantitative significance of DBr is slightly higher than that of MERIT (β = .36 and .33, not reported). Model 2 explains about 60% of the total variation in NEWBIZ. Model 3 adds controls for the overall level of economic development through GDP per capita prior the 2008 crisis and recent growth rates. In the last model, we drop DB 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 Models 2–3, providing additional evidence in support for H3.

Table 2
Meritocratic Entry to Bureaucracy and Business Entry Rates

Variables	(1)	(2)	(3)	(4)
MERIT	0.43***	0.35**	0.37**	0.46***
	(0.14)	(0.17)	(0.16)	(0.15)
EDUC	0.15***	0.11**	0.10*	0.14**
	(0.05)	(0.05)	(0.05)	(0.06)
FRACTION	0.90	1.16**	1.13*	1.33**
	(0.62)	(0.57)	(0.58)	(0.57)
URBAN	0.01	0.01	0.00	0.00
	(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)
CREDIT		−0.00	−0.00	−0.00
		(0.00)	(0.00)	(0.00)
CHECKS		0.03	0.00	−0.02
		(0.07)	(0.09)	(0.09)
DB		0.01**	0.01**	
		(0.00)	(0.00)	
GDPpc			0.23	0.38
			(0.33)	(0.33)
GROWTH			−0.05	−0.05
			(0.05)	(0.05)
Constant	−4.16***	−4.36***	−5.73**	−6.86***
	(0.97)	(0.98)	(2.35)	(2.29)
Observations	60	55	54	54
R^2	0.46	0.59	0.61	0.56

Note: OLS estimates with robust standard errors in parentheses and *p*-values ***$p < .01$, **$p < .05$, *$p < .10$. Dependent variable: the number of newly incorporated firms per 1,000 population (2011–2012 averaged, log transformed).

We reran all models with alternative specifications and measurements. That is, following the literature (Nistotskaya, Charron, and Lapuente 2015; Norbäck, Persson, and Douhan 2014) we introduce an indicator for the underlying demand factor for entrepreneurship (economic globalization), drop variables that proved to be insignificant in the main analysis (urbanization, domestic lending, and constraints on executive). We also employ earlier measures of GDPpc and a different indicator for education. We analyze the main and robustness checks models without outliers and find that the association between MERIT and NEWBIZ is robust to these alterations (table 2 in supplementary appendix D).

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 panel data.

TIME-SERIES ANALYSIS

Data and Method

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.

With regard to 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 formal fixed-term contracts. The evidence suggests that most early terminations are of a political nature (Adolph 2013, 280–303), therefore by focusing on the frequency of occurrence of early terminations of contracts we are able to capture the concept of tenure protection, which is the absence of politically motivated dismissals.

We employ an indicator, which informs as to whether central bank governor turnovers are regular or irregular. The regularity is defined in relation to their formal contracts, where replacements occurring before the date specified by contract are considered irregular. Specifically, we utilize the Bureaucratic Autonomy Index (BAIndex), developed by Cingolani, Thomsson, and de Crombrugghe (2015), based on a comprehensive database covering 158 countries and banking unions over the period 1970–2011compiled by Dreher, Sturm, and de Haan (2010). 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).

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

The data are unbalanced and comprise 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, 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 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, and central bank governors "make monthly rounds in the deadlines" and some of them, such as the head of the US 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 this occurring in less visible government offices is also high. Second, central banks have been the 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). Third, our measure is positively and significantly correlated with four established measures of bureaucratic structure and bureaucratic quality (supplementary appendix E), 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 exploiting 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 and R^2 (within).

Model 1, which includes only a measure of tenure protection, shows no significant univariate association of TENURE with regulatory quality. In Models 2 and 3 we follow our previous cross-sectional analysis by adding GOVSIZE and CHECKS as covariates. The addition of GOVSIZE in Model 2 renders TENURE strongly significant with a positive sign, although GOVSIZE displays no impact. The stark change in TENURE's coefficient suggests that there is a strong bivariate association between tenure protection and the size of government. In Model 3, TENURE maintains its

Table 3
Tenure Protection and Regulatory Quality

Variables	(1)	(2)	(3)	(4)	(5)	(6)
TENURE	0.05	0.22***	0.22***	0.22***	0.22***	0.22***
	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
GOVSIZE		−0.00	−0.00	−0.00	−0.00	−0.00
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CHECKS			0.01**	0.01**	0.01**	0.01**
			(0.01)	(0.01)	(0.01)	(0.01)
GDPpc (ln)				0.18***	0.18***	0.18***
				(0.05)	(0.05)	(0.05)
GROWTH					0.00	0.00
					(0.00)	(0.00)
IDEOLch						−0.03
						(0.22)
Observations	1,306	801	798	789	788	788
Countries	116	98	98	98	97	97
Years (av.)	11.3	8.2	8.1	8.1	8.1	8.1
F-Stat	1.56	10.64	8.9	10.29	8.24	7.16
R^2	0.00	0.03	0.04	0.06	0.06	0.06

Note: Fixed effects panel estimates with standard errors in parentheses and *p*-values ***$p < .01$, **$p < .05$, *$p < .1$. Dependent variable: Regulatory quality. Constant values are omitted.

coefficient and significance, whereas CHECKS emerges as positive and significant. In Models 4 and 5, we include two important economic dimensions to control for: an overall indicator of economic maturity (GDPpc) and a measure capturing economic cycles such as the growth of GDP (GROWTH). In these specifications all previous coefficients remain stable, whereas GDPpc appears as positive and significant (Model 4), and GROWTH does not report any impact (Model 5). In Model 6, we control for an additional dimension that may drive changes in both TENURE and regulatory quality: whether a change has occurred in the ideological orientation of the biggest party in power (IDEOLch). This last dimension, however, registers no effect on regulatory quality, while the coefficient and standard errors of TENURE remain stable. The *F*-statistics suggest that all models except the first represent a good fit for explaining the variance in REGQ. Overall, the data lend strong 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 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 78 and 63 and the time span varies between 6.9 and 4.2 years. The first model shows the unconditional effect of tenure protection, which at this point is statistically insignificant. Model 2 adds our two previous institutional control variables, GOVSIZE and CHECKS, rendering TENURE a positive and significant explanatory factor for NEWBIZ. In contrast to the results in table 3, now the measure of government size is negative and significant, suggesting that increases in the size of government hinder the creation of new companies, while the number of institutional veto points does not report any effect. Model 3 includes two dimensions likely to affect the venture creation climate according to the relevant literature: the quality of regulation (REGQ) and the levels of domestic credit to the private sector (CREDIT). REGQ does not report any effect, whereas CREDIT shows a significant and positive effect. TENURE now is significant at the 99% confidence level. Model 4 further includes our two structural socioeconomic variables—URBAN and EDUC—which bear no significance. All other coefficients maintain their sign and significance levels. This is similar to the results in Model 5, when GDPpc and GROWTH are included. In Model 6, finally, we add our measure of ideological change, which also reports no effect on business entry rates. The *F*-statistic suggests that all models, except the first, represent a good fit for explaining the variance in entrepreneurship.

Overall, the panel data provide 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 3–6), suggesting that the credible commitment effect of tenure protection is independent from the epistemic effect.

DISCUSSION AND CONCLUSION

Following an established political economy literature, we argued that political moral hazard, which is detrimental to sustained economic development, can be alleviated through

Table 4
Tenure Protection and Business Entry Rates

Variables	(1)	(2)	(3)	(4)	(5)	(6)
TENURE	0.53	1.36*	1.85***	3.06***	2.97***	3.09***
	(0.53)	(0.70)	(0.71)	(0.84)	(0.85)	(0.86)
GOVSIZE		−0.07***	−0.08***	−0.09***	−0.07**	−0.07**
		(0.02)	(0.02)	(0.03)	(0.03)	(0.03)
CHECKS		0.10	0.11	0.10	0.08	0.08
		(0.08)	(0.07)	(0.09)	(0.09)	(0.09)
REGQ			0.20	−0.17	−0.26	−0.26
			(0.55)	(0.68)	(0.69)	(0.69)
CREDIT			0.03***	0.04***	0.04***	0.04***
			(0.00)	(0.01)	(0.01)	(0.01)
URBAN				0.25	0.22	0.25
				(0.16)	(0.16)	(0.16)
EDUC				−0.30	−0.28	−0.29
				(0.62)	(0.81)	(0.81)
GDPpc (ln)					1.24	1.17
					(1.67)	(1.67)
GROWTH					0.04	0.04
					(0.02)	(0.02)
IDEOLch						−0.27
						(0.27)
Observations	536	396	384	309	303	303
Countries	78	67	67	64	63	63
Years (av.)	6.9	5.9	5.7	4.8	4.8	4.8
F-Stat	0.97	4.59	14.52	6.32	5.45	5.01
R^2	0.00	0.04	0.19	0.16	0.18	0.18

Note: Fixed effects panel estimates with SEs in parentheses and *p*-values ***$p < .01$, **$p < .05$, *$p < .1$. Dependent variable: the number of newly incorporated firms per 1,000 population, 2004–2012. Constant values are omitted.

the insulation of the core of public bureaucracy from day-to-day interference by individual political figures. Having synthesized this insight with the entrepreneurship literature, we argued that the presence of public bureaucracies that are visibly not a private resource of 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. We showed how meritocratic recruitment and tenure protection break the dyadic and asymmetrical relations inherent in patronage systems, thereby enabling pro-entrepreneurship levels of bureaucratic responsiveness.

We hypothesized that higher institutionalization of meritocratic recruitment and security of tenure provide necessary assurances regarding impartiality and stability in the implementation of the rules of the game for entrepreneurs, and this will be reflected in higher comparative rates of business venturing (H1). Furthermore, since merit entry to the bureaucracy improves the epistemic qualities of the government staff, and longer tenure activates the "learning by doing" mechanism, these features will be associated with the higher quality of the immediate bureaucratic output, such as regulatory quality (H2). Our third testable proposition suggests that this bureaucratic structure impacts the rates of business incorporation directly through perceptions of government by entrepreneurial-minded individuals 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. Similar findings arise 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.

Our findings speak to a large literature that argues that a system of checks and balances—through the separation between different branches of power and between different levels of authority, competition among parties, independent media, and bureaucratic autonomy—is an effective response to welfare-undermining political moral hazard. We contribute to this literature by developing and empirically testing an argument, first put forward by Gary Miller (2000), that not just any bureaucratic autonomy matters to entrepreneurship (Beazer 2012), but the insulation of bureaucratic decision-making from *day-to-day* interference by *individual* politicians, which is achievable through the discussed features of the civil service. Our findings reinforce the idea that such bureaucracies are "the sine qua non for credible commitment in the state" (Knott and Miller 2006, 229) and should become a permanent feature on the list of determinants of economic development both in research and policy arenas. This article makes several other contributions. By examining the bureaucratic structure—entrepreneurship rates relationship, we shed light on one of the micro-level causal mechanisms that link institutions and development. We close an important empirical gap in the literature by offering the first quantitative test of the welfare-enhancing impact of the civil service over time. Finally, we introduce the bureaucratic structure to the repertoire of explanatory factors employed in the entrepreneurship literature.

Several caveats need to be borne in mind and these lead directly to new research avenues. Theory wise, the limitations of civil service have to be acknowledged. 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 this literature 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; Ujhelyi 2014).

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. 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 subsamples (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 message of this article 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 socioeconomic and other factors. Taking into consideration the fact that in most of the world's bureaucracies merit is not a rule of the game, one of the policy implications arising from this research is that civil service reform, understood as meritocratic recruitment and tenure protection in practice, should be part and parcel of entrepreneurship-promoting efforts by national governments and international donors. As Van Riper (1958), describing the situation in the United States, understood, such reform can serve as an antidote to the corruption and oligarchical tendencies into which the poisonous collusion of business and politics in patronage systems descends.

SUPPLEMENTARY MATERIAL

Supplementary material is available at the *Journal of Public Administration Research and Theory* online (www.jpart.oxfordjournals.org).

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