The influence of institutional conditions on firms' process innovation – evidence from firms based on a multi-country analysis

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Abstract

Purpose – Our understanding of the influence of institutional conditions on process innovation is still limited, despite managers' need to know which factors should be considered in decision-making and governments should be aware of how to foster process innovation through the provision of attractive institutions. Therefore, this paper aims to examine how institutional dimensions such as workforce, political instability, labor regulation, corruption, tax administration and transportation influence process innovation in smaller firms located in emerging countries other than the BRICS (Brazil, Russia, India, China and South Africa).

Design/methodology/approach – A data set from the World Bank Enterprise Surveys questioning over 20,000 companies from 41 emerging countries supplemented by the gross domestic product (GDP) per capita for each country was used and analyzed by the means of general linear mixed models. The analysis emphasized small- and medium-sized enterprises (SMEs) and excluded BRICS countries.

Findings – The findings demonstrate which institutional factors matter for process innovation depending on company size and GDP.

Research limitations/implications – This paper advances research on the influence of institutions on firm innovation – the institution–process innovation relationship in emerging countries other than the BRICS in particular. By considering the role of company size and GDP per capita on the institution–process innovation relationship, the paper offers more nuanced insights compared with prior studies and thus makes a strong contribution to the innovation theory. The data used are not suitable for a longitudinal study the same refers to capturing the variety found in the countries even those coming from the same geographic area.

Practical implications – The results provide practitioners, e.g. managers of SMEs, with concrete ideas on how to improve process innovation in their companies. Other actors such as policymakers too can benefit from the results as they will allow the design of more target group-oriented measures, aspects that can ultimately lead to more sustainable businesses.

Originality/value – By focusing on process innovation and emerging countries, the paper contributes to growing research efforts in emerging countries beyond the BRICS. Thus, the results add more diversity to the

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study of process innovation and its influencing external (institutional) factors. The emphasis on SMEs also allows us to highlight differences between different categories of SMEs.

Keywords Process innovation, Innovation, Institutions, Emerging countries, Multi-country analysis, Small and medium-sized enterprises

Paper type Research paper

1. Introduction

The entry of large foreign firms, highly competitive and fierce environments and also recent developments such as COVID-19 or the invasion of Ukraine are just a few examples that put pressure on all companies. Companies in emerging countries may suffer even more from this pressure as they do not have the means and support found in more advanced countries (Heirati and O'Cass, 2016; Aldairany *et al.*, 2018; Durst *et al.*, 2021). Having an even stronger focus on innovation is considered a solution to address these challenges (Wenzel *et al.*, 2020; Clauss *et al.*, 2022); it can also contribute to improved business performance which is, in turn, translated into enhanced competitiveness in these countries (Forsman and Temel, 2011; Singh and Gaur, 2018). In addition, a focus on innovation can strengthen the prosperity of countries as a whole (Vivarelli, 2014; Ferreira and Dionísio, 2016); consequently, the study of innovation and specifically how it is practiced has increased in emerging countries too (Njoroge *et al.*, 2020; Zhang *et al.*, 2019). In contrast to companies based in advanced countries, companies in emerging countries have to operate in environments that are characterized by institutions that are underdeveloped and constrain the companies' capacity for innovation and which vary with a country's level of development (Smallbone *et al.*, 2022). Research suggests that institutional dimensions affect the activities of organizations from emerging countries in particular (Zhu *et al.*, 2011; Yao *et al.*, 2019; Stone *et al.*, 2020). Thus, when there are stable and efficiently working institutions, the risks associated with innovation can be reduced (Slesman *et al.*, 2021; Smallbone *et al.*, 2022) and firms will independently develop the capabilities that are necessary for innovation (Rodríguez *et al.*, 2022). The role played by the provision of a general infrastructure that is provided by governmental institutions is largely underexplored (Smallbone *et al.*, 2022).

As regards the type of innovation being studied, research has shown a tendency to focus on product innovation (Hervas-Oliver *et al.*, 2016; Hinteregger *et al.*, 2019; Ramadani *et al.*, 2019) or to still equate innovation with product innovation (Munir and Beh, 2020). A review of the relevant literature suggests that the study of process innovation is underdeveloped, even though research has suggested that this type of innovation – which addresses the specific need of companies for continuously improve extant processes and structures to make sure that their scarce resources are used in the best possible way (Zhao, 2005) – is relevant for remaining competitive (Chang-Muñoz *et al.*, 2022). Research on factors promoting process innovation has so far focused mostly on internal organizational factors. On the organizational level, aspects such as organizational structure or customer focus are discussed [see Leyer *et al.* (2017) for an overview] or the level of employees in form of employee-driven innovation is targeted (Opland *et al.*, 2022). The consequences of the pandemic have shown in particular the need for process innovation to keep operations going (Durst *et al.*, 2021).

This paper aims to examine how institutional dimensions influence process innovation, defined as "a new or significantly improved production or delivery method including significant changes in techniques, equipment and/or software" [Organisation for Economic Co-operation and Development (OECD), 2005, p. 49] of firms from emerging countries. More precisely, this paper investigates the impact a selection of institutional factors, namely,

workforce, political instability, labor regulation, corruption, tax administration and transportation, have on process innovation in 41 emerging countries, excluding the BRICS countries (i.e. Brazil, Russia, India, China and South Africa) to avoid a one-sided understanding of the situation (Meyer, 2015). The following research questions are considered:

RQ1. What is the impact of institutional factors, i.e. workforce, political instability, labor regulation, corruption, tax administration and transportation, on process innovation in emerging countries?

RQ2. How do company size and gross domestic product (GDP) per capita influence the link between institutional factors and process innovation?

This paper acknowledges the role of company size; smaller firms are more constrained not only when it comes to innovation capacity but also regarding the impact of institutions on their activities in general (Ramadani *et al.*, 2019). General linear mixed models are carried out on a data set from the World Bank Enterprise Surveys supplemented by GDP per capita to answer the questions posed.

The main theoretical contributions of this paper to innovation literature are as follows. First, this paper sheds light on the institution–process innovation relationship in emerging countries, which has only received limited attention so far. Thus, this paper advances research that examines the influence of institutions on firm innovation, for example, studies such as Heredia Pérez *et al.*(2019), Ramadani *et al.* (2019) or Yao *et al.*(2019), which is important for understanding better the level of development in countries and thus companies. Second, unlike other studies that focused on all types of innovation (Heredia Pérez *et al.*, 2019) or product innovation only (Feldens *et al.*, 2012; Ramadani *et al.*, 2019), our research focuses solely on process innovation in emerging countries, and thus makes an important contribution to research into the different types of innovation, as each type requires different skills and approaches, and the factors, here institutional ones, that influence them. Third, this paper acknowledges the role of company size and GDP per capita on the institution–process innovation relationship. Thus, we clearly underline the meaning of context, e.g. smaller SMEs (small and medium-sized enterprises) are more influenced by institutions than larger SMEs. The same refers to a country's state of development which also impacts the operations of SMEs. Hence, there is a strong need to take the context into account in the design of future studies. The paper's results should also be relevant for decision-makers of smaller firms and/or other stakeholders collaborating with them, as they can be used as a strong argument for developing and implementing more concrete strategies and packages of measures related to process innovation.

The paper is organized as follows. Section 2 provides the study's theoretical background and the hypotheses proposed. Section 3 outlines the method used. Results are presented in Section 4, followed by a discussion in Section 5. Section 6 concludes the paper.

2. Theoretical background

2.1 Process innovation

Process innovation is a necessary task for organizations as customer needs, technologies or sales channels are changing constantly (Piening and Salge, 2015). While this change is inevitable and normal, continuous adaption is required, which however leads to the necessity of major adaptions from time to time (Naveh, 2005). Delivering products and services effectively and efficiently in terms of time, cost and quality require constant adaptation to upcoming customer requirements and opportunities from new technologies

(Tang *et al.*, 2013). In this regard, process innovation describes the introduction of a substantially different way of executing operations (Yang *et al.*, 2015). It is distinct from product innovation which is focused on introducing new products, e.g. new materials, new features or new designs (Keupp *et al.*, 2012). The processes of a company contain the knowledge and ability of an organization on how the products, whether a tangible thing or a service, are produced and delivered to the customers of a firm (Bitici *et al.*, 2011; Segatto *et al.*, 2013). Innovating such operations refers to distinct ways of executing, not simply some minor changes which are subject to continuous improvement. Hence, process innovation addresses the ability of an organization to generate, adapt and implement new or radically changed processes within an organization (Pierce and Delbecq, 1977).

Implementing process innovations within an organization must take several factors into account. Employees have to be willing and to be able to adapt to the new routines, thus also being well trained in this regard (Anderson *et al.*, 2014). Processes have to be in line with legal regulations, which include being compliant with value-added taxes to optimize tax payment (Fatz *et al.*, 2019). In addition, processes are connected in their execution to other companies, i.e. they include logistics in terms of being optimized with receiving resources on time and being able to deliver without having too much stock (Schniederjans Dara, 2018). The discussion makes clear that successful process innovation in companies not only depends significantly on the internal environment of the company but also strongly on the external environment, of which institutions, in particular, stand out – the focus of this study, which leads us to the next section.

2.2 Institution-based view

In strategic management, there are three leading perspectives, which are as follows:

(1) industry-based view;

(2) resource-based view; and

(3) institution-based view (Peng *et al.*, 2009).

The institution-based view focuses on the dynamic interaction between institutions and organizations (Peng *et al.*, 2009), and, in contrast to the other two mentioned perspectives, the institution-based view considers histories and contexts in particular (Scott, 2013). North (1991) defined institutions as "humanly devised constraints that structure political, economic, and social interaction" (p. 97). In addition to such constraints, other scholars in the field of institutional theory stressed the enabling character of institutions (Meyer and Rowan, 1977). Institutions and their actions provide organizations the scope for developing strategies suitable for the opportunities emerging the action offer. They are the "rules of the game" by setting formal and informal constraints for companies to make their strategic choices (Peng *et al.*, 2009).

Institutions can be viewed as resources that influence the development of firm-specific resources and thus the likelihood of success of different entrepreneurial paths taken. On the other hand, institutions influence the transaction costs entrepreneurs will have to pay for using the market (Jackson and Deeg, 2008), underlining, in turn, the risk associated with entrepreneurial activities in general and across countries in particular. Urbano and Alvarez (2014) put it as follows, "the institutional environment defines, creates and limits entrepreneurial opportunities, and thus affects entrepreneurial activity rates" (p. 704). Consequently, different institutional environments will foster different innovation activities. This means for the firms concerned that their organizational strategies, actions and outputs must conform to institutional rules imposed by the given institutional framework

(Lu *et al.*, 2008). In the case of emerging countries, the institution-based view has been considered a suitable perspective in helping to explain firm behavior (Hoskisson *et al.*, 2000; Peng *et al.*, 2009). Manimala and Wasdani (2015) proposed a list of characteristics for identifying emerging countries which have underdeveloped institutions, unclear and inconsistent policies, inadequate governance, disjointed infrastructure, limited funding options, inhibiting culture, personalized networks, ill-founded and ambivalent education systems and, finally, reluctant internationalization and which clearly underline the central role of institutional dimensions and thus its relevance for studying innovation activities in these countries.

2.3 Institutional conditions

Governments have the power to enact and enforce laws; thus, they have a serious effect on how firms operate and what opportunities are there to grow. Bennet (2012) stresses three main dimensions to the government role which are the government as a regulator, the government as an economic agent and the government as a strategic planner and promotor. To play out these dimensions, governments can use a broad range of measures to stimulate innovation and entrepreneurial activities in both private and public organizations (Trott, 2017). In comparison to advanced countries, governments in developing countries play a more active role (Lu *et al.*, 2008; Cavusgil *et al.*, 2013). Thus, the institutional conditions found in a geographical environment will not only influence the activities of organizations but also restrain them, which in turn calls for continued research to show the impact of these conditions (Ramadani *et al.*, 2019).

Even though several institution-based dimensions are considered barriers to innovation or entrepreneurial activity (refer to the World Bank Enterprise Surveys for a list of these barriers), in this paper, we decided to select the indicators of workforce, political instability, corruption, labor regulation and tax administration because of their relevance found in the literature (Fernandes *et al.*, 2013; Manimala and Wasdani, 2015; Rodríguez *et al.*, 2022). For example, Moyano-Fuentes *et al.* (2018) focus on external but market-related factors such as the number of competitors or customers on process innovation but do not find any influence. Schøtt and Jensen (2016) analyze the influence of general institutional support in the context of networking to increase process innovation but do not find a significant role. Similarly, Zhang *et al.* (2017) provide evidence from the manufacturing industry in China that indicates, however, a positive effect of general institutional support on companies' process innovation. Using a data set from the World Bank Enterprise Survey database, Goel and Nelson (2018) include corruption, bribery, level of taxation, tax administration and license permits as influencing factors with a very small amount of 135 observations from 115 countries. Their findings indicate a negative effect of corruption, but no effect on taxation.

In the following subsections, the different dimensions are presented. There, the research hypotheses will be proposed as well.

2.4 Hypotheses and research model

Figure 1 depicts the research model for which the deduction of hypotheses will be explained in the subsequent sections.

2.4.1 Workforce. The availability of and access to an adequately educated workforce is critical for organizations in all countries to compete successfully nationally as well as internationally (Cavusgil *et al.*, 2013). In the OECD Innovation Strategy 2015, it was reported that, on average across countries, roughly one-third of workers report a mismatch between their existing skills and those required for their job (OECD, 2015). Thus, the workers concerned are either over- or under-skilled. This mismatch can represent a barrier to the

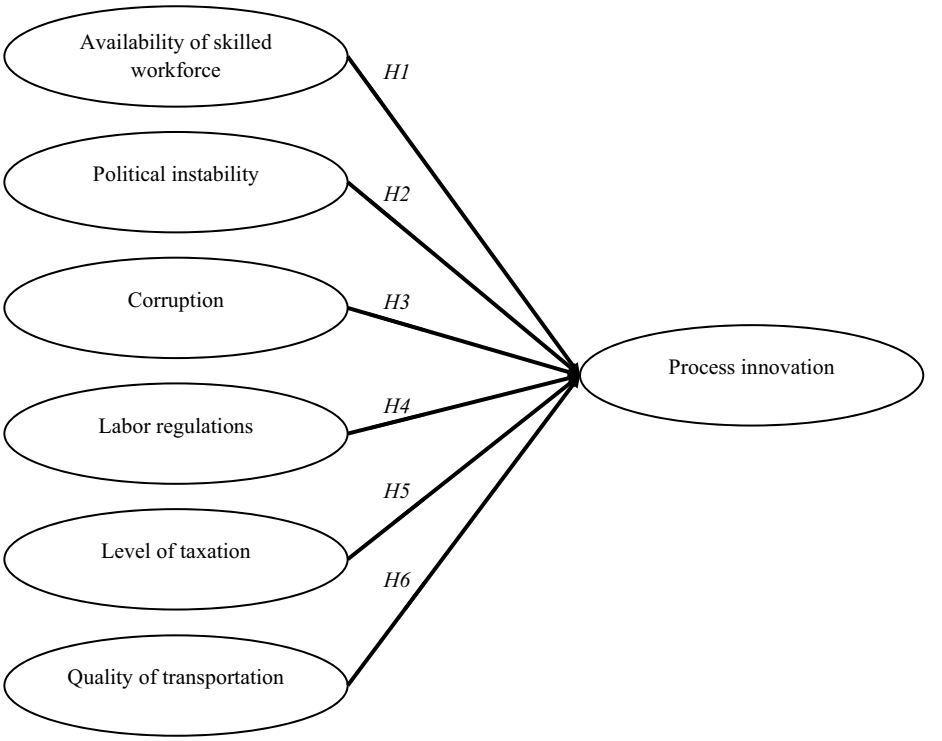

Figure 1.
Research model

growth of (innovative) firms. On the other hand, it also highlights the need for improved skill development and measures that allow for better use of extant resources (Hinteregger *et al.*, 2019).

Although education boosts the economic prosperity of countries and improves peace and security, progressive digitalization means additional pressure on companies and their need for having access to an educated workforce to address the challenges that come along with it (Kraus *et al.*, 2022). A recent McKinsey report from 2017 sees higher labor demand at all educational levels in emerging countries (Manyika *et al.*, 2017). The OECD (2015a) reported that it is predicted that the absolute amount of job growth is highest for occupations with a secondary education diploma. In comparison with advanced economies, emerging ones have a favorable ratio of the workforce from young to older people. The report further states that women's participation in the working world in general and science should also be encouraged by the governments to foster talent and skills for innovation. In addition to education and stronger women participation, less restrictive immigration and visa policies can initiate the inflow of skilled workforce.

An educated workforce is needed to make possible the delivery of sophisticated products or services through innovation (Williams *et al.*, 2017). Research has found a positive link between the skilled workforce and innovation (Fernandes *et al.*, 2013); thus, companies in emerging countries should invest in the continued training of their staff to be in a position to undertake more elaborate innovations. This situation may also reduce the competition with unregistered firms (informal sector) many registered companies are exposed to in emerging

countries and which influences the latter's innovation efforts (Heredia Pérez *et al.*, 2018). Against the above, the following hypothesis is posed:

H1. The availability of a skilled workforce increases process innovation in companies from emerging countries.

2.4.2 Political instability. Political instability is a risk that is often discussed in the context of emerging countries in the literature (Melo, 2016). It is argued that the absence of a stable and reliable government increases the cost and risks of doing business and makes it more difficult to predict business conditions over time (Cavusgil *et al.*, 2014). Consequently, political instability is likely to discourage companies from investing in innovation as a missing favorable long (er)-term perspective does not match with the uncertainty that is usually associated with innovation, and thus, firms would need to assume a further uncertainty factor. Research, for example, the one by Allard *et al.* (2012), has shown that a stable, predictable political climate is needed for increasing a society's ability to develop social networks that are necessary for developing and exploiting technological know-how. However, the findings by Cumming *et al.* (2016), who studied the impact of the interaction between political instability and loans on innovation investment in China, indicate that the cost of political instability on innovation is significantly less severe among entrepreneurs who have political connections to party leaders and provide a nice example of how companies in countries with weaker institutions arrange themselves. Political instability has also been found to influence attracting foreign direct investments, which is often key to innovativeness in organizations (Shumetie and Watabaji, 2019). Nadeem *et al.* (2020) found that the short- and long-run impacts of aid, political instability and terrorism in Pakistan harmed innovation.

Against the background of the importance of this institutional dimension for the innovation activity of companies in emerging countries, the following hypothesis is formulated:

H2. Political instability reduces process innovation in companies from emerging countries.

2.4.3 Corruption. Corruption is the abuse of power to achieve illegitimate personal gain. It is associated with political instability, which in turn discourages inward investments as well as the development of a reliable business environment (Cavusgil *et al.*, 2014). Svensson (2005, p. 20) views corruption as an outcome – one that is a "reflection of a country's legal, economic, cultural and political institutions." Corruption has been found in many administrative procedures in emerging countries in particular as civil servants use it as a way to supplement their low salaries (Rodríguez *et al.*, 2022). The World Bank Group declared in December 2013 that corruption is the number one public enemy in developing countries. And despite the anti-corruption activities undertaken, developing countries continue to score poorly for corruption if one considers the Corruption Perception Index 2017 produced by Transparency International.

There is also a consensus in the literature that bribery has negative effects on countries (Anokhin and Schulze, 2009; Krammer, 2017). For example, Aidis *et al.* (2012) listed three ways to highlight the detrimental impact of corruption on entrepreneurial entry. It can:

- discourage potential entrepreneurs who are unwilling to engage in corrupt behavior from ever starting a business;
- encourage unproductive and destructive forms of entrepreneurship; and

- prevent businesses from growing because the entrepreneurs wish to avoid expropriation by corrupt officials.

Avnimelech *et al.* (2014), using a data set of entrepreneurial activity within 176 countries, showed that a similar incremental increase in the level of corruption is likely to decrease entrepreneurship in developed countries by twice (or more) as much relative to non-developed countries. Aidis *et al.* (2012) in their study also showed that freedom from corruption has a positive and significant impact on entrepreneurial entry. Chowdhury *et al.*'s (2018) findings, using a sample of emerging international start-ups, suggest that corruption plays a "greasing" role when indirect taxes are high, and a "sanding" role when documenting requirements for export, cost of export and corporate tax are high. Notwithstanding the findings listed before, research on the link between corruption and innovation is comparatively underdeveloped (Karaman Kabadurmus and Sylwester, 2022).

Against the above, the following hypothesis is posed:

H3. High levels of corruption decrease process innovation in companies from emerging countries.

2.4.4 Labor regulation. Labor regulations address those areas of law covering the relationship between employers and employees and between employers and trade unions. Aspects such as minimum wages, laws inhibiting layoffs, severance requirements and measurable regulatory burdens on hiring, hours, etc. are concerned. Government policies and social engineering influence work incentives and the labor market. As a significant employer, governments impact local and national pay bargaining, the role of trade unions and employment conditions (Bennet, 2012). Additionally, government and legal rules determine conditions at work. Acharya *et al.* (2013) investigated whether labor laws affect the extent of innovation in an economy. Using patents issued by the US Patent and Trademark Office to the US and foreign firms and citations as proxies for innovation, these authors found that stringent labor laws can motivate firms and their employees to pursue value-enhancing innovation activities; this seems to hold particularly for the more innovation-intensive sectors.

Inflexible labor regulations, however, can also negatively affect the productivity of firms and the ability of people to find work. Consequently, the type of labor regulation found in a specific country impacts the costs of working in markets (Jackson and Deeg, 2008). Too strict regulations may also lead to the situation that registered companies can no longer compete with unregistered companies (Heredia Pérez *et al.*, 2018) as the latter possesses cost advantages and higher flexibility compared with the former (Williams and Martinez-Perez, 2014). The LEGATUM Prosperity Index 2018, for example, has shown that executives in Latin America and the Caribbean are highly critical of existing labor market regulations. The easy recruitment of qualified staff has been found essential for continued learning and innovation in companies (Ramadani *et al.*, 2019), while Feldens *et al.* (2012) have shown in their study that a lack of skilled staff impedes innovation.

Against the above, the following hypothesis is posed:

H4. Stricter labor regulations lead to less process innovation in companies from emerging countries.

2.4.5 Tax administration. A fundamental purpose of tax policies is to raise revenues to support governmental actions and measures (Di John, 2010). Tax policies have been found to be a beneficial tool for governments to promote and stimulate innovation (Liu *et al.*, 2011).

Zhu *et al.* (2011), for example, showed that approximately 95% of the interviewed SMEs from China complained that the value-added tax (VAT) system demotivates innovation because VAT is based on production. Burdensome tax administration delays business activities in general and companies' willingness to invest in innovation in particular (Goel and Nelson, 2018). In this regard, Mukherjee *et al.* (2017) examined how firms respond to tax increases and could show that it negatively influences the entire innovation process from research and development to filling patents and the development of new products. Zheng and Zhang (2021) studied the effect of tax reduction on innovation in a Chinese setting and found a significant promotion effect of tax reduction with an inverse-U shape. Moreover, these authors showed that the promotion effect is larger in the service industry. The perception of too high a tax burden may also lay the foundation for an informal economy (Cavusgil *et al.*, 2013). Thus, dissuasive taxation, including tax administration, should be avoided by governments.

Therefore, governments need to be very sensitive when designing taxation to set a tax rate that is high enough to allow continued investment in education, health, infrastructure, etc., but not too high that it is no longer profitable for companies to invest in innovation and thus business development. Thus, the following hypothesis is posed:

H5. The level of taxation influences process innovation in companies from emerging countries.

2.4.6 Transportation. A good physical infrastructure is important to handle the internal and external business operations of companies. Thus, if this is missing economic activity and growth is restricted, governments in developing countries are working on adequate infrastructure to reduce (even overcome) this barrier. For example, Ademe and Watabaji (2019) have shown the link between access to infrastructure and the innovativeness of Ethiopian enterprises. Transportation represents one mode to analyze the quality of infrastructure. The term covers the means of transportation and the support services associated with transportation activities (Cavusgil *et al.*, 2013). The quality of transportation allows organizations to easily connect with other companies for joint value creation or customers, hence building an operating and efficient regional network (Schøtt and Jensen, 2016). Despite digital advances in sharing information in such regional networks or more distant supply chains (Kache and Seuring, 2017), personal exchange and especially the need to bring physical goods from a to b which are part of many supply chains is necessary and supported by a high quality of transportation. The pandemic has underlined the importance of well-functioning transportation for emerging countries in particular (Durst *et al.*, 2021). Moreover, transportation is also necessary to allow employees to commute easily, thus enhancing the radius for companies to seek adequate personnel.

Against the above, the following hypothesis is posed:

H6. The quality of transportation influences process innovation in companies from emerging countries.

3. Method and procedure

3.1 Data set

We gathered data using the database from the World Bank Enterprise Surveys (www.enterprisesurveys.org/), which allowed the integration of a multitude of countries with a sufficient amount of company data regarding the variables of interest. This choice is similar to Goel and Nelson (2018) who had a related focus to the present study. Our data set covers

data on the company level from 41 countries with a minimum number of 138 and a maximum of 4,220 observations (i.e. companies) per country. We selected the maximum possible that is contained in the database, and only removed entries with missing data points for the variables of interest. Respondents were representatives of the companies listed in World Bank Enterprise Surveys. The observations in the data set stem from the years 2013 or 2014, depending on data updates because the survey data is not available in each year for each country. Both years marked a point in time where there was a maximum of data available for several companies in a consistent timeframe. The selection of a relatively old data set is rooted in the idea to have consistent data from a large number of countries from similar points in time. We believe that despite the relatively old data, the mechanisms remain similar as fundamental changes in societies and systems are quite slow despite fast-occurring topics such as COVID-19.

Despite the focus on developing countries, they are quite diverse in terms of their economic development, which is likely to be an important covariate for the relationships analyzed. As a result, we considered the GDP per capita for each country. We researched the GDP per capita for each country by using public data provided by the World Bank (https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?view=map) and the OECD (https://data.oecd.org/gdp/gross-domestic-product-gdp.htm). Both databases represent official and validated data but have gaps for specific countries and thus are combined in the analysis to cover the GDP for all countries. The selected year for GDP values per capita was 2014, which reflects the GDP in the country when the questionnaire data was gathered. Because it can be argued that the effects of the established process innovations will be seen one year later, thus by an increased GDP, we also included the data from 2015 as a robustness analysis.

Thus, the gathered data set covers a broad sample of companies from heterogeneous countries showing a high variety of GDP values. Table 1 provides an overview of the distribution of observations per country and the relative percentage of observations in the data set.

3.2 Measures

The measures follow the data format and availability of the chosen data set because we did not gather the data ourselves. Nevertheless, the choices made by World Bank Enterprise Surveys reflect standards of measuring variables allowing for statistical analysis. The dependent variable is measured on a nominal scale (1 and 2) on which the respondents indicate whether they are conducting process innovation or not over the past three years. As the focus of the present study is on small and medium-sized companies, the range of products and services offered by these firms can be assumed as limited. The same refers to their possibilities for innovating the underlying processes. Since process innovation means greater changes for the companies than continuous improvements and thus also a higher effort (Leyer *et al.*, 2021). Considering that we were interested in organizations that can execute process innovation in general, means that the focus was not on the extent of process innovations but on whether process innovation occurs or not.

The independent variables are measured on a scale from 0 to 4 (No obstacle, minor obstacle, moderate obstacle, major obstacle, very severe obstacle) representing the typical five-point Likert scale that can be treated metric. The questions are as follows according to the Enterprise survey:

(1) To what degree is an inadequately educated workforce an obstacle to the current operations of this establishment?

Country	Absolute number of companies	(%)
Albania	360	1.6
Armenia	360	1.7
Azerbaijan	390	1.7
Belarus	360	1.6
Bosnia-Herzegovina	360	1.6
Bulgaria	293	1.3
Croatia	360	1.6
Cyprus	360	1.6
Czech Republic	254	1.1
Djibouti	266	1.1
Egypt	2.897	12.5
Estonia	273	1.2
Georgia	360	1.6
Greece	323	1.4
Hungary	310	1.3
Israel	483	2.1
Jordan	573	2.5
Kazakhstan	600	2.6
Kosovo	202	0.9
Kyrgyzstan	270	1.2
Latvia	336	1.50
Lebanon	561	2.4
Lithuania	270	1.2
Macedonia	360	1.6
Moldova	360	1.6
Mongolia	360	1.6
Montenegro	150	0.6
Morocco	407	1.8
Poland	542	2.3
Romania	540	2.3
Russia	4.220	18.2
Serbia	360	1.6
Slovak Republic	268	1.2
Slovenia	270	1.2
Tajikistan	359	1.6
Tunisia	592	2.6
Turkey	1.344	5.8
Ukraine	1.002	4.3
Uzbekistan	390	1.7
West Bank and Gaza	434	1.9
Yemen	353	1.5
Total	20.065	100.0

Table 1. Distribution of observations per country in the data set

(2) To what degree is political instability an obstacle to the current operations of this establishment?

(3) To what degree are labor regulations an obstacle to the current operations of this establishment?

(4) To what degree is corruption an obstacle to the current operations of this establishment?

(5) To what degree is tax administration an obstacle to the current operations of this establishment?

(6) To what degree is transportation an obstacle to the current operations of this establishment?

Finally, it was controlled for company size (micro: 1–5 employees; small: 6–19 employees; medium: 20–99 employees; large: >100) as well as for the GDP country group. GDP country groups were built by splitting the sample into quartiles (lowest, medium-low, medium-high and highest). The robustness analysis with the data from 2015 shows the same results in terms of grouping so no further analysis was necessary.

3.3 Statistical analyses

Given the nature of the data (nominal data as a dependent variable and nested data), the hypotheses were tested using general linear mixed models. Compared to a probit model only, the general linear mixed model applied in this analysis contains a probit analysis and allows for the consideration of the data on the company level nested in countries. The analyses consider the GDP country group only as well as in combination with company size as grouping variables to address the nested data structure. The quality criteria of the model showed an overall classification accuracy of 79.8%. The information criteria values of Akaike (corrected) with 94,735.1 and Bayes with 94,743.001 are close to the 2-log-likelihood value of 94,733.1.

4. Results

Table 2 provides an overview of the mean values regarding the independent variables and dependent variables per country.

Table 3 contains the correlations between all variables in the model. Although the independent variables are correlated with each other, there is no high correlation detected when testing for multicollinearity as the variance inflation factors are below five (Hair *et al.*, 2011).

The results regarding companies having GDP country group as a grouping variable are depicted in Table 4.

The results show that the existence of political instability and labor regulations does not influence process innovation taking place in companies. However, the existence of high taxation, corruption, an inadequately educated workforce and poor transportation hurts process innovation, i.e. less process innovation is conducted by organizations under such conditions. Thus, *H1*, *H3*, *H5* and *H6* were confirmed but *H2* and *H4* were rejected. The overall variance explained in terms of predicting the dependent variable correctly is 79.8%.

Looking at the company size (Figure 2), it becomes evident that more process innovation activities take place among small and medium-sized companies compared with micro and large companies. Figure 2 illustrates that relationship. Hence, small companies would benefit particularly from favorable conditions concerning the selected institutional dimensions followed by medium-sized organizations. Micro companies seem to be too small for a particular emphasis on process innovation; it is rather likely that there is no process innovation in the micro firms, and thus they would be less affected by unfavorable conditions (c.f., Hinteregger *et al.*, 2019). As regards large companies, their size and thus impact on regions and entire countries may make them less prone to unfavorable conditions (Krasniqi and Branch, 2018).

Further, a post hoc analysis of the model for companies in each GDP country group separately was conducted. The results are depicted in Table 5.

The comparison of results on the company level according to GDP country groups shows that workforce (*H1*) and transportation (*H6*) influence process innovation activities

Country	Availability of skilled workforce	Political instability	Corruption	Labor regulations	Level of taxation	Quality of transportation	Process innovation
Albania	1.08	0.89	1.13	0.26	0.58	0.41	1.95
Armenia	1.45	1.24	0.84	0.31	0.51	0.82	1.94
Azerbaijan	0.43	0.06	0.26	0.02	0.06	0.22	1.97
Belarus	0.52	0.76	0.68	0.50	1.27	0.64	1.63
Bosnia-Herzegovina	1.16	1.97	1.57	0.61	0.66	0.62	1.75
Bulgaria	0.75	1.52	1.25	0.78	0.74	0.39	1.83
Croatia	1.43	1.12	1.15	1.03	0.56	0.44	1.69
Cyprus	0.56	1.38	0.79	0.23	0.64	0.84	1.86
Czech Republic	1.62	1.57	1.21	1.19	1.37	1.36	1.65
Djibouti	1.33	1.17	1.74	0.91	1.28	1.08	1.70
Egypt	1.13	3.11	2.43	0.93	0.84	1.02	1.84
Estonia	0.52	0.61	0.38	0.49	0.56	0.56	1.80
Georgia	0.38	1.70	0.24	0.11	0.47	0.41	1.90
Greece	2.79	3.36	2.59	1.87	1.46	1.61	1.64
Hungary	1.20	0.98	0.62	0.79	0.63	0.51	1.80
Israel	0.40	0.64	0.28	0.60	1.28	0.47	1.89
Jordan	1.28	1.32	1.39	1.06	0.94	0.74	1.79
Kazakhstan	0.70	0.46	1.16	0.34	1.08	0.91	1.86
Kosovo	1.75	1.88	2.29	0.40	1.15	1.19	1.59
Kyrgyzstan	1.01	3.13	2.44	0.25	1.58	0.95	1.73
Latvia	0.59	1.13	0.73	0.40	1.32	0.74	1.88
Lebanon	0.92	3.48	2.77	0.54	0.64	0.94	1.66
Lithuania	1.29	1.46	1.21	0.81	1.82	0.88	1.79
Macedonia	0.80	1.31	0.89	0.43	0.63	0.52	1.78
Moldova	0.71	1.49	1.50	0.47	1.51	0.88	1.69
Mongolia	0.93	1.19	0.99	0.49	1.25	0.95	1.66
Montenegro	0.79	0.38	0.43	0.36	0.35	0.44	1.91
Morocco	1.30	1.22	2.01	0.77	1.48	1.20	1.70
Poland	1.57	1.10	0.92	1.11	0.85	0.78	1.78
Romania	2.29	2.17	2.07	1.20	1.77	1.04	1.63
Russia	0.96	1.30	1.37	0.56	1.33	1.09	1.76
Serbia	1.43	1.76	1.14	0.78	0.74	0.47	1.79
Slovak Republic	1.20	1.16	1.22	1.04	1.17	1.03	1.86
Slovenia	1.33	1.75	0.87	1.21	0.52	0.51	1.89
Tajikistan	1.42	1.49	1.06	0.26	0.78	0.85	1.87
Tunisia	1.01	2.46	1.81	0.59	1.67	0.54	1.75
Turkey	0.87	1.08	0.88	0.55	0.79	0.70	1.88
Ukraine	1.05	1.75	1.85	0.44	0.61	0.75	1.87
Uzbekistan	0.18	0.18	0.15	0.06	0.26	0.18	1.98
West Bank and Gaza	1.65	2.92	2.10	0.93	0.77	1.52	1.82
Yemen	2.04	3.52	3.55	1.10	1.72	1.75	1.69

Table 2.
Mean values of variables reported by companies grouped per country

independent of the level of GDP per capita. These results are in line with the overall sample observation. Political instability is a hindering factor for companies situated in countries with a low GDP while corruption is not an issue. Corruption is rather relevant in higher GDP per capita countries. Thus, differences in *H2* and *H3* could be observed depending on low or high GDP per capita. The results regarding *H4* appear to be relevant for the extreme groups

Institutional dimensions	Availability of skilled workforce	Political instability	Corruption	Labor regulations	Level of taxation	Quality of transportation	Process innovation
Availability of skilled workforce	–	0.189***	0.271***	0.326***	0.220***	0.265***	−0.146***
Political instability		–	0.296***	0.249***	0.271***	0.197***	−0.083***
Corruption			–	0.300***	0.359***	0.265***	−0.105***
Labor regulations				–	0.369***	0.239***	−0.096***
Level of taxation					–	0.257***	−0.096***
Quality of transportation						–	−0.124***
Process innovation							–

Notes: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table 3.
Pearson correlations between variables in the model

Items	*t*	Coefficient	Significance
H1: Workforce	−13.483	−0.197	0.000
H2: Political instability	−1.582	−0.024	0.114
H3: Corruption	−4.164	−0.064	0.000
H4: Labor regulation	−1.302	−0.024	0.193
H5: Tax administration	−4.478	−0.074	0.000
H6: Transport	−8.158	−0.122	0.000
Company size large	−0.12	−0.001	0.991
Company size medium	2.667	0.302	0.008
Company size small	4.878	0.546	0.000
Company size micro			

Table 4.
Results regarding the research model

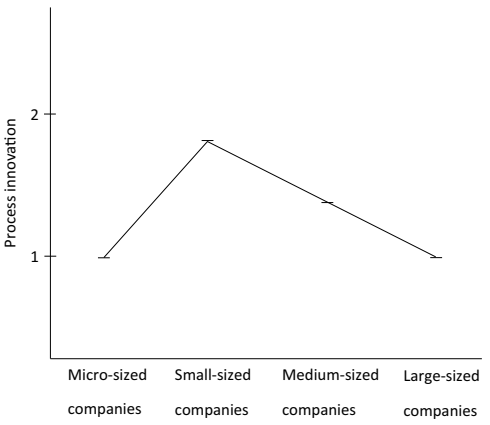

Figure 2.
Process innovation grouped by company size

(i.e. lowest and highest), but not for countries in the two middle groups. Eventually, *H5* is relevant for companies in all countries except the group with the highest GDP per capita values.

5. Discussion

The results show that four of the six hypotheses are confirmed (Table 6).

As regards workforce (*H1*), and in line with earlier research (Fernandes *et al.*, 2013; Kache and Seuring, 2017; Williams *et al.*, 2017), this study supports the role of a skilled workforce for process innovation in smaller organizations, underlining not only the need for continued investments in training and further education but also systematic recruitment.

Even though the existence of political stability (*H2*) has been viewed as a precondition for innovation (Allard and Holsapple, 2002; Shumetie and Watabaji, 2019), the results of this study show that companies located in countries exposed to political instability seem to ignore this factor and continue with their businesses nevertheless, thus also with their process innovation efforts. This situation might be explained by a higher number of necessity-based entrepreneurship found in less developed and more unstable economies compared with opportunity-based entrepreneurship more often found in stable economies (Amorós *et al.*, 2019); thus, these entrepreneurs have no other choice than to continue with their operations regardless of the political situation in the respective country. On the other hand, this obstacle may also release creative potential otherwise not available. Thus, our finding implies that political instability is not bad *per se*.

The present study confirms that corruption impedes process innovation in organizations (Goel and Nelson, 2018). The impact of corruption (*H3*) on companies operating in higher GDP countries, found in this study, may fit the explanation offered by Karaman Kabadurmus and Sylwester (2022) who argue that in more competitive environments, corruption can help organizations to get around costly regulations.

Hypotheses	GDP_lowest	GDP_low	GDP_high	GDP_highest
H1: Workforce	−0.171***	−0.200***	−0.211***	−0.168***
H2: Political instability	−0.075*	−0.070*	−0.008	0.041
H3: Corruption	−0.048	−0.033	−0.088**	−0.076*
H4: Labor regulation	0.096*	−0.014	−0.021	−0.156**
H5: Tax administration	−0.083*	−0.083**	−0.092**	−0.008
H6: Transport	−0.103**	−0.151***	−0.104***	−0.113**

Notes: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table 5. Results regarding the research model separated into GDP country group

Hypothesis	Result
H1: Workforce	✓
H2: Political instability	×
H3: Corruption	✓
H4: Labor regulation	×
H5: Tax administration	✓
H6: Transport	✓

Notes: ✓ = confirmed; × = rejected

Table 6. Summary of hypotheses tests

As regards labor regulations (*H4*), the missing statistical relevance might be explained by the situation that process innovation and labor regulations are not directly linked, i.e. the latter is not needed in the organizations – particularly the smaller the company is – for doing or not doing process innovation because it is the entrepreneur or the top management who is usually in charge of initiating innovative activities in the organization regardless of the type of innovation (Barczak *et al.*, 2009). An additional reason for this missing relevance could be that the majority of companies covered in the sample are not subject to labor regulations or they apply only to a limited extent to them.

Regarding taxation (*H5*), the study's result appears to be in line with the one by Mukherjee *et al.* (2017), showing that the taxation of companies requires the utmost care not to harm innovation in companies and thus the entire country. Our results are contrary to the study of Goel and Nelson (2018) as these authors did not find an effect, but also did not provide any further explanation why this effect was not observed. We believe that our results provide more reliable and robust evidence as the data set we used is quite larger than the one reported by Goel and Nelson (2018).

The results obtained suggest that the effect of taxation is quite similar to that of corruption; both factors have a significant negative impact on process innovation.

Finally, the study also confirmed the relevance of well-functioning transportation (*H6*) for process innovation in companies regardless of the country's level of development (in the present case, GDP per capita) and thus is in line with previous research (Kache and Seuring, 2017). The pandemic as well as the invasion of Ukraine and the related consequences for transport have highlighted how important this function is not only for businesses but for the resilience of national economies; consequently, this result can be considered immensely important against the background of the data set used.

5.1 Theoretical implications

First, the presented results demonstrate the role provided by formal institutions to establish a favorable structural environment to foster innovation in organizations. More precisely, this paper contributes to the literature on innovation and emerging countries and specifically to recent research streams that are interested in studying the relationship between institutions and innovation, i.e. the institution–process innovation relationship (Heredia Pérez *et al.*, 2019; Ramadani *et al.*, 2019; Yao *et al.*, 2019) by showing which factors – for which governmental institutions in emerging countries other than the BRICS are responsible for – have a positive impact on process innovation. As such, the work by Zhang *et al.* (2017) is extended who found a general but not specified positive impact of institutional support for China. The presented results are another indication that we need to question the generalizability of results from BRICS countries, especially those from China. Research has to acknowledge the impact of a country's level of development (Slesman *et al.*, 2021; Smallbone *et al.*, 2022), a circumstance that this study has taken into account. The paper's results show the (non)-relevancy of specific aspects of institutional support based on a variety of companies located in different emerging countries. The results are stable among different GDP-country groups. Moreover, the present paper extends prior work by offering a more detailed and broad cross-country analysis on the question of why certain emerging countries excel compared with others (Goel and Nelson, 2018).

Second, as this study focuses solely on process innovation, it provides novel empirical insight into selected institutional dimensions that influence this type of innovation. Thus, it enriches research that tends to have focused on all types of innovation or primarily product innovation. The results contribute to an improved understanding of the effect of governmental policies on process innovation in smaller companies. The factors analyzed are

relevant for different governmental institutions and levels as the conditions covered in this study are not always provided by the central institution but often by regional institutions/bodies. For each country, it can be analyzed on which level which aspect is provided, and policy implications for the relevant institutions can be deducted to improve the provision of the necessary institutional support aimed at strengthening process innovation in smaller organizations.

This study also considered the size of the company and its impact on the institution–process innovation relationship, aspects that have been neglected respectively and not addressed in prior research. The findings indicate that this differentiation is essential for an improved understanding of the influence of institutional conditions on innovation in general and on process innovation in particular. The effect of the presented research model is significant for the bigger smaller companies as they are conducting more process innovation compared to the smaller ones (Durst *et al.*, 2021). Given that smaller firms are more dependent on institutional dimensions than the bigger ones as the former tend to operate regionally, having insight into the nuances between institutional dimensions and firm size (or different types of SMEs) is crucial for executing better research, which in turn can provide more impactful recommendations and solutions. By comparing the selected institutional dimensions with the four different GDP country groups, the findings join the call by Meyer (2015) that there is a need for considering the context in research. Consequently, this is further clear proof that one should be cautious about generalizing results that have been generated in other settings.

Eventually, the results stress the importance of a general well-functioning infrastructure for companies; one that allows connections of the company to the surrounding, other companies, workforce and institutions; and a decisive moment in turbulent times, e.g. in crises.

5.2 Practical implications

The results of this study should also be interesting for practitioners and society in general. The findings suggest, for example, that policymakers need to be aware of the institution–process innovation relationship in organizations and that the effect is likely to vary depending on company size and GDP. Against this background, government institutions can use the results to identify which institutional factors need to be specifically improved to increase the value creation of companies in the respective country. Although process innovation cannot be demanded and may need to be subsidized, our results suggest that a focus on improving institutional conditions can contribute to higher levels of process innovation in companies. Such process innovations best take place in independently operating companies, as the decision-makers of these firms should know best what would improve or advance their position in the respective markets. The different effects found for the selected institutional dimensions depending on the GDP country group a country belongs to demonstrate that universal approaches will not have uniform effects but may have even detrimental effects on the companies. Policymakers should be aware of it and avoid copying best practices from other institutional contexts when drafting new policies.

The owners or managers (decision-makers) of smaller firms in emerging countries can develop more informed process innovation strategies as they are based on improved insights into the relationship between the institutional dimensions found in the country and process innovation. Available resources can be better allocated to more meaningful and promising activities. Additionally, the decision-makers can use the results to conduct lobbyism for the factors that are found to be important. While lobbyism is an investment, achieving improvements among these factors in political institutions is expected to have a

major influence on the firms' prosperity. For this, companies have to identify in which institution decisions are made to improve the significant factors and try to foster their establishment. Considering the scarce resources many smaller firms are exposed to, the firms are also invited to form alliances with other small companies and relevant stakeholders to make their voices louder and by doing so increase visibility in their respective countries. Moreover, SMEs trying to expand into different countries or regions should be aware of the factors identified and their possible impact on their process innovation activities on-site. This calls for investments in the training of the workforce in this regard so that possible steps already include this knowledge. The findings could also be relevant for SMEs in developing countries, as their activities are also affected by the institutions, even if these institutions are comparatively differently developed, and thus the actual weighting and thus effect of each dimension are likely to vary. Finally, society would also benefit from better interactions of the different institutions and actors, on the one hand, and improved use of the defined resources and competencies, on the other hand, which in turn could have a positive impact on the sustainable business development of small enterprises.

6. Conclusion

The present research is the first, to the best of the authors' knowledge, in analyzing the impact of institutional factors on process innovation using a large data set across different emerging countries and companies, including these differences in the analysis. The results show that four out of six factors are relevant and that small and medium-sized companies are more affected by the factors. We discussed especially the results that were contrary to their assumptions and deducted theoretical and practical implications. Overall, this study could show that institutional factors matter for process innovation and should not be underestimated for the development of companies as well as the countries in which they are based.

However, as with any research, some limitations have to be considered when interpreting the implications of the results. First, the analysis relies on single items for measuring the variables. Examples from different contexts indicate that single-item scales can be as accurate as multi-item scales (Bergkvist and Rossiter, 2007) and objective measures (Chen *et al.*, 2011). Single-item measures were used because the data set was not obtained by us and thus cannot be repeated with the variety of countries and depth of company analyses. Future research or extensions of the survey could use more fine-grained measures of the variables being analyzed to determine whether the presented results are robust when extending the scales. Moreover, one must consider that emerging countries are dynamic, which means that changes in the institutional environment are likely to happen. Our data, however, did not qualify for a longitudinal study. Heterogeneity is another issue that should be taken into consideration; emerging countries vary even with their historical development when they are in the same geographic area.

This paper highlights the importance of selected institutional dimensions on process innovation in SMEs. Given the risks associated with innovation, a better understanding of this institution–process innovation relationship is important for both the sustainable development of SMEs and society. Based on the results, improved conditions and measures can be discussed and executed and stakeholders can reflect on the role of institutions and their purpose for developing and maintaining strong SMEs and thus societies which should lead to more value for all stakeholders.

References

Ademe, A. and Watabaji, M. (2019), "Effect of corruption and political instability on enterprises' innovativeness in Ethiopia: pooled data based", *Journal of Innovation and Entrepreneurship*, Vol. 8, pp. 1-19, doi: 10.1186/s13731-019-0107-x.

Acharya, V.V., Baghai, R.P. and Subramanian, K.V. (2013), "Labor laws and innovation", *The Journal of Law and Economics*, Vol. 56 No. 4, pp. 997-1037, doi: 10.1086/674106.

Aidis, R., Estrin, S. and Mickiewicz, T.M. (2012), "Size matters: entrepreneurial entry and government", *Small Business Economics*, Vol. 39 No. 1, pp. 119-139, doi: 10.1007/s11187-010-9299-y.

Aldairany, S., Omar, R. and Quoquab, F. (2018), "Systematic review: entrepreneurship in conflict and post conflict", *Journal of Entrepreneurship in Emerging Economies*, Vol. 10 No. 2, pp. 361-383, doi: 10.1108/JEEE-06-2017-0042.

Allard, S. and Holsapple, C.W. (2002), "Knowledge management as a key for e-business competitiveness. From the knowledge chain to KM audits", *Journal of Computer Information Systems*, Vol. 42 No. 5, pp. 19-25, doi: 10.1080/08874417.2002.11647606.

Allard, G., Martinez, C.A. and Williams, C. (2012), "Political instability, pro-business market reforms and their impacts on national systems of innovation", *Research Policy*, Vol. 41 No. 3, pp. 638-651, doi: 10.1016/j.respol.2011.12.005.

Amorós, J.E., Ciravegna, L., Mandakovic, V. and Stenholm, P. (2019), "Necessity or opportunity? The effects of state fragility and economic development on entrepreneurial efforts", *Entrepreneurship Theory and Practice*, Vol. 43 No. 4, pp. 725-750, doi: 10.1177/1042258717736857.

Anderson, N.R., Potocnik, K. and Zhou, J. (2014), "Innovation and creativity in organizations. A state-of-the-science review, prospective commentary, and guiding framework", *Journal of Management*, Vol. 40 No. 5, pp. 1297-1333, doi: 10.1177/0149206314527128.

Anokhin, S. and Schulze, W.S. (2009), "Entrepreneurship, innovation, and corruption", *Journal of Business Venturing*, Vol. 24 No. 5, pp. 465-476, doi: 10.1016/j.jbusvent.2008.06.001.

Avnimelech, G., Zelekha, Y. and Sharabi, E. (2014), "The effect of corruption on entrepreneurship in developed vs non-developed countries", *International Journal of Entrepreneurial Behavior and Research*, Vol. 20 No. 3, pp. 237-262, doi: 10.1108/IJEBR-10-2012-0121.

Barczak, G., Griffin, A. and Kahn, K.B. (2009), "PERSPECTIVE: trends and drivers of success in NPD practices: results of the 2003 PDMA best practices study", *Journal of Product Innovation Management*, Vol. 26 No. 1, pp. 3-23, doi: 10.1111/j.1540-5885.2009.00331.x.

Bennet, R.J. (2012), "Government and small business", in Carter, S. and Jones-Evans, D. (Eds), *Enterprise and Small Business*, Pearson, New York, NY.

Bergkvist, L.I. and Rossiter, J. (2007), "The predictive validity of multiple-item versus single-item measures of the same constructs", *Journal of Marketing Research*, Vol. 44 No. 2, pp. 175-184, doi: 10.1509/jmkr.44.2.175.

Bitici, U.S., Ackermann, F., Ates, A., Davies, J., Garengo, P., Gibb, S., MacBryde, J., Mackay, D., Maguire, C., van der Meer, R., Shafti, F., Bourne, M. and Firat, S.U. (2011), "Managerial processes. Business process that sustain performance", *International Journal of Operations and Production Management*, Vol. 31 No. 8, pp. 851-887, doi: 10.1108/01443571111153076.

Cavusgil, S.T., Ghauri, P.N. and Akcal, A.A. (2013), *Doing Business in Emerging Markets*, Sage, London.

Cavusgil, S.T., Knight, G. and Riesenberger, J.R. (2014), "International business", *The New Realities*, Pearson, New York, NY.

Chang-Muñoz, E., Mercado-Caruso, N., Gazabon, D.O., Segarra-Oña, M. and Osorio, S.N. (2022), "Product or process innovation? The dilemma for exporting SMEs in emerging economies: the case of the colombian caribbean", *Procedia Computer Science*, Vol. 198, pp. 620-625, doi: 10.1016/j.procs.2021.12.296.

Chen, S., Epps, J. and Chen, F. (2011), "A comparison of four methods for cognitive load measurement", in Stevenson, D. (Ed.), *Proceedings of the 23rd Australian Computer-Human Interaction Conference*, ACM, New York, NY, pp. 76-79.

Chowdhury, F., Audretsch, D.B. and Belitski, M. (2018), "Institutions and entrepreneurship quality", *Entrepreneurship Theory and Practice*, Vol. 43 No. 1, pp. 51-81, doi: 10.1177/1042258718780431.

Clauss, T., Breier, M., Kraus, S., Durst, S. and Mahto, R.V. (2022), "Temporary business model innovation – SMEs' innovation response to the covid-19 crisis", *R&D Management*, Vol. 52 No. 2, pp. 294-312, doi: 10.1111/radm.12498.

Cumming, D., Rui, O. and Wu, Y. (2016), "Political instability, access to private debt, and innovation investment in China", *Emerging Markets Review*, Vol. 29, pp. 68-81, doi: 10.1016/j.ememar.2016.08.013.

Di John, J. (2010), "Taxation, resource mobilization, and state performance", Crisis States Research Centre, Working paper No. 84, November 2010, available at: www.lse.ac.uk/international-development/Assets/Documents/PDFs/csrc-working-papers-phase-two/wp84.2-taxation-resource-mobilisation-and-state-performance.pdf

Durst, S., Palacios Acuache, M.M.G. and Bruns, G. (2021), "Peruvian small and medium-sized enterprises and COVID-19: time for a new start!", *Journal of Entrepreneurship in Emerging Economies*, Vol. 13 No. 4, pp. 648-672, doi: 10.1108/JEEE-06-2020-0201.

Fatz, F., Hake, P. and Fettke, P. (2019), "Towards tax compliance by design: a decentralized validation of tax processes using blockchain technology", *IEEE 21st Conference on Business Informatics (CBI)*, 15-17 July 2019, pp. 559-568.

Feldens, M., Maccari, E. and Garcez, M. (2012), "Barriers for production innovation in small and medium technology-based firms in Brazil", *Brazilian Business Review*, Vol. 9 No. 3, pp. 1-22, doi: 10.15728/bbr.2012.9.3.1.

Fernandes, C.I., Ferreira, J.J.M. and Raposo, M.L. (2013), "Drivers to firm innovation and their effects on performance: an international comparison", *International Entrepreneurship and Management Journal*, Vol. 9 No. 4, pp. 557-580, doi: 10.1007/s11365-013-0263-6.

Ferreira, P.J.S. and Dionísio, A.T.M. (2016), "What are the conditions for good innovation results? A fuzzy-set approach for european union", *Journal of Business Research*, Vol. 69 No. 11, pp. 5396-5400, doi: 10.1016/j.jbusres.2016.04.144.

Forsman, H. and Temel, S. (2011), "Innovation and business performance in small enterprises. An enterprise-level analysis", *International Journal of Innovation Management*, Vol. 15 No. 3, pp. 641-665, doi: 10.1142/s1363919611003258.

Goel, R.K. and Nelson, M.A. (2018), "Determinants of process innovation introductions: evidence from 115 developing countries", *Managerial and Decision Economics*, Vol. 39 No. 5, pp. 515-525, doi: 10.1002/mde.2922.

Hair, J.F., Ringle, C.M. and Sarstedt, M. (2011), "PLS-SEM: indeed a silver bullet", *Journal of Marketing Theory and Practice*, Vol. 19 No. 2, pp. 139-152, doi: 10.2753/MTP1069-6679190202.

Heirati, N. and O'Cass, A. (2016), "Supporting new product commercialization through managerial social ties and market knowledge development in an emerging economy", *Asia Pacific Journal of Management*, Vol. 33 No. 2, pp. 411-433, doi: 10.1007/s10490-015-9437-9.

Heredia Pérez, J.A., Geldes, C., Kunc, M.H. and Flores, A. (2019), "New approach to the innovation process in emerging economies: the manufacturing sector case in Chile and Peru", *Technovation*, Vol. 79, pp. 35-55, doi: 10.1016/j.technovation.2018.02.012.

Heredia Pérez, J.A., Kunc, M.H., Durst, S., Flores, A. and Geldes, C. (2018), "Impact of competition from unregistered firms on R&D investment by industrial sectors in emerging economies", *Technological Forecasting and Social Change*, Vol. 133, pp. 179-189, doi: 10.1016/j.techfore.2018.03.028.

Hervas-Oliver, J-L., Boronat-Moll, C. and Sempere-Ripoll, F. (2016), "On process innovation capabilities in SMEs: a taxonomy of process-oriented innovative SMEs", *Journal of Small Business Management*, Vol. 54 No. 51, pp. 113-134.

Hinteregger, C., Durst, S., Temel, S. and Yesilay, R.B. (2019), "The impact of openness on innovation in SMEs", *International Journal of Innovation Management*, Vol. 23 No. 1, p. 1950003, doi: 10.1142/s1363919619500038.

Hoskisson, R.E., Eden, L., Lau, C.M. and Wright, M. (2000), "Strategy in emerging economies", *Academy of Management Journal*, Vol. 43 No. 3, pp. 249-267, doi: 10.5465/1556394.

Jackson, G. and Deeg, R. (2008), "Comparing capitalisms: understanding institutional diversity and its implications for international business", *Journal of International Business Studies*, Vol. 39 No. 4, pp. 540-561, doi: 10.1057/palgrave.jibs.8400375.

Kache, F. and Seuring, S. (2017), "Challenges and opportunities of digital information at the intersection of big data analytics and supply chain management", *International Journal of Operations and Production Management*, Vol. 37 No. 1, pp. 10-36, doi: 10.1108/ijopm-02-2015-0078.

Karaman Kabadurmus, F.N. and Sylwester, K. (2022), "Corruption and innovation: the importance of competition", *International Journal of Emerging Markets*, Vol. 17 No. 3, pp. 766-788, doi: 10.1108/IJOEM-08-2019-0658.

Keupp, M.M., Palmié, M. and Gassmann, O. (2012), "The strategic management of innovation. A systematic review and paths for future research", *International Journal of Management Reviews*, Vol. 14 No. 4, pp. 367-390, doi: 10.1111/j.1468-2370.2011.00321.x.

Krammer, S.M.S. (2017), "Greasing the wheels of change: Bribery, institutions, and new product introductions in emerging markets", *Journal of Management*, Vol. 45 No. 5, pp. 1889-1926, doi: 10.1177/0149206317736588.

Krasniqi, B. and Branch, D. (2018), "Institutions and firm growth in a transitional and post-conflict economy of Kosovo", *Journal of Entrepreneurship in Emerging Economies*, Vol. 12, doi: 10.1108/JEEE-05-2017-0034.

Kraus, S., Durst, S., Ferreira, J.J., Veiga, P., Kailer, N. and Weinmann, A. (2022), "Digital transformation in business and management research: an overview of the current status quo", *International Journal of Information Management*, Vol. 63, p. 102466, doi: 10.1016/j.ijinfomgt.2021.102466.

Leyer, M., Hirzel, A.-K. and Moormann, J. (2021), "It's mine, I decide what to change. The role of psychological ownership in employees' process innovation behaviour", *International Journal of Innovation Management*, Vol. 25 No. 1, p. 2150013, doi: 10.1142/s1363919621500134.

Leyer, M., Stumpf-Wollersheim, J. and Pisani, F. (2017), "The influence of process-oriented organizational design on operational performance and innovation", *International Journal of Production Research*, Vol. 55 No. 18, pp. 5259-5270, doi: 10.1080/00207543.2017.1304667.

Liu, F.C., Simon, D.F., Sun, Y.T. and Cao, C. (2011), "China's innovation policies: evolution, institutional structure, and trajectory", *Research Policy*, Vol. 40 No. 7, pp. 917-931, doi: 10.1016/j.respol.2011.05.005.

Lu, Y., Tsang, E.W.K. and Peng, M.W. (2008), "Knowledge management and innovation strategy in the asia pacific: toward an institution-based view", *Asia Pacific Journal of Management*, Vol. 25 No. 3, pp. 361-374, doi: 10.1007/s10490-008-9100-9.

Manimala, M.J. and Wasdani, K.P. (2015), "Emerging economies: muddling through to development", in Manimala, M.J. and Wasdani, K.P. (Eds), *Entrepreneurial Ecosystem. Perspectives from Emerging Economies*, Springer, New Delhi.

Manyika, J., Lund, S., Chui, M., Bughin, J., Woetzel, J., Batra, P., Ko, R. and Sanghvi, S. (2017), "Jobs lost, jobs gained", *Workforce Transitions in a Time of Automation*, McKinsey.

Melo, M.A. (2016), "Latin america's new turbulence: crisis and integrity in Brazil", *Journal of Democracy*, Vol. 27 No. 2, pp. 50-65, doi: 10.1353/jod.2016.0019.

Meyer, K.E. (2015), "Context in management research in emerging economies", *Management and Organization Review*, Vol. 11, pp. 369-377, doi: 10.1017/mor.2015.36.

Meyer, J.W. and Rowan, B. (1977), "Institutionalized organizations: formal structure as myth and ceremony", *American Journal of Sociology*, Vol. 83 No. 2, pp. 340-363, doi: 10.1086/226550.

Moyano-Fuentes, J., Maqueira-Marín, J.M. and Bruque-Cámara, S. (2018), "Process innovation and environmental sustainability engagement: an application on technological firms", *Journal of Cleaner Production*, Vol. 171, pp. 844-856, doi: 10.1016/j.jclepro.2017.10.067.

Mukherjee, A., Singh, M. and Žaldokas, A. (2017), "Do corporate taxes hinder innovation?", *Journal of Financial Economics*, Vol. 124 No. 1, pp. 195-221, doi: 10.1016/j.jfineco.2017.01.004.

Munir, R. and Beh, L.-S. (2020), "Measuring and enhancing organisational creative climate, knowledge sharing, and innovative work behavior in startups development", *The Bottom Line*, Vol. 32 No. 4, pp. 269-289, doi: 10.1108/BL-03-2019-0076.

Nadeem, M.A., Liu, Z., Ali, H.S., Younis, A., Bilal, M. and Xu, Y. (2020), "Innovation and sustainable development: does aid and political instability impede innovation?", *SAGE Open*, Vol. 10 No. 4, p. 2158244020973021, doi: 10.1177/2158244020973021.

Naveh, E. (2005), "The effect of integrated product development on efficiency and innovation", *International Journal of Production Research*, Vol. 43 No. 13, pp. 2789-2808, doi: 10.1080/00207540500031873.

Njoroge, M., Anderson, W. and Mbura, O. (2020), "Innovation strategy and economic sustainability in the hospitality industry", *The Bottom Line*, Vol. 32 No. 4, pp. 253-268, doi: 10.1108/BL-03-2019-0080.

North, D.C. (1991), "Institutions", *Journal of Economic Perspectives*, Vol. 5 No. 1, pp. 97-112, doi: 10.1257/jep.5.1.97.

OECD (2005), "Oslo manual: guidelines for collecting and interpreting innovation data", *OECD and Eurostat*, 3 ed.

OECD (2015), "OECD innovation strategy 2015", *An Agenda for Policy Action*, OECD, Paris.

Opland, L.E., Pappas, I.O., Engesmo, J. and Jaccheri, L. (2022), "Employee-driven digital innovation: a systematic review and a research agenda", *Journal of Business Research*, Vol. 143, pp. 255-271, doi: 10.1016/j.jbusres.2022.01.038.

Peng, M.W., Sun, S.L., Pinkham, B. and Chen, H. (2009), "The institution-based view as a third leg for a strategy tripod", *Academy of Management Perspectives*, Vol. 23 No. 3, pp. 63-81, doi: 10.5465/amp.2009.43479264.

Piening, E.P. and Salge, T.O. (2015), "Unterstanding the antecedents, contingencies, and performance implications of process innovation. A dynamic capabilities perspective", *Journal of Product Innovation Management*, Vol. 32 No. 1, pp. 80-97, doi: 10.1111/jpim.12225.

Pierce, J.L. and Delbecq, A.L. (1977), "Organization structure, individual attitudes and innovation", *Academy of Management Review*, Vol. 2 No. 1, pp. 27-37, doi: 10.5465/AMR.1977.4409154.

Ramadani, V., Hisrich, R.D., Abazi-Alili, H., Dana, L.-P., Panthi, L. and Abazi-Bexheti, L. (2019), "Product innovation and firm performance in transition economies: a multi-stage estimation approach", *Technological Forecasting and Social Change*, Vol. 140, pp. 271-280, doi: 10.1016/j.techfore.2018.12.010.

Rodríguez, A., Hernández, V. and Nieto, M.J. (2022), "International and domestic external knowledge in the innovation performance of firms from transition economies: the role of institutions", *Technological Forecasting and Social Change*, Vol. 176, p. 121442, doi: 10.1016/j.techfore.2021.121442.

Schniederjans Dara, G. (2018), "Business process innovation on quality and supply chains", *Business Process Management Journal*, Vol. 24 No. 3, pp. 635-651, doi: 10.1108/BPMJ-04-2016-0088.

Schøtt, T. and Jensen, K.W. (2016), "Firms' innovation benefiting from networking and institutional support: a global analysis of national and firm effects", *Research Policy*, Vol. 45 No. 6, pp. 1233-1246, doi: 10.1016/j.respol.2016.03.006.

Scott, W.R. (2013), "Institutions and organizations", *Ideas, Interests and Identities*, Thousand Oaks, Sage.

Segatto, M., de Pádua, S.I.D. and Martinelli, D.P. (2013), "Business process management. A systemic approach?", *Business Process Management Journal*, Vol. 19 No. 4, pp. 698-714, doi: 10.1108/BPMJ-Jun-2012-0064.

Shumetie, A. and Watabaji, M.D. (2019), "Effect of corruption and political instability on enterprises' innovativeness in Ethiopia: pooled data based", *Journal of Innovation and Entrepreneurship*, Vol. 8 No. 1, doi: 10.1186/s13731-019-0107-x.

Singh, S.K. and Gaur, S.S. (2018), "Entrepreneurship and innovation management in emerging economies", *Management Decision*, Vol. 56 No. 1, pp. 2-5, doi: 10.1108/MD-11-2017-1131.

Slesman, L., Abubakar, Y.A. and Mitra, J. (2021), "Foreign direct investment and entrepreneurship: does the role of institutions matter?", *International Business Review*, Vol. 30 No. 4, p. 101774, doi: 10.1016/j.ibusrev.2020.101774.

Smallbone, D., Saridakis, G. and Abubakar, Y.A. (2022), "Internationalisation as a stimulus for SME innovation in developing economies: comparing SMEs in factor-driven and efficiency-driven economies", *Journal of Business Research*, Vol. 144, pp. 1305-1319, doi: 10.1016/j.jbusres.2022.01.045.

Stone, M., Machtynger, J., Machtynger, L. and Aravopoulou, E. (2020), "The making of information nations", *The Bottom Line*, Vol. 33 No. 1, pp. 12-26, doi: 10.1108/BL-09-2019-0110.

Svensson, J. (2005), "Eight questions about corruption", *Journal of Economic Perspectives*, Vol. 19 No. 3, pp. 19-42, doi: 10.1257/089533005774357860.

Tang, J., Pee, L.G. and Iijima, J. (2013), "Investigating the effects of business process orientation on organizational innovation performance", *Information and Management*, Vol. 50 No. 8, pp. 650-660, doi: 10.1016/j.im.2013.07.002.

Trott, P. (2017), *Innovation Management and New Product Development*, Pearson, Harlow.

Urbano, D. and Alvarez, C. (2014), "Institutional dimensions and entrepreneurial activity: an international study", *Small Business Economics*, Vol. 42 No. 4, pp. 703-716, doi: 10.1007/s11187-013-9523-7.

Vivarelli, M. (2014), "Innovation, employment and skills in advanced and developing countries: a survey of economic literature", *Journal of Economic Issues*, Vol. 48 No. 1, pp. 123-154, doi: 10.2753/JEI0021-3624480106.

Wenzel, M., Stanske, S. and Lieberman, M.B. (2020), "Strategic responses to crisis", *Strategic Management Journal*, Vol. 42 No. 2, pp. O16-O27, doi: 10.1002/smj.3161.

Williams, C.C. and Martinez-Perez, A. (2014), "Why do consumers purchase goods and services in the informal economy?", *Journal of Business Research*, Vol. 67 No. 5, pp. 802-806, doi: 10.1016/j.jbusres.2013.11.048.

Williams, C.C., Martinez–Perez, A. and Kedir, A.M. (2017), "Informal entrepreneurship in developing economies: the impacts of starting up unregistered on firm performance", *Entrepreneurship Theory and Practice*, Vol. 41 No. 5, pp. 773-799, doi: 10.1111/etap.12238.

Yang, Z., Zhou, X. and Zhang, P. (2015), "Discipline versus passion: collectivism, centralization, and ambidextrous innovation", *Asia Pacific Journal of Management*, Vol. 32 No. 3, pp. 745-769, doi: 10.1007/s10490-014-9396-6.

Yao, Q., Liu, J., Sheng, S. and Fang, H. (2019), "Does eco-innovation lift firm value? The contingent role of institutions in emerging markets", *Journal of Business and Industrial Marketing*, Vol. 34 No. 8, pp. 1763-1778, doi: 10.1108/JBIM-06-2018-0201.

Zhang, J.A., Wang, Z. and O'Kane, C. (2019), "Realized absorptive capacity and entrepreneurial universities' organizational change: the role of process innovation practices", *R&D Management*, Vol. 49 No. 5, pp. 716-733, doi: 10.1111/radm.12366.

Zhang, S., Wang, Z., Zhao, X. and Zhang, M. (2017), "Effects of institutional support on innovation and performance: roles of dysfunctional competition", *Industrial Management and Data Systems*, Vol. 117 No. 1, pp. 50-67, doi: 10.1108/IMDS-10-2015-0408.

Zhao, F. (2005), "Exploring the synergy between entrepreneurship and innovation", *International Journal of Entrepreneurial Behavior and Research*, Vol. 11 No. 1, pp. 25-41, doi: 10.1108/13552550510580825.

Zheng, W. and Zhang, J. (2021), "Does tax reduction spur innovation? Firm-level evidence from China", *Finance Research Letters*, Vol. 39, p. 101575, doi: 10.1016/j.frl.2020.101575.

Zhu, Y., Wittmann, X. and Peng, M. (2011), "Institution-based barriers to innovation in SMEs in China", *Asia Pacific Journal of Management*, Vol. 29 No. 4, pp. 1-12, doi: 10.1007/s10490-011-9263-7.

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