The Contradictory Role of Corruption in Corporate Innovation Strategies

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Abstract

This study considers the influence of the work experience of Russian top managers on the willingness to stimulate innovative processes in companies, including using some corruption schemes to bypass bureaucratic barriers at a certain stage. Using a logit model based on enterprise surveys carried out by the World Bank, data on the managers of small and medium-sized businesses were analyzed.

It was revealed that the presence of «corruption competencies» has a positive effect on the innovative activity of enterprises in developing countries. This effect is due to the fact that corruption in such countries acts as a mechanism to reduce the transaction costs associated with innovation. The level of corrupt activity of managers increases as they accumulate experience due to the high degree of bureaucratization and the weakness of institutions, which turn into time and financial costs for enterprises. In the short term, corruption can accelerate the development of innovation, but it cannot serve as a permanent tool in this regard, since its long-term consequences turn out to be extremely negative.

Introduction

Innovation is the driver for the growth of small and medium scale enterprises. It ushers them into the competitive market, creating new markets and new avenues for employment. The support of top management is absolutely essential for innovation (e.g., Ollila, Yström, 2016). The question therefore is "Does the experience of the top manager have an infuence on innovation?" And if so, "Does this experience influence any form of corruption?"

One of the main prerequisites for economic and innovative development in accordance with the new institutional theory (North, 1992) is the quality of institutions that determines the magnitude of transaction costs (Coase, 1991). The choice of a legitimate path or an alternative corrupt way of developing the firm thus boils down to the theory of opportunity costs, thus justifying the optimality of the path with minimal costs (Parkin, 2016).

Theoretical assumptions about the complex role of corruption are confirmed in the economic literature. Corruption is known to have a negative impact on socio-economic development (Xiao et al., 2018). In developed countries, corruption worsens the quality of institutions and negatively affects the development of startups (Woodside et al., 2016). Due to this, governments have taken extreme measures to curb this effect. Due to this, the government of Russia and regional governors have taken a keen interest in the subject. They have implemented local anti-corruption legislation.[1] This action has further been enforced by the Higher School of Economics with their campaign to eradicate corruption from society. The International Anti-Corruption Academy has two courses (1) a course on using asset disclosure to detect indicators of corruption and a course on handling conflicts of interest in the public sector. The aim of these courses is to educate the students and the future leaders about the implications of corruption. Even though there are tough measures by the state to eliminate corruption, there is still the presence of corruption at the micro level.

Cultural factors and moral values are within the institutional environment surrounding top managers as the main agents of firm innovation (Cannella et al., 2009). Conducting innovations at a lower cost is one of the core competencies of company management (Carney et al., 2019) according to the theory of the upper echelon for the strategic development of companies (Hambrick, Mason, 1984).

In this article, based on the theory of upper echelon, we justify the increase in corruption competencies of top managers with increasing experience, which in turn, in accordance with the theory of transaction costs and opportunity costs, contributes to the

negative impact of corruption upon innovation activity. We empirically verify our theoretical and methodological justifications using data from a survey of World Bank enterprises using the Logit model for Russia, which in 2015 ranked 119th in the corruption perception index.

Our contribution lies in the fact that, based on the institutional theory and the theory of the upper echelon, we prove the effect of the development of managers' corruption competencies with growing experience in innovative activity for enterprises in developing countries.

Our article is structured as follows. First, we describe the theories of innovative activity of firms and characterize the main determinants of innovation. Then there are the results of previous work in the field of institutional economics and the theory of the upper echelon, which is the theoretical basis for our research. Then, within the methodology section, we will justify and formulate hypotheses, characterize the variables included in the model, present the results of our modeling, and draw conclusions from our model. At the end of our article, we formulate conclusions.

Managers and Corruption

Corruption has become a means to an end to a lot of multinational companies, which is fostered by top managers. Corruption is the main threat in many countries around the world. It is a phenomenon that a lot of countries are trying to eradicate or minimize in their modern societies, but it still persists due to institutional weakness, selflessness on the part of individuals and organization, and inadequate rule of law. Multinational corporations have become richer and more powerful due to illegal bribery and kickbacks to government officials to exploit new markets, illegally pollute countries, and obtain large contracts at exorbitant costs. The corporation exploits the weaknesses in a system to get as much as it can from the system, corruption is not a one-way phenomenon. There are always two parties who stand to gain from such transactions, the corporation and the corrupt official as indicated in fraud literature (Zahra et al., 2005). Even as the top manager remains an instrumental part of corruption, there is no research looking at the interaction between top managers and corrupt officials.

The theoretical basis for the study of corruption in our work is the theory of transaction costs by Coase (1937). The nature of the firm impacts the activities of firms, including innovative ones. Institutions play a key role in determining transaction costs (North, 1992), which makes their quality important determinants for economic development, and, consequently, innovation activity. Solving the problem of transac-

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[1] E.g. the Law of the Moscow City No. 64 On Fighting Corruption, 2014.

tion costs in business, an entrepreneur is faced with the question: should he follow the law or is it more profitable for him to circumvent the law using other methods. The solution of the issue is based on the theory of opportunity costs (Parkin, 2016), according to which the entrepreneur chooses the path with the minimum cost. Thus, whether an enterprise will use corrupt ties or will carry out its activities within the framework of the law is determined by the amount of alternative transaction costs, which in turn is due to the quality of institutions.

Research by the Institute for Public Administration and Governance (IPAG) of the Higher School of Economics National Research University in Moscow conducted a research study interviewing 1,200 businesses. In the sample, 53% of respondents are from microenterprises, 34% are from small businesses, 6% are from medium-sized, and about 7% are from large firms. The scientists asked not only direct, but also indirect questions (for example: "What do you think determines whether companies pay informally in public procurement?"). Based on the respondents' answers to indirect questions, the researchers found that at least two out of three companies indicated the existence of informal payments to customer representatives, 28% found it difficult or refused to answer. The amounts ranged from 3% to 65% of the cost of the state contract.[2] We see two faces of corruption in this case, a business taking advantage of an institution to eliminate competition and an individual using his or her position to enrich himself or herself. The bureaucrats in favor of their own interests increase the red tape rates above the level that would be socially acceptable, which leads to bribes being paid in order to overcome bureaucracy-related obstacles (Guriev, 2004). When competition is eliminated, it goes a long way in impacting the startup ecosystem and making entrepreneurs suffer long term.

The Anti-Corruption Campaign in Russia

The Russian anti-corruption campaign is an ongoing effort by the Russian government to curb corruption, which has been recognized as one of Russia's most serious problems.

Figure 1 shows the rank of the corruption perceptions index and Russia is among the countries with the highest scores, which has prompted the government to take serious action against such acts. Russia has released a National Anti-Corruption Plan for 2021–2024, which is the longest plan the country has undertaken since it started its anti-corruption campaigns. The new plan is divided into 16 areas to cater for the gaps in the previous plan. The Higher School of Economics (HSE) has also been a strong mouthpiece for the anti-corruption campaign. Even though

Figure 1. **The Dynamics of the Corruption Perceptions Index**

Source: authors.
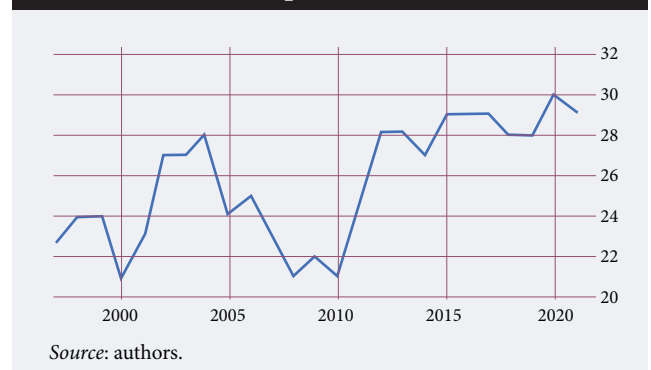
the problem persists, there is willingness on the part of the government and educational institutions to work hand-in-hand to fight this.

Innovation and Corruption

Corruption has a complex relation with innovation, it is more of a heterogeneous relationship than is indicated in the literature. Greasing and sanding may actually coexist in transition and emerging countries, depending on the level of analysis, and other related factors (Iorio, Segnana, 2022). Corruption and innovation theories tell us that they are highly dependent on societal circumstances, such as mentality, which includes the traits of a history or political system. Corruption reduces aggregate efficiency in countries where institutions are effective, yet increases efficiency where institutions are ineffective (Meon, Weill, 2010). Strong institutions show negative effects of corruption while transitional countries with weak institutions show the positive effects of corruption on innovation. An empirical analysis for a maximum of 43 countries over the 2003–2005 period shows that corruption can indeed be beneficial. At the maximum level of regulation, public corruption increases private entrepreneurial activity significantly (Dreher, Gassebner, 2013). The East Asian paradox, which is a greasing puzzle with high levels of corruption but very rapid economic growth, is a puzzle treated at the micro-level for Chinese firms (Wang, You, 2012) with empirical evidence that corruption enhances the growth of revenue and boosts innovative activities by Chinese firms. Krammer (2019) explores the micro evidence in emerging countries, providing evidence of the positive effects of petty corruption on developing new products in transition economies. There is other research that shows the negative effect of corruption on innovation and economic growth.

The effect of corruption is a two-way effect as has been stated and justified in the literature. The effect of cor-

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[2] https://www.rbc.ru/economics/20/12/2021/61bc5d059a794770833e7b51, accessed 12.03.2022.

ruption and its intensity is subject to mostly historical, political, and cultural situations in the country. These factors tend to reflect in the results of corruption research, since all political and socioeconomic situations are not the same, it is difficult to come to a single conclusion about corruption. To fight corruption is to work on institutional efficiency and the easing of barriers for startups and minority groups who tend to face the full brunt of harsh regulations.

The Top Echelon as the Creator of Innovation

The basis of the theory of the upper echelon is the study of the qualities of managers and their impact on the company. The upper echelon theory (Hambrick, Mason, 1984) suggests that organizational strategic choices are a function of the composition of an organization's dominant coalition. The compositions of top managers' observable characteristics influence the organizational outcomes through their strategic choices. The burden of the entire firm rests on the shoulders of the top executives. Top managers are people in the firm whose decisions directly lead to the firms engaging in certain behaviors (Hitt, Collins, 2007) that influence corruption and innovation. Leaders, through their personal beliefs and ethics, create an environment that promotes or kills innovation. Truth Social created by Donald Trump is a clear example of a leader's personal beliefs influencing innovation. The approval of the manager is essential for growth and innovation. Corporate management affects innovations by often setting the boundaries of what is acceptable to build and what is not as well as the provision of funding. As such, appealing to corporate management is critical, which makes the role of top managers imperative as the overseers of innovative activities.

Top management creates an environment that promotes employees' awareness of themselves as part of a social community and creates incentives for cooperation, which ultimately positively affects the innovative activity of a company (Langner, Seidel, (2015). On the other hand, excessive control by top management negatively impacts the innovative activity of companies (Hoskisson, Hitt, 1988). External control is negatively affected, but the firm's internal control does not affect R&D (Yin et al., 2019). An innovation-friendly environment is created by managers with greater faith in success and those that do not overestimate the risk of failure. The corporate fraud literature suggests that top managers often are the drivers of firms' engagement in illegal activities (Zahra et al., 2005). Such engagement in illicit activity has been fostered by top managers' desire to cut costs and time. Firms seek to avoid or accelerate approvals via a corrupt payment (Martin et al., 2007). Scholars have shown that the amount of time managers spend dealing with government officials is linked to the extent of corrupt transactions. For top managers to ensure

they meet targets, they often go above and beyond, which can mean engaging in questionable practices.

Institutional Determinants of Innovation

Institutional determinants, in particular cultural heritage, determine the managerial competencies of top managers, who in turn increase the efficiency of firms and their innovative activity (Lau, 2011). Cultural factors and moral values are the institutional environments surrounding top managers as the main agents of firm innovation (Cannella et al., 2009). The ability to innovate at a lower cost is a "lean innovation" that is characteristic of family businesses. At the same time, the ability to carry out innovations at lower costs is preserved in firms with family succession (Carney et al., 2019). Further, family management for the company can lead to higher-level splits, which will lead to less innovation and lower efficiency (Minichilli et al., 2010).

In viewing strategy and in interpreting strategic possibilities, members of the organization's upper echelons inevitably do so through the lens of their personal experiences, values, personalities, and other similar human factors. Because top executives stand at the mercy of the stakeholders, they try to be innovative and use every means necessary to stay relevant on the market. This echoes the relevance of experience and networks of the top management which also influence corruption.

At the same time, the question remains how the experience of managers influence their corruption actions, i.e., the ability to use informal relations with officials for the innovative activity of their firms. We believe that more experienced managers use corrupt ties to minimize barriers to enhance the innovative activity of their firms.

Based on the aforementioned ties between innovation and informal relations, we composed a theoretical research model which describes the links between corruption, manager's experience, and innovation (Figure 2). We consider measurable characteristics, such as years of experience as managers.

Development of Hypotheses
Years of Experience of Top-Level Management

Management plays a vital role in the decision-making, production, development, and continuity of innovative products. The development of any novel product and the role of top-level management (be it top-down or bottom-up approach) are inseparable (Kurniawan et al., 2016). In exploring the role of managers' work experience, ambidexterity, and performance, Mom et al. (2015) indicated that tenure is an antecedent of organizational and functional ambidexterity which in turn significantly predicts managerial behaviors as a result of their ability to shape cognitive processes,

Figure 2. **The Links between Corruption, Manager's Experience, and Innovation**

Source: authors.
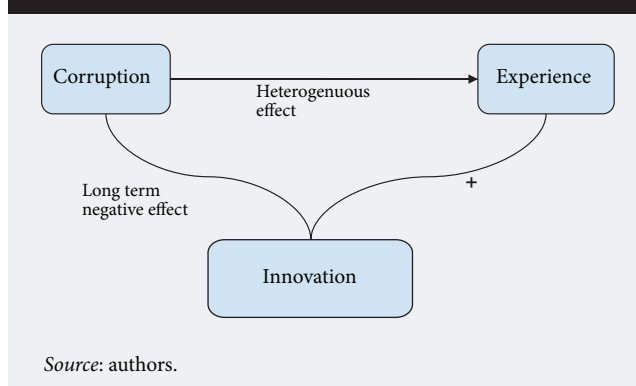
skills, and motivations. Since tenure plays a role in shaping top-level managements' cognitive processes and behavior, it can be deduced that the longer a manager stays in office, the more he or she is accorded the due level of respect and fear (in certain scenarios).

The CEO's experience has a non-linear constraining effect on R&D investment (Yin et al., 2019). However, the experience may be different and the effect it has is also different. Researchers have argued that the age of top managers has a significant impact on their desire to innovate. Researchers have asserted that old managers are risk averse and are content (they have reach their peaks) with their achievements. Older managers have been socialized into accepting prevailing organizational conditions and routines and have greater psychological commitment to them; hence, they will be less willing to commit to changing them. Years of experience cannot directly be linked to the age of the executive manager (Huber et al., 1993). New managers are more likely to adopt new ways of doing things than managers who have been in the position for a very long period of time (Hambrick, Mason, 1984). The administrative processes are well understood by the managers who have been in the position for a long period of time (Kearney et al., 2000).

Such managers create networks for administrative matters (Lau, 2011). Therefore, we believe that with the growth of experience, managerial corruption declines and we formulate the hypothesis:

H1. The years of experience of top managers positively impact innovation activities and negatively impact corruption.

The issue of corruption has been a challenge for centuries and curbing it is of great importance to numerous governments and interest groups. Corruption is known to negatively influence socioeconomic development (Xiao et al., 2018).

With respect to innovative activities, studies by Anokhin and Schulze (2009) reveal the following: (i) corruption (which is also public power or authority abuse) for private benefit gravely affects the scale of

the rewards from entrepreneurship and innovation; (ii) in corrupt environments, agency and transaction costs as well as other consequences of corruption potentially limit the scale and scope of economic activity. The result of corruption, according to literature and empirical evidence, is the stifling of innovation. In developed countries, corruption degrades the quality of institutions and negatively affects the development of startups (Woodside et al., 2016). Poor quality institutions do not stimulate innovation (Fischer, Tello-Gamarra, 2017; Mrad, Bouaziz, 2018).

Corruption is most in-demand in countries with economies in transition, which are characterized by the presence of weak institutions, which provokes increased transaction costs for businesses. In such circumstances, it is more profitable for an entrepreneur to develop a business with a bribe, creating a "new normal business environment" and introduce new innovative products to the market that can overcome bureaucratic obstacles (Krammer, 2019). Thus, corruption in developing countries is seen not as evil, but as "wheel grease" (Barasa, 2018; Riaz, Cantner, 2019), however the long-term effect is negative on the economy.

In Russia, research indicates that the public procurement sector faces issues of corruption due to the anti-corruption focus of the procurement legislation, which deprives governmental officials of the right to make decisions based on technical and economic reasoning (Sirotkina, Pavlovskaya, 2018). Nitsevich et al. (2018) also assert that despite a renewal in Russia, corruption has blossomed due to officials not being able to manage budgetary funds except for state property, numerous other legislative and social institutions. Corruption has therefore managed to create gargantuan distortions in the system of governance and functioning of state institutions. This in turn influences how business is done in the private sector as well. Thus with the above premise, we posit the following hypothesis:

H2. Managers with increased experience and so-called corruption competencies have an effect on innovation.

Data

The Enterprise Surveys (ES) conduct regular firm-level surveys in developing and emerging economies with the main aim of developing reliable and comparable datasets on various aspects of firm behavior and performance in those countries. The Enterprise Surveys (ES) are an ongoing World Bank project in collecting both objective data based on firms' experiences and enterprises' perception of the environment in which they operate. The studies are implemented using firm-level surveys and over the last 10 years have evolved into a mature product that since 2005 uses a standardized methodology of five implementations, sampling, and quality control in most client-countries of the World Bank. The Enterprise Surveys

currently cover over 130,000 firms in 125 countries, of which 107 have been surveyed following the standard methodology.

The data of variables for this research comes from the World Bank's Enterprise Survey 2019.[3] The World Bank interviewed a representative sample of the private sector composed of 4,220 business establishments from November 2018 through March 2020 across all cities in Russia. It covers several topics of the business environment as well as performance measures for each firm. The majority of the firms interviewed were small and medium scale companies. A total of 89.8% of the data is on SMEs in Russia distributed across a broad range of industries in both the manufacturing and service sectors. The World Bank categorizes business sizes as such: small (5–19 employees) and medium-sized (20–99 employees).

Methodology

The logit model is going to be used in estimating the results of the model. This is because the dependent variable is dichotomous, this means it takes the form Y [1, 0]. Using the ordinary least squares (OLS) method does not show the real effect of the model. We need to transform the dichotomous Y into a continuous variable Y' œ $(-\infty, \infty)$, so we need a link function F(Y) that takes a dichotomous Y and gives us a continuous, real-valued Y'. This link is the logit link. With the intention of improving the interpretability of the regression coefficients, we use marginal effects. The marginal effect is a measure of the instantaneous effect that a change in a particular explanatory variable has on the predicted probability of the dependent variable, when the other covariates are kept fixed. The dependent variable is modeled as follows:

$$y = E(y/x) + \varepsilon, \tag{1}$$

where E(y/x) is the conditional mean function, x is the vector of explanatory variables and ε is the error term. The conditional mean function is given by:

$$E(y/x) = F(\beta'x), \tag{2}$$

where F denotes a cumulative distribution function and denotes the parameters. Therefore,

$$Pr\ (y = 1) = F'\ (\beta'x) \tag{3}$$

Marginal effects are obtained by computing the derivative of the conditional mean function with respect to given by:

$$\frac{\delta E(y/x)}{\delta x} = f'(\beta'x)\beta, \tag{4}$$

where f (.) is the density function that corresponds to the cumulative function F(.).

In this study, where all the variables are categorical (mostly binary), we would report the difference between the estimated probability if the variable being equal to 1 and the estimated probability if the variable being equal to 0. The marginal effects are nonlinear functions of the parameter estimates and levels of the explanatory variables. To explain the results, we use the marginal effect estimates.

There are potential endogeneity issues associated with the estimation of the model. First, there might be an omitted variable that affects both a manager's experience and the nature of the firm, including its propensity to innovate. Second, there might be reverse causality between viewing corruption as an obstacle and the propensity to innovate: more innovative firms might view corruption as a bigger obstacle to their business than a less innovative firms. In other words, innovation might prompt various answers to this corruption as an obstacle question rather than the other way around. Given the cross-sectional nature of the dataset, we attempt to mitigate the endogeneity problem through the inclusion of regional fixed effects and control with firm size.

After estimating the first model, we apply the Johnson-Neyman interval to identify where the simple slopes are significant in the context of our interaction model. The Johnson-Neyman interval provides the two values of the moderator at which the slope of the predictor goes from non-significant to significant. This interval informs the formation of dummies of managers' years of experience. With this in mind, we can predict whether the experience of a top manager triggers corruption and how this influences a manager's propensity to innovate.

Dependent Variables

Innovation is the variable of interest for our analysis. In this survey there were four (4) items that addressed the subject of innovation, considering "new" as products, services, processes, practices, and methods that are new to the firm but not necessarily new to the market or other firms. Further, said innovations could have been originally developed by other firms. These prompts asked respondents to indicate (yes or no) about whether they introduced new products or services in the last three years.

The options are:

(i) "Has this establishment introduced new or significantly improved products or services?"

(ii) "Has this establishment introduced any new or significantly improved methods for the production

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or supply of products or services, organizational or management practices or structures?"

(iii) "Provide technology training for staff"

(iv) "Add new features to existing products or services" [4]

Xie et al. (2018) states that there are two kinds of activities that represent the two categories of technological innovation, namely, product and process innovation. Following (Xie et al., 2018; Cuijpers et al., 2011), we use item (i) as the dependent variable. Porter (1983, p. 22) provides a summary of technological innovation: "*Initially product design is fluid, and substantial product variety is present. Product innovation is the dominant mode of innovation and aims primarily at improving product performance. Successive product innovations ultimately yield a 'dominant design' where the optimal product configuration is reached.*"

Independent Variables

Years of experience of an executive manager: The prompt asked respondents "How many years of experience working in this sector does the top manager have?". The response ranges from 0-60 years.

Corruption: This subject is a very sensitive one, therefore questions that relate directly to the firm's possibly corrupt activities were less responded to, but we found a way to assess corruption even though a lot of respondents refused to answer the question. Prompts included the following: "*informal payments to public officials to 'get things done' with regard to customs, taxes, licenses, regulations, services etc. On average, what percentage of total annual sales or estimated total annual value, do establishments like this one pay in informal payments or gifts to public officials for this purpose?*"

There are certain factors that are important in the analysis of firms and innovation, and so we use these factors to control the outcome of the model. The control factors used for this research include firm size, labor regulations, firm age, R&D investment, financial access, and government subsidies. To be able to capture the regional effect, we included the GRP of Russian regions.

Results

The table below (Table 1) shows the results of the control variables' effect on product innovation. The results are in line with the literature, where education, firm size, and investment all demonstrate a higher likelihood of influencing firm innovation, but we see a surprising twist with competition, which is negatively impacts innovation. This can be attributed to a lack of competition. Aghion et al. (2009) state that "competition should have a negative (short-run) "Schumpet-

erian effect" on laggard firms' innovation incentives in unleveled sectors: increased competition reduces the post-innovation rents of laggard firms and thus their incentive to catch up with the leader." This implies that, in an unleveled sector, the leader gets the whole market and earns a monopoly rent. It is plausible that given that the companies analyzed are all SMEs with no active competition, this makes it easier for top companies to monopolize the market.

Firm size is positive but not significant. Regions of Russia show different effects upon innovation as we can see from Table 1, therefore, we cannot draw an earlier conclusion for this. The differences in OLS and the logit estimate are clearly visible as there is an improvement in the results of the estimates.

Table 2 below shows the logit model and its marginal effects, Model 1 comprises the top managers' experience and the control variables. The results show the same results for the control variable and show the positive effect of managers' experience with innovation, with a marginal effect of 0.03, this proves Hypothesis 1. In Model 2 we used the control variables and include managers' experience and corruption, we realized that with the inclusion of the corruption variable, the results remain the same for the managers' experience with corruption having a marginal effect of 0.25 with mild significance level. The interesting twist again is that competition becomes insignificant after the introduction of corruption in Model 2. Corruption always depends on power. This may be market power, for instance, when a purchasing agent for a monopoly over-invoices his transactions and the lack of yardstick comparison disguises his corruption. In Model 2 we also identified the mild effect of corruption upon managers' experience.

In Model 3 we model the interaction between managers' experience and corruption. The results show some form of interaction, this interaction is only negatively significant for corruption but not managers' experience. As the diagram below depicts, the crossing of the lines shows the different kinds (heterogeneous) of interactions that exist between experience and corruption. To highlight the effect, we need further testing like the Johnson-Neyman Interval to help us know at what level of experience does corruption become more effective.

After applying the Johnson-Neyman interval, Table 3 shows that when the years of experience of the top manager increases, the manager's interaction with corruption is significant. The interval shows that when experience is inside the interval [–2.42, 14.15], the slope of corruption is $p < 0.05$. This means the interaction of corruption and manager experience begins even before the manager takes on the leading role. Corruption is evident when the years of experi-

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[4] The full version of the questionnaire contains another two questions that were exempted from the Russian list of interview questions, i.e. questions (v) "Take measures to reduce production cost" and (vi) "Take actions to improve production flexibility".

	Estimations			
Variable	**OLS**	**Logit**	**Marginal Effect**	**Odd Ratio**
Education	0.002* (0.001)	0.013 (0.006)	0.01264	1.01
Investment	0.001* (0.000)	0.007* (0.003)	0.00656	1.01
Competition	–0.054* (0.025)	–0.565* (0.253)	–0.5645	0.57
Firm Size	0.010 (0.022)	0.104 (0.206)	0.104	1.11
Volga	–0.143*** (0.039)	–2.374** (0.743)	–2.374	0.09
Northwest	0.016 (0.038)	0.080 (0.314)	0.08047	1.08
Siberian	–0.044 (0.039)	–0.397 (0.373)	–0.3972	0.67
Ural	–0.080* (0.036)	–0.806* (0.376)	–0.806	0.45
Southern	0.084* (0.039)	0.514. (0.302)	0.5143	1.67
Far Eastern	–0.041 (0.036)	–0.368 (0.341)	–0.3678	0.69
Constant	0.141*** (0.040)	–1.843*** (0.370)	–	0.16
Observation	922	922	–	–
AIC	–	681.3	–	–
R^2 Tjur	–	0.058	–	–
R-Squared	0.05627	–	–	–
F Statistic	5.438*** (df= 10; 912)	–	–	–

Note: *p<0.1; **p<0.05; ***p<0.01.

Summary of fitted Logit regression models: coefficient estimates (with Wald standard errors in parentheses), the number of estimated parameters and log-likelihood. Summary of the average marginal effect of each of the models is also reported.

Source: authors.

ence of the top manager increases. From our analysis, the manager possesses these qualities before taking office as executive manager until the 14th year. This can be attributed to networking, which is inevitable in business. Recent research finds that differences in individual creativity and intelligence matter far less for innovation than connections and networks. This network therefore enforces corruption, the exchange of ideas, and also helps beat the time-consuming bureaucratic processes, which facilitate the innovation process. The immediate effect of corruption is good for the business and the leaders but the long-term effect is negative as the interval shows.

In Table 4, we continue to find that managers' propensity to innovate increases with years of experience. We analyzed top managers from 0-14 and the result shows a negative but insignificant effect of experience on innovation, but analyzing the data from 14 years and above experience shows a strong effect of top managers' experience on innovation and we also see that corruption becomes insignificant with increase in experience. All the models show an increasing effect of managers' propensity to innovate with experience. Managers with less experience are less innovative as compared to managers with many years of experience. This can also be linked directly with networking and corruption as well as the specifics of the process of innovation implementation.

Discussion

The results have shown that managers' propensity to innovate depends on the experiences they acquire along the way and that corruption also plays its part

in helping them outsmart the bureaucratic processes. The characteristics of the manager in the innovation process matters most in achieving the best possible results. Inexperienced managers might have the needed motivation to innovate because they are young and very prepared for the risk, but to be successful, they need to learn through experiences and be able to beat the bureaucratic process especially in developing countries. Innovation is the pillar of every great company; growth cannot occur without implementation of innovative strategies and actions and this process takes a long time. We realized that there is an increasing trend with experience, as the top manager gains more experience, their propensity to innovate also increases. This can be noted by an *increase in confidence* — there is a common saying "Experience is the most efficient teacher of all things." A lot of managers learn on the job before obtaining the needed training which the *Harvard Business Review* refers to as "Trial and error", the job serves as a training ground for the managers of most SMEs. The time spent on the job exposes the leaders to the things which cannot be easily acquired in the classroom, time increases the confidence of the leaders and exposes them to different leaders who can be mentors for them. As they understand the mechanism of their trade, they become more confident in taking the necessary risks. In other words, the confidence of the top manager increases their appetite for growth and thereby increases their risk appetite also. This period also exposes them to the right people and networks which facilitates corruption and increases the speed of the innovation process. Corruption in SMEs especially in Russia is inevitable because of the bureaucratic processes,

Table 2. **Logit Mode and Marginal Effects**

Variable	Model 1			Model 2			Model 3		
	Est.	*Marginal Effect*	*P–value*	*Est.*	*Marginal Effect*	*P–value*	*Est.*	*Marginal Effect*	*P–value*
(Intercept)	−2.34*** (0.42)	–	<0.00	−2.08*** (0.43)	–	<0.001	−2.18*** (0.39)	–	<0.001
Education	0.01* (0.01)	0.01	0.03	0.01* (0.01)	0.02	0.024	0.02* (0.01)	0.02	0.012
Investment	0.01* (0.00)	0.01	0.02	0.01* (0.00)	0.01	0.012	0.01*** (0.00)	0.01	0.001
Competition	−0.58* (0.26)	−0.58	0.02	−0.43 (0.26)	−0.43	0.095	−0.27 (0.25)	−0.27	0.284
Firm Size	0.04 (0.21)	0.03	0.86	0.08 (0.21)	0.08	0.692	0.05 (0.20)	0.05	0.798
Managers Experience	0.04** (0.01)	0.04	0.01	0.04** (0.01)	0.04	0.006	0.01 (0.02)	0.03	0.378
Corruption	–	–	–	−0.25* (0.10)	−0.25	0.012	−0.39* (0.19)	−0.21	0.042
M*C	–	–	–	–	–	–	0.01 (0.01)	0.01	0.173
Regional Fixed Effect	Yes	–	–	Yes	–	–	No	–	–
Observation	923	–	––	923	–	–	923	–	–
BIC	734.40	–	–	734.41	–	–	738.80	–	–
AIC	676.47	–	–	671.65	–	–	700.18	–	–
Pseudo–R² (McFadden)	0.09	–	–	0.09	–	–	0.04	–	–
Pseudo–R² (Cragg–Uhler)	0.12	–	–	0.13	–	–	0.06	–	–
χ²	60.84, p = 0.00	–	–	67.66, p = 0.00	–	–	29.13, p = 0.00	–	–

Note: *p<0.1; **p<0.05; ***p<0.01.

Summary of fitted Logit regression models: coefficient estimates (with Wald standard errors in parentheses), the number of estimated parameters and log–likelihood. Summary of the average marginal effect of each of the models is also reported..
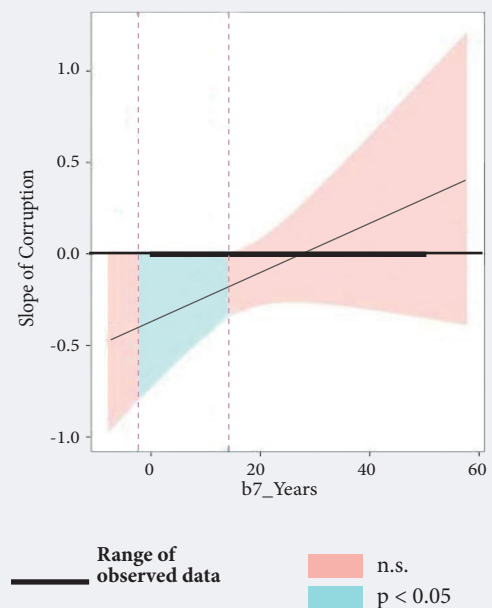
Source: authors.

Figure 3. **Slopes of Corruption**
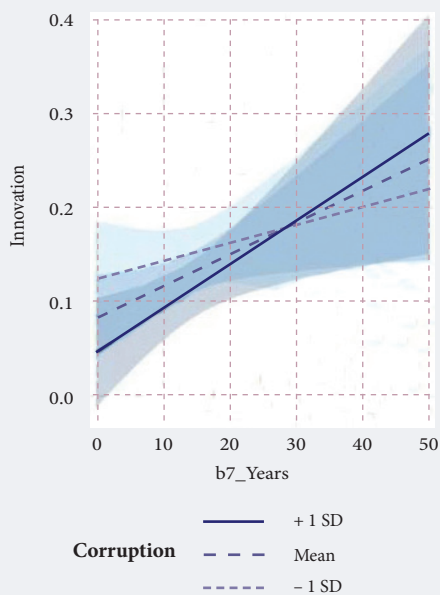
Source: authors.

Figure 4. **Johnson-Neyman Plot**

Source: authors.

Table 3. **Johnson-Neyman Interval and Simple Slopes Analysis**				
Parameter	Est.	S.E.	z val.	p
Slope of Corruption when b7_Years = 5.79233 (– 1 SD)	–0.29	0.14	–2.12	0.03
Slope of Corruption when b7_Years = 13.64139 (Mean)	–0.18	0.09	–2.01	0.04
Slope of Corruption when b7_Years = 21.49044 (+ 1 SD)	–0.08	0.10	–0.79	0.43

Note: When b7_Years is INSIDE the interval [–2.42, 14.15], the Slope of Corruption is p < 0.05. The range of observed values of b7_Years is [0.00, 50.00].

Source: authors.

which are time-consuming, therefore managers find it safer to pay their way through the process.

In order to change the current situation, the implementation of the following measures seems relevant:

1. *Restructuring of institutions to accelerate business processes.* Governments of transitional and emerging economies need institutional changes to meet the growing demands of startups and SMEs. Especially the easing of regulations for minority groups and people with less opportunities to be on the same playing field. An environment must be created that promotes competition and equal opportunities.

2. *Patent application process needs to be shortened.* The long waiting time for patent application

Table 4. **Top-Level Management's Propensity to Innovate**				
	Model 1 (Exp.< 14)	Marginal effect	Model 2 (Exp. ≥ 14)	Marginal effect
Manager Experience	–0.04 (0.04)	–0.03887	0.09*** (0.02)	0.0892
Corruption	–0.32* (0.16)	–0.3211	–0.22 (0.13)	–0.221
Control	Yes	–	Yes	–
Fixed.E (region)	Yes	–	Yes	–
AIC	325.25	–	326.74	–
BIC	379.64	–	379.08	–
Pseudo–R²	0.20	–	0.21	–
χ²	51.86, p = 0.00	–	52.37, p = 0.00	–
Num. obs.	485	–	414	–

Note: *p<0.1; **p<0.05; ***p<0.01.
Summary of fitted Logit regression models: coefficient estimates (with Wald standard errors in parentheses), the number of estimated parameters and log-likelihood, with regional fixed effect and control variables controlled.

Source: authors.

prompts leaders to use dubious means to facilitate the process.

3. *Contactless System.* Using a contactless system in the application process can also ensure a decrease in corruption and reduce bureaucratic processes. Such a system will reduce discrimination and reduce the time it takes businesses to get things done. Digital payments have been proven to reduce corrupt behaviors (Shrivastava, Bhattacherjee, 2015) and increase transparency in financial transactions (Corojan, Criado, 2012). The more cashless the transitioning and emerging economies, the less rampant corruption will be. Digitalization enables financial transparency by improving business record keeping and lowering transaction costs.

Conclusion

This research used the Russian enterprise survey 2019 data from the World Bank to explore top managers' propensity to innovate through experience and corruption. Our study revealed that as experience increases, so does the manager's propensity to innovate. We found that corruption increases with top managers' years of experience as this happens due to the high level of bureaucracy and weak institutions which causes top leaders to lose time and money. So to avoid losing time and money, they adapt to cheating to make the process faster. Osburg's (2018) findings on China back this paper's conclusions: it indicated that elite entrepreneur networks contribute corruption because these business owners are likely to obtain some level of protection which benefits and enhances their business success. The researchers also linked this to certain unwritten rules of bribery and corruption which become the norm for the advancement of circumventing business best practices and laws.

With respect to the theoretical contributions of the study, our findings contribute to the body of knowledge on the factors that influence innovation, particularly within the Russian research context. Also, our study provides practical contributions in the area of implementing a logit model which delivers an improvement in the results of the estimates.

Just like every evolving research field, for the purpose of future studies, we recommend extending this study to CIS (Commonwealth of Independent States), i.e. former Soviet, countries due to the fact that they share similar cultural and business characteristics with Russia.

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